Indonesian Community Pharmacy Readiness for Facilitating Self-Care for Inbound International Travellers: A Needs Assessment

Antonius Nugraha Widhi Pratama

apt., S.Farm., M.P.H.

A thesis submitted to fulfil the requirements of the degree of

Doctor of Philosophy

The University of Sydney School of Pharmacy

Faculty of Medicine and Health

The University of Sydney

2026

Statement of Originality

This is to certify that to the best of my knowledge, the content of this thesis is my own work. This thesis has not been submitted for any degree or other purposes.

I certify that the intellectual content of this thesis is the product of my own work, and that all assistance received in preparing this thesis and all sources have been acknowledged.

apt. Antonius Nugraha Widhi Pratama, S.Farm. M.P.H.

29th December 2025

Acknowledgements

First and foremost, I would like to express my sincere gratitude to my supervisor, Associate Professor Carl Schneider, and co-supervisors, Associate Professor Brahmaputra Marjadi and Professor Rebekah Moles. Their unwavering patience, mentorship, collegiality, and support on this PhD journey have been inspirational and invaluable. I thank them for their trust and motivation, which enabled me to complete this PhD. I feel very blessed to have you all as my amazing supervisors.

I would like to thank my parents, *Bapak* Ath. Sunarno and *Ibu* C.E. Sundari, for their prayers and support, not only throughout my candidature but throughout my life. I also thank my brother's family, Nugroho, Sukma and Nanan, for sharing many stories that make my life more joyful and meaningful. There are no words that could replace my gratitude for what you have done for me.

This PhD journey would not have been possible without emotional support from my wife, Lia, and my children, Tantra and Gaby. I thank them for their smiles and patience as I have endured the ups and downs of this challenging yet fruitful academic journey. This thesis is dedicated to them. I hope this higher degree will inspire my children to dare to dream and make their dreams come true.

Thanks to 'Carl's Superstars'—I am glad to know you guys! I thank you for the chats, jokes, discussions, and academic support. A special mention to Dr Jack Collins, Dr Ardalan Mirzaei, Dr Aili Langford, Andrew Barlett, Veronika Seda, Justin Cheng, and the newest member, Gesnita Nugraheni. I hope we can still work together in the future.

I would like to thank my friends in '*Penyandang Cocot*'—Astri, Agita, Slamet, Didi, another Didi, and Jatu—you helped me settle in Sydney when my family was not around. I have no more words to express my gratitude than a super huge thank you.

I would like to thank my Indonesian friends in SPS for their sharing and support, including but not limited to Idha, Debra, Eni, Gita, and Nisa.

I would like to thank the new café community—Lakemba Boyz—for being my comfort zone and support group during the final months of my PhD, with special mention to Akbar, Mumu, Pak Murtala, Bang Aziz, Miftah, Malik, Rozin, Rifqy, and Adien. To Slamet, Hery, and Dian, thank you for the discussions on hysteresis and social capital that have led me to a new realm of thought.

I would also like to thank the International Sponsorships Team, especially Anna Kirkham, SUPRA, and the Student Wellbeing team, especially Connor Waddel. You guys are amazing for sincerely accompanying me through the hardships of my life in Sydney.

Lastly, but by no means least, I would like to thank the Indonesian Endowment Fund for Education (LPDP) Scholarship and its team. Without this scholarship, my PhD journey would not have started. I am now ready to contribute to the development of my lovely home country, Indonesia.

Table of Contents

List of Key Abbreviations

CALD	Culturally and Linguistically Diverse
CFA	Confirmatory Factor Analysis
CINAHL	Cumulative Index to Nursing and Allied Health Literature
EFA	Exploratory Factor Analysis
EMBASE	Excerpta Medical Database
ENTREQ	Enhancing Transparency in Reporting the Synthesis of Qualitative Research
GDP	Gross Domestic Product
IAI	*Ikatan Apoteker Indonesia* (Indonesian Pharmacists Association)
IPA	International Pharmaceutical Abstracts
MEDLINE	Medical Literature Analysis and Retrieval System Online
OTC	Over the counter
PCA	Principal Component Analysis
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
PROSPERO	Prospective Register of Systematic Reviews
RDT	Rapid diagnostic test
SBET	Standby Emergency Treatment
SCM	Self-Care Matrix
TTDI	Travel and Tourism Development Index
WEF	World Economic Forum
WHO	World Health Organization
WTTC	World Travel & Tourism Council

List of Tables

List of Figures

Abstract

Background: Indonesia's rapid tourism development has highlighted health as a critical yet underexplored component of the sector. Despite tourism's economic significance, Indonesia's healthcare system faces accessibility and quality challenges that may affect international travellers, who frequently experience preventable, minor illnesses that can be managed through self-care. Community pharmacies, as accessible health care providers, play a crucial role in facilitating self-care. However, their readiness to support travellers in low- and middle-income settings remains unclear. The aim of this thesis was to assess the self-care needs of international travellers during their visits to Indonesia and to determine the readiness requirements for community pharmacies to effectively respond to travellers' self-care needs.

Methods: A qualitative needs assessment was undertaken to explore these issues, incorporating meta-synthesis, interviews, framework analysis, Q-study, alongside gap analysis. Self-care needs were defined as the conditions and resources that enable individuals and communities to engage effectively in self-care. Readiness requirements were defined as gaps between the desired and current performance of Indonesian community pharmacies in facilitating self-care for international travellers.

Results: The results indicated that social engagement was essential for self-care, as travellers often experience a reduction in social capital when abroad, with this finding contributing to theory and the self-care framework. Travellers relied on multiple modalities to become well-informed before deciding between self-care and medical care. Travellers experienced disconfirmation of expectations of the local healthcare services and products. Three distinct traveller viewpoints or archetypes were determined based on self-care prioritisation: "Unfacilitated Self-Care", "Point-of-Origin Facilitated Self-Care", and "Destination-Facilitated Self-Care", which contribute to theory by broadening the self-care continuum. For

Indonesian community pharmacies, twelve readiness requirement themes were identified, which pertain primarily to the Destination-Facilitated Self-Care archetype and were mostly mapped to the system level.

Conclusions: This thesis has identified that travellers differ in their self-care needs. Three archetypes were developed based on the quantity and quality of self-care facilitation. This thesis highlights the need for practice-level policy support to strengthen the capacity of the Indonesian community pharmacy sector in facilitating self-care to meet the needs of different international travellers' archetypes.

Notes

- This thesis consists of 7 Chapters. All chapters are prefaced with a brief introduction to orient the readers of the chapter's position within the overall thesis.
- The term Q-methodology is used to refer to the methodology and Q-study to a study using the methodology, such as Chapter 5.
- Figures and tables are numbered continuously throughout the thesis.
- References are listed in each chapter.
- Appendices were labelled continuously throughout the thesis.

Authorship Attribution Statements

The authorship attribution statements below have been written using the Contributor Roles Taxonomy (CRediT) for each content chapter in this thesis.

Chapter 3: The candidate's roles were conceptualisation, data curation, formal analysis, funding acquisition, investigation, methodology, project administration, writing – original draft and writing – review and editing.

Chapter 4: The candidate's roles were conceptualisation, data curation, formal analysis, funding acquisition, investigation, methodology, project administration, writing – original draft and writing – review and editing.

Chapter 5: The candidate's roles were conceptualisation, data curation, formal analysis, funding acquisition, investigation, methodology, project administration, writing – original draft and writing – review and editing.

Chapter 6: The candidate's roles were conceptualisation, data curation, formal analysis, funding acquisition, investigation, methodology, project administration, writing – original draft and writing – review and editing.

As the lead supervisor for the candidature upon which this thesis is based, I can confirm that the authorship attribution statements above are correct.

Associate Professor Carl R Schneider

29th December 2025

Artificial Intelligence

During the preparation of this thesis, the candidate employed Microsoft Copilot and Grammarly to assist with copyediting. Generative AI was used to improve sentence structure, clarity, and grammatical consistency. The candidate confirms that where text was modified by generative AI, the content was reviewed for possible errors, inaccuracies, and bias. The candidate takes full responsibility for the submitted thesis, confirms that the work is their own, and has used generative AI in accordance with the University's guidelines and policies.

Publications and Communications

i) Original peer-reviewed publications forming chapters of this thesis

1) **Pratama ANW**, Marjadi B, Collins JC, Moles RJ, Schneider CR. Self-care needs among international migrants and travellers: A systematic review and meta-synthesis. *PLOS ONE*. 21(3): e0344437. https://doi.org/10.1371/journal.pone.0344437. (Chapter 3)
2) **Pratama ANW**, Marjadi B, Moles RJ, Schneider CR. International travellers' information behaviour for self-care in Indonesia: A deductive framework analysis. *Research in Social and Administrative Pharmacy*. Under review for publication. (Chapter 4)
3) **Pratama ANW**, Marjadi B, Moles RJ, Schneider CR. Indonesian community pharmacies' readiness to facilitate international travellers' self-care needs: A qualitative needs assessment. *Research in Social and Administrative Pharmacy*. Submitted for publication. (Chapter 6)

ii) Peer-reviewed conference proceedings

1) **Pratama ANW**. Exploring the subjective views on self-care needs among international travellers visiting Indonesia: a Q-methodology study. Oral presentation. *Pharmacy HDR Conference 2022*. The University of Sydney School of Pharmacy. Sydney, Australia. September 2022.
2) **Pratama ANW**, Collins JC, Marjadi B, Moles RJ, Schneider CR. Identifying self-care needs among international travellers and transient migrants: A meta-synthesis. Poster presentation. *International Pharmaceutical Federation World Congress 2023*. Brisbane, Australia. September 2023.
3) **Pratama ANW**, Collins JC, Mirzaei A, Marjadi B, Moles RJ, Schneider CR. Exploring the use of machine learning to categorise online forum posts relating to self-medication by

international travellers. Oral presentation. *International Pharmaceutical Federation World Congress 2023*. Brisbane, Australia. September 2023.

4) **Pratama ANW**, Marjadi B, Moles RJ, Schneider CR. Traveller's self-care information-seeking behaviour and communication in Indonesia: A content analysis. Oral presentation. *The 14th Asia Pacific Travel Health Conference*. Kathmandu, Nepal. September 2024.
5) **Pratama ANW**, Marjadi B, Moles RJ, Schneider CR. E-poster presentation. Self-care priorities of international travellers visiting Indonesia: Development of a Q-Set. *International Pharmaceutical Federation Pharmacy Practice Research Special Interest Group 2024 Virtual Meeting.* June 2024.
6) **Pratama ANW**, Marjadi B, Moles RJ, Schneider CR. Needs assessment of self-care facilitation by Indonesian community pharmacies for international travellers. *ASCEPT-APFP-APSA Joint Congress 2024*. Melbourne, Australia. December 2024.
7) **Pratama ANW**, Collins JC, Marjadi B, Seda V, Mirzaei A, Moles RJ, Schneider CR. International travellers' views on self-care when visiting Indonesia: A Q-methodology study. Poster presentation. *Pharmaceutical Society of Australia PSA25*. Sydney, Australia. August 2025.
8) **Pratama ANW**, Marjadi B, Moles RJ, Schneider CR. Indonesian community pharmacies' self-care facilitation for international travellers: A needs assessment. Poster presentation. *Australasian Pharmaceutical Science Association Conference 2025*. Adelaide, Australia. December 2025.

iii) Other peer-reviewed publications

The following publications were published during the PhD candidature, but do not present findings from the research in this thesis.

1) Marjadi B, Alfian R, Susanto Y, Tjandra L, **Pratama ANW**, Schneider C. Pharmacists' continuing professional development for non-communicable diseases management: A consensus study. Research in Social and Administrative Pharmacy. 18 (11). 3964-3973. DOI: 10.1016/j.sapharm.2022.07.002
2) Wang J, Schneider CR, Langford AV, Sawan M, Lin CWC, **Pratama ANW**, Gnjidic D. Implementability of opioid deprescribing interventions at transitions of care: A scoping review. *British Journal of Clinical Pharmacology*. 91 (3). 698-728. DOI: 10.1111/bcp.16369

iv) Other peer-reviewed conference proceedings

The following conference proceedings were published during the PhD candidature, but do not present findings from the research in this thesis.

1) **Pratama ANW**, Lucida H, Nastiti CMRR, Wibowo HR. A survey on knowledge, attitude and practice of household medicine storage and disposal in three cities of Indonesia. *Research in Social and Administrative Pharmacy*. 19 (7). e1073. DOI: 10.1016/j.sapharm.2023.04.003. International Social Pharmacy Workshop 2022. Sydney, Australia. April 2022.

Scholarly Awards and Prizes

The following scholarly awards and prizes were awarded during the candidature period.

- Indonesia Endowment Fund for Education (*Lembaga Pengelola Dana Pendidikan*, LPDP) Scholarship (2022 – 2026)
- Sydney International Student Award (2022 – 2025)
- Postgraduate Research Support Scheme (PRSS), The University of Sydney (2023 – 2025)
- Travel Grants, Australasian Pharmaceutical Science Association (APSA) (2023 – 2025)
- People's Choice Prize, the 2022 Matilda Viz data visualisation competition (2022)

Chapter 1. Introduction

Chapter 1 provides a general background for readers on the topics of this thesis and orients them to the gaps that inform the thesis's aim and objectives. It presents an overview of tourism development in Indonesia, highlighting health as a key supporting aspect of the tourism industry. It also presents an overview of the Indonesian healthcare system, the epidemiology of travel-related illnesses, and the roles of community pharmacies in self-care. Methods and a systematic review of the literature are covered in Chapters 2 and 3, respectively. This chapter concludes with the thesis outline.

1.1 Indonesia's Tourism Development at a Glance: Bali and Beyond

As a multicultural archipelagic country comprising more than 17,000 islands, Indonesia offers international travellers its beautiful natural landscapes and rich cultural heritage. Bali, often referred to as the "paradise island" (Hitchcock & Putra, 2007), is the country's most popular international tourist destination. Bali has a long history as an international tourist attraction, with its introduction to international audiences traceable back to the early 20th century during the Dutch colonial era (Hitchcock & Putra, 2007). Bali's main economy is driven by the growth of tourism amidst the decline of the agricultural sector (Dolezal & Novelli, 2020; Hitchcock & Putra, 2007). Most forms of business in Bali are pertinent to travel and tourism. Hitherto, the province has been Indonesia's major contributor to Gross Domestic Product (GDP) from the travel and tourism sector (Antara & Sumarniasih, 2017).

The travel and tourism sector has been considered important in Indonesia, but not until 2014 did the Indonesian government decide to place this sector as a new pillar for the country's economic strategy (Ollivaud & Haxton, 2019; Tjiptono et al., 2022; Westoby et al., 2021). In 2015, the government started a long-term mega-project, entitled "10 New Balis", aiming to distribute tourism development outside Bali and employ it as a driver to achieve rapid and more inclusive economic growth (Ollivaud & Haxton, 2019; Westoby et al., 2021). The "10 New Balis" and their Provinces are Borobudur (Central Java), Labuan Bajo (East Nusa Tenggara), Mandalika (West Nusa Tenggara), Lake Toba (North Sumatra), Mount Bromo (East Java), Kepulauan Seribu (Jakarta Special Capital Region), Wakatobi National Park (Southeast Sulawesi), Tanjung Lesung (Banten), Morotai (North Maluku), and Tanjung Kelayang (Bangka Belitung Archipelago) (Cabinet Secretary of Republic of Indonesia, 2016; Ollivaud & Haxton, 2019). This project targeted Indonesian Rupiah (IDR) 161 trillion in public and private investments (Government of

Indonesia, 2020). In 2019, the government decided to narrow the focus of development to five destinations: Borobudur, Labuan Bajo, Mandalika, Lake Toba, and Likupang (North Sulawesi Province), collectively referred to as the "Five Superpriority Destinations" (Ministry of Tourism and Creative Economy, 2021; Mutiah, 2019; Utari et al., 2024).

Statistical data have shown Indonesia's remarkable progress in developing the travel and tourism sector. In 2017, international tourist arrivals reached 14 million, contributing to the country's foreign exchange earnings of approximately IDR 202 trillion, seconding the palm oil industry and surpassing the oil and gas industry (Indonesia Investments, 2019; Tjiptono et al., 2022). In 2019, the sector was estimated to contribute 5.6% to Indonesia's total GDP (World Travel & Tourism Council, 2020), a figure projected to increase slightly to 5.7% by 2033 (World Travel & Tourism Council, 2023). Prior to the COVID-19 pandemic, Indonesia's global ranking in travel and tourism improved from 70th in 2013 to 40th in 2019 (World Economic Forum, 2013, 2019). Following the COVID-19 pandemic, the rank climbed to 22nd in 2024, showing the greatest improvement in South-East Asia (World Economic Forum, 2024). This strong recovery from the pandemic resulted in a 7.7% increase in the sector's contribution to the Indonesian economy in 2024, compared to the 2019 peak (World Travel & Tourism Council, 2024). International tourist arrivals in July 2024, which exceeded 1.3 million, were only 11% lower than in July 2019 (Statistics Indonesia, 2024). The top five inbound visitors by country had remained stable since 2017, with data in 2024 showing tourists coming from Malaysia (16.4%), Australia (12.0%), Singapore (10.1%), China (8.6%) and Timor-Leste (5.6%) (Statistics Indonesia, 2024).

1.2 The Importance of Health in the Travel and Tourism Sector

Health is a crucial domain supporting the travel and tourism sector. At the system level, the World Economic Forum's (WEF) Travel and Tourism Development Index (TTDI) accounts for health

and hygiene as a pillar of the enabling environment for travel and tourism (World Economic Forum, 2024). This pillar comprises five indicators: physician density, use of basic sanitation, use of basic drinking water, hospital beds, and communicable disease incidence (World Economic Forum, 2024). Conceptually, interactions between tourism and health can be observed through the lens of the social determinants of health (Derrien et al., 2019). These interactions can be observed in various settings, including contacts with nature, built and community environments, mental health and functioning, health risks and access to healthcare, employment, and ecosystem health (Derrien et al., 2019). Moreover, the travel and tourism sector is influenced by the dynamics of infectious diseases. For example, international travel was halted to prevent the spread of the COVID-19 virus, resulting in plummeting visitor numbers and revenue (Duro et al., 2021; Flaherty et al., 2022; Utari et al., 2024).

1.3 Overview of the Indonesian Healthcare System in the Context of Tourism Development

The remarkable progress of the travel and tourism sector in Indonesia necessitates a supportive and responsive healthcare system. However, international travellers to Indonesia may face uneven access to healthcare, as services are concentrated in urban centres (Claramita et al., 2017; Weiss et al., 2018). Reaching a hospital or clinic can require travel time ranging from an hour to a full day in most parts of Indonesia, except in the major cities on the islands of Java, Madura, Bali, and Lombok (Weiss et al., 2018). It is notable that only two of the Five Superpriority Destinations are located in these better-provisioned areas. While the government has developed road infrastructure to reduce travel time, these efforts remain uneven across different regions (Susilo et al., 2025). These access challenges reflect broader systemic constraints within Indonesia's healthcare system, including persistent endemicity of infectious diseases (Tan et al., 2014), poor availability of health services (Claramita et al., 2017; Mahendradhata et al., 2017), inadequate equipment and physical

facilities (Istiono et al., 2015), a lower density of physicians than the global average (2.9 *vs* 16 per 10,000) (Claramita et al., 2017), lower service quality (Handayani et al., 2015) and trust issues in the providers (Mahendradhata, 2019). Given these constraints, community pharmacies present an opportunity to improve healthcare accessibility for travellers. By facilitating self-care, offering basic health services, and providing triage and referral, pharmacies can help bridge gaps in the current healthcare system, particularly in areas where other healthcare facilities are scarce (Amador-Fernandez et al., 2022; Amador-Fernandez et al., 2024; Rutter & Barnes, 2024).

1.4 Epidemiology of Travel-Related Illness

Illnesses during travel are common, with travellers' diarrhoea being the most frequently reported condition (Angelo et al., 2017; Lovey et al., 2024; Piyaphanee et al., 2023; Potin et al., 2023), likely due to poor hygiene and the consumption of spicy foods (Connor & Leung, 2025; Institute for Quality and Efficiency in Health Care, 2006). The incidence of travel-related illness varied between studies due to methodological heterogeneity, including differences in data collection approach (medical record, diaries, or questionnaires), case definitions, recruitment setting (enrollment at pre-travel consultations or random digit dialling sampling), and follow-up duration, which can introduce recall bias or miss illnesses with long incubation periods (Angelo et al., 2017). Contextual variation also contributes, including destination, trip duration, seasonality, and outbreaks, which can shift exposure risk and reporting (Angelo et al., 2017). Before the COVID-19 pandemic, a broad estimate of 43-79% of travellers to developing countries, such as Indonesia, reported ill health (Angelo et al., 2017). Gastrointestinal symptoms other than diarrhoea were also frequently reported, including nausea, vomiting, constipation, and abdominal cramps (Angelo et al., 2017). More recent estimates found that gastrointestinal symptoms remained the most frequent travel-related illness, accounting for the largest incidence rate (IR) of 66 per 1000 completed

surveys (Lovey et al., 2024). Respiratory symptoms (IR 58) were the second-highest, including symptoms such as a runny nose, cough, and sore throat (Lovey et al., 2024). The highest IR was for diarrhoea among travellers visiting Asia (90) (Lovey et al., 2024), supporting the notorious notion of 'the riskiest resort' (Angelo et al., 2017). Injuries were estimated to occur in 3% of travellers (Piyaphanee et al., 2023). A review reported an estimate of deaths in 1 in 100,000 travellers, with 60% caused by diseases (<3% linked to infectious diseases) and 40% by trauma (Potin et al., 2023). Deaths due to injuries among travellers occurred at relative rates ranging from 1.04 to 16.7, largely as a result of road traffic accidents, drowning, and homicides (Wyler et al., 2022). These first two causes suggest that some deaths are preventable (Wyler et al., 2022).

1.5 Self-Care among International Travellers

The epidemiological estimates above suggest that the majority of travel-related illnesses are preventable and/or minor, which can be managed using self-care. Self-care is a broad concept encompassing various actions, from keeping nails clean to self-medicating for a fever using over-the-counter antipyretics and self-managing existing (chronic) illnesses. Self-care encompasses a range of interchangeable terms, including 'self-management', 'self-efficacy', 'self-treatment', 'collaborative care', 'self-monitoring', and 'self-help' (El-Osta et al., 2019; Martinez et al., 2021; Riegel et al., 2021). This thesis adopts the World Health Organization's (WHO) definition of self-care. WHO defines self-care as "the ability of individuals, families and communities to promote health, prevent disease, and maintain health and to cope with illness and disability with or without the support of a health-care provider" (WHO Regional Office for South-East Asia, 2009). This definition of self-care remains a key component of the current WHO self-care intervention agenda (World Health Organization, 2021). According to this definition, self-care encompasses activities supported by a healthcare provider, including pharmacists. This definition also explicitly indicates

that self-care is not only about treating or managing an illness, but also about preventing it. Applied to travel, self-care encompasses pre-travel preparation (e.g., vaccinations, risk assessment, tailored advice), during-travel behaviours (e.g., risk avoidance and timely management of minor ailments and chronic conditions), and post-travel follow-up when required (Marchand et al., 2017; Piyaphanee et al., 2023; Potin et al., 2023; Wyler et al., 2022).

Self-care is a multidimensional concept that spans from individual to environmental levels. El-Osta et al. (2019) constructed the Self-Care Matrix by identifying four interconnected dimensions of self-care—Self-Care Activities, Self-Care Behaviours, Self-Care Context, and Self-Care Environment—from 32 self-care theories, frameworks, and models. Each dimension highlights distinct aspects, ranging from individual actions to a broader fiscal and policy environment (El-Osta et al., 2019). Therefore, each dimension is associated with specific self-care needs. These needs can be understood as conditions and resources that enable individuals and communities to effectively engage in self-care. Examples of these self-care needs include access to accurate health information, quality medicines, affordable healthcare services, and facilities that are easily accessible. Nevertheless, the Self-Care Matrix was developed based on knowledge relevant to people in familiar settings, highlighting the need to examine its applicability to individuals in unfamiliar environments, such as during travel.

Self-care should be performed throughout the stages of travel. However, variations in self-care practices are expected, suggesting that self-care is a subjective phenomenon, and travellers have their own priorities in practising self-care. Self-care before travel can be performed by seeking pre-travel vaccinations and consultations, which are the cornerstone of travel health practices (Piyaphanee et al., 2023; Potin et al., 2023). Pre-travel consultations include preventive measures and materials (Marchand et al., 2017; Potin et al., 2023). However, studies showed the low uptake

of this pre-travel service (Chien et al., 2017; El-Ghitany et al., 2018; Hamer & Connor, 2004; Thomson et al., 2016; Van Herck et al., 2004; Wilder-Smith et al., 2004). Even those who sought pre-travel consultation did not necessarily comply with the advice (Angelin et al., 2014). The main reason for lower uptake and adherence was that travellers perceived low risks of infection while travelling (Kain et al., 2019). Travellers can also prepare for their trip by self-studying online travel health information (El-Ghitany et al., 2018; Larocque et al., 2010; Noble et al., 2012; Thomson et al., 2016) and participating in online discussion forums related to travel. However, these resources may not cover all contingencies that can arise during travel, such as the current infectious disease outbreak, which can be provided by the destination authorities. In Indonesia, researchers mapped and geo-tagged potential health hazards and risks in tourist destinations and travel health facilities (Wirawan et al., 2021; Wirawan et al., 2020).

During travel, self-care can be achieved through various actions, including applying insect repellent and avoiding binge drinking to prevent road traffic accidents (Potin et al., 2023; Wyler et al., 2022). However, studies found that travellers can be unaware of health-related problems, as assessed through their health-related risk perception (El-Ghitany et al., 2018; Hiranrusme et al., 2020) or knowledge (Thomson et al., 2016). Previous studies reported self-medication among travellers (Ahlm et al., 1994; Gravningen et al., 2020; Hill, 2000; Utzinger et al., 2020), as minor ailments dominate travel-related diseases. Self-medication can be considered the most frequent form of self-care (Collins et al., 2020; Collins et al., 2018; Rutter, 2015; WHO Regional Office for South-East Asia, 2009). Self-medication is a feasible and acceptable option for travellers who report concern about the time impost of being affected by illness during travel (Vajta et al., 2015). Some travellers are ready to self-medicate if they have the medication and know how to use it. For certain conditions, such as malaria, ready-to-use rapid diagnostic tests (RDTs) and standby

emergency treatment (SBET) are available (Utzinger et al., 2020). However, misuse can occur (Shahinas et al., 2010; Vilkman et al., 2019). Additionally, the misuse of stand-by antibiotics has become a concern, as it can hinder global efforts to slow the spread of antimicrobial resistance (Belderok et al., 2011; Connor & Keystone, 2015; Riddle et al., 2018; Vilkman et al., 2019). Following return, or post-travel, many international travellers experience mild or self-limiting symptoms that are commonly managed through self-care practices, including symptom monitoring, self-treatment, and delayed help-seeking, with formal healthcare accessed only when symptoms persist or worsen (Rathjen & Shahbodaghi, 2023; Vilkman et al., 2016).

1.6 Rationale for Focusing on Self-Care During Travel

Travel health research typically focuses on pre-travel assessments and preparations, and on post-travel illness evaluation, with limited attention to health management during travel itself in destination settings (Mills et al., 2021). This creates an important evidence gap, as many health problems experienced by international travellers arise and are managed while they are in destination countries, outside pre- or post-travel clinical encounters (Piyaphanee et al., 2023; Vilkman et al., 2016). Moreover, self-care during travel is particularly complex because it is inherently context-dependent, requiring an enabling environment that includes familiarity with the healthcare system, access to trusted services and products, and social and informational resources, all of which are recognised as fundamental within WHO's self-care framework (World Health Organization, 2021). Because self-care is embedded within specific healthcare systems and sociocultural environments, international travel may disrupt the usual conditions that enable effective self-care. Furthermore, travel-health and behaviour studies increasingly acknowledge discrepancies between planned behaviour (pre-travel) and actual behaviour (during travel), underscoring the need for in-situ research (Wong et al., 2022). Studying travellers while they are

in destination allows capture of health behaviours and decision-making as they unfold, rather than relying on retrospective reconstruction after return.

1.7 The Role of Community Pharmacies in Self-Care

Almost 60% of travellers were concerned about accessing healthcare in the destinations (Flaherty et al., 2017). Moreover, travellers did not always have a travel budget for unexpected health-related problems (El-Ghitany et al., 2018). Community pharmacies are often the first point of contact because they provide free consultations and can facilitate the selection of over-the-counter (OTC) medications (Collins et al., 2020; Houle et al., 2018; Rutter, 2015; Vajta et al., 2015), a process known as self-care facilitation (Rutter & Barnes, 2024). In countries such as Indonesia, non-community pharmacy retailers (e.g. convenience stores) can sell OTC products; however, their staff are not as well-equipped with product knowledge and skills as community pharmacy staff. Community pharmacy staff can also provide information about the instructions for use, which are typically written in the local language. However, cultural differences, communication barriers, and language limitations can hinder interactions between staff and international customers. Studies among community pharmacies serving people with culturally and linguistically diverse (CALD) backgrounds consistently demonstrate the need for educational support in cultural awareness and competence among their staff (Alzayer et al., 2021; Filmer et al., 2023; Mohammad et al., 2021; Suzuki et al., 2025). Those studies focused on migrants in high-income countries; therefore, results may differ for international travellers visiting low- and middle-income countries, as community pharmacy staff may require more than just educational support to develop their readiness.

In Indonesia, pharmacists, locally known as *apoteker*, undergo formal professional training (a four-year Bachelor of Pharmacy programme, followed by a one-year professional pharmacist programme) and credentialing before practice (Andayani & Satibi, 2016; Cokro et al., 2021;

Marjadi et al., 2022). From a service-delivery standpoint, the national standard for pharmacy services includes the management of pharmaceuticals, health devices, and other medical products, as well as the delivery of clinical pharmacy services, including prescription assessment, dispensing, medicine information services, counselling, home pharmacy care, therapy monitoring, and adverse drug reaction monitoring (Government of Indonesia, 2009). These standards position Indonesian pharmacists strategically to support travellers by providing counselling, medication information, triage or referral, and issuing refills of medications dispensed abroad. However, advanced pharmacy services, such as vaccine administration, have not yet evolved in Indonesia, with a lack of regulation and training reported as major barriers (Government of Indonesia, 2009; Nurfirda et al., 2021; Shen & Peterson, 2020). This scope and its constraints provide the practical context for considering how travel health pharmacy services might be translated into Indonesian destination settings.

Self-care facilitation by community pharmacies for international travellers can be delivered through travel health pharmacy services. Community pharmacies in high-income countries, such as Australia (Heslop et al., 2018), Canada (Thidrickson, 2019), and the US (Durham et al., 2011), have provided travel health services primarily focusing on pre-travel preparation, including vaccinations, risk assessments, and travel health advice (Bhuvan et al., 2023; Kadir et al., 2023). However, reports on services for travellers during travel remain limited in the literature, especially from destinations in low- and middle-income countries. Evidence from Malaysia shows that inbound international travellers visited the local community pharmacies for blood pressure and blood glucose measurements, advice on minor ailments, recommendations for supplements and medical devices, as well as self-management of wound care and minor injuries (Bhuvan et al., 2020). While community pharmacy staff expressed positive attitudes towards travel health service

provisions, they reported needing additional training to enhance their knowledge and confidence (Bhuvan et al., 2020). These findings suggest that further requirements, such as training, resources, and policies, must be identified to enhance the readiness of community pharmacies in low- and middle-income countries to provide self-care facilitation for international travellers during travel. Notably, the study by Bhuvan and colleagues focused solely on community pharmacies (Bhuvan et al., 2020), excluding perspectives from stakeholders, such as academics, policymakers, and tourism operators. Addressing these gaps requires a comprehensive study involving diverse stakeholders to inform policy and practice. Despite Indonesia's strategic investment in tourism and the importance of self-care in managing common travel-related conditions, there is limited evidence on i) the specific self-care needs of international travellers while in Indonesia, and ii) the readiness requirements for Indonesian community pharmacies to respond. Addressing these gaps will inform practical, scalable approaches to facilitating traveller self-care.

1.8 Aim and Objectives

The aim of this thesis is to assess international travellers' self-care needs during travel to Indonesia and to determine the readiness requirements for Indonesian community pharmacies to respond to those needs. The following objectives are derived:

1. To assess self-care needs among international travellers to Indonesia
    a. To review the literature to identify self-care needs among international, voluntary, temporary migrants and travellers
    b. To describe self-care information-seeking and communication behaviour by international travellers in Indonesia
    c. To explore international travellers' perspectives on prioritisation of self-care needs in Indonesia
2. To determine the readiness requirements of community pharmacies in Indonesia to facilitate the self-care needs of international travellers.

1.9 Rationale for Involving the Migrant Population in The Review

The literature review includes research on the international migrant population for conceptual and empirical reasons. Firstly, the International Organization for Migration (IOM) notes that there is no universally accepted definition of migrant and traveller, and that contemporary forms of international mobility increasingly blur distinctions between migration and travel, particularly for temporary and voluntary movers (Sironi et al., 2019). Groups such as 'working holiday visa' holders and 'digital nomads' engage in international mobility that combines elements of travel and labour, often involving transiency and temporary residency rather than permanent settlement (Cohen et al., 2013). Secondly, despite differing purposes of mobility, many temporary international migrants share similar situations with travellers, i.e., being in an unfamiliar environment and healthcare system, which shape their self-care practices while overseas (Sironi et al., 2019; World Tourism Organization, 2010). Accordingly, in the literature review, travellers and migrants are treated as a single conceptual population, with analytical emphasis placed on their shared self-care needs rather than on legal and administrative distinctions.

1.10 Overview of Thesis

This thesis comprises seven chapters:

1. Chapter 1 introduces the topics, providing the background and rationale and sets the aim and objectives.
2. Chapter 2 describes the researcher's background and methods used in this thesis.
3. Chapter 3 presents a meta-synthesis of self-care needs among international migrants and travellers.
4. Chapter 4 examines information-seeking and communication regarding self-care among travellers to Indonesia.
5. Chapter 5 explores travellers' perspectives on the importance of self-care during travel to Indonesia.

6. Chapter 6 identifies readiness requirements for Indonesian community pharmacies based on international travellers' self-care needs
7. Chapter 7 discusses key findings, implications for practice, conclusions and directions for future research.

1.11 Reference

Ahlm, C., Lundberg, S., Fessé, K., & Wiström, J. (1994). Health Problems and Self-Medication among Swedish Travellers. *Scandinavian Journal of Infectious Diseases*, *26*(6), 711-717. https://doi.org/10.3109/00365549409008640

Alzayer, R., Svedin, E., Rizvi, S. A., Basheti, I., Chaar, B., & Saini, B. (2021). Pharmacists' Experience of Asthma Management in Culturally and Linguistically Diverse (Cald) Patients. *Research in Social and Administrative Pharmacy*, *17*(2), 315-325. https://doi.org/10.1016/j.sapharm.2020.04.009

Amador-Fernandez, N., Benrimoj, S. I., Olry de Labry Lima, A., Garcia-Cardenas, V., Gastelurrutia, M. A., Berger, J., Baixauli-Fernandez, V. J., Climent-Catala, M. T., Colomer-Molina, V., & Martinez-Martinez, F. (2022). Strengthening Patients' Triage in Community Pharmacies: A Cluster Randomised Controlled Trial to Evaluate the Clinical Impact of a Minor Ailment Service. *PLOS ONE*, *17*(10), e0275252. https://doi.org/10.1371/journal.pone.0275252

Amador-Fernandez, N., Desselle, S., Garcia-Cardenas, V., Dineen-Griffin, S., & Benrimoj, S. I. (2024). Community Pharmacy and Selfcare Provision: An International Perspective. *Exploratory Research in Clinical and Social Pharmacy*, *16*, 100466. https://doi.org/10.1016/j.rcsop.2024.100466

Andayani, T. M., & Satibi, S. (2016). Pharmacy Practice in Indonesia. In A. I. Fathelrahman, M. I. M. Ibrahim, & A. I. Wertheimer (Eds.), *Pharmacy Practice in Developing Countries* (pp. 41-56). Academic Press. https://doi.org/https://doi.org/10.1016/B978-0-12-801714-2.00003-4

Angelin, M., Evengård, B., & Palmgren, H. (2014). Travel Health Advice: Benefits, Compliance, and Outcome. *Scandinavian Journal of Infectious Diseases*, *46*(6), 447-453. https://doi.org/10.3109/00365548.2014.896030

Angelo, K. M., Kozarsky, P. E., Ryan, E. T., Chen, L. H., & Sotir, M. J. (2017). What Proportion of International Travellers Acquire a Travel-Related Illness? A Review of the Literature. *Journal of Travel Medicine*, *24*(5). https://doi.org/10.1093/jtm/tax046

Antara, M., & Sumarniasih, M. S. (2017). Role of Tourism in Economy of Bali and Indonesia. *Journal of Tourism and Hospitality Management*, *5*(2). https://doi.org/10.15640/jthm.v5n2a4

Belderok, S.-M., van den Hoek, A., Kint, J. A., van der Loeff, M. F. S., & Sonder, G. J. B. (2011). Incidence, Risk Factors and Treatment of Diarrhoea among Dutch Travellers: Reasons Not to Routinely Prescribe Antibiotics. *BMC Infectious Diseases*, *11*(1), 295-295. https://doi.org/10.1186/1471-2334-11-295

Bhuvan, K. C., Alrasheedy, A. A., Leggat, P. A., Mohamed Ibrahim, M. I., Christopher, C. M., Sapkota, B., & Shrestha, S. (2023). Types and Outcomes of Pharmacist-Managed Travel Health Services: A Systematic Review. *Travel Medicine and Infectious Disease*, *51*, 102494. https://doi.org/10.1016/j.tmaid.2022.102494

Bhuvan, K. C., Khan, T. M., Xuan, W. Y., Alrasheedy, A. A., Mohamed Ibrahim, M. I., & Leggat, P. A. (2020). Travel Health-Related Activities and Services Provided by Community Pharmacies in Selangor, Malaysia: A Cross-Sectional Analysis. *Travel Medicine and Infectious Disease*, *33*, 101463-101463. https://doi.org/10.1016/j.tmaid.2019.07.019

Cabinet Secretary of Republic of Indonesia. (2016). *Menteri Pariwisata: Pembangunan 10 Destinasi Baru Untuk Ciptakan 10 Bali Baru*. Cabinet Secretary of Republic of Indonesia. Retrieved 24 October from https://setkab.go.id/menteri-pariwisata-pembangunan-10-destinasi-baru-untuk-ciptakan-10-bali-baru/

Chien, P. M., Sharifpour, M., Ritchie, B. W., & Watson, B. (2017). Travelers' Health Risk Perceptions and Protective Behavior: A Psychological Approach. *Journal of Travel Research*, *56*(6), 744-759. https://doi.org/10.1177/0047287516665479

Claramita, M., Syah, N. A., Ekawati, F. M., Hilman, O., & Kusnanto, H. (2017). *Primary Health Care Systems (Primasys): Comprehensive Case Study from Indonesia*. World Health Organization. https://wkc.who.int/resources/publications/i/item/primasys-comprehensive-case-study-from-indonesia

Cohen, S. A., Duncan, T., & Thulemark, M. (2013). Lifestyle Mobilities: The Crossroads of Travel, Leisure and Migration. *Mobilities*, *10*(1), 155-172. https://doi.org/10.1080/17450101.2013.826481

Cokro, F., Atmanda, P. F. K., Sagala, R. J., Arrang, S. T., Notario, D., Rukmini, E., & Aparasu, R. (2021). Pharmacy Education in Indonesia. *Pharmacy Education*, *21*, p. 432-442. https://doi.org/10.46542/pe.2021.211.432442

Collins, J. C., Schneider, C. R., El-Den, S., & Moles, R. J. (2020). Self-Care-Seeking Behaviors in the Community Pharmacy: A Cross-Sectional Exit Survey of Australian Consumers. *Journal of the American Pharmacists Association*, *60*(6), 827-834. https://doi.org/10.1016/j.japh.2020.04.019

Collins, J. C., Schneider, C. R., Wilson, F., de Almeida Neto, A. C., & Moles, R. J. (2018). Community Pharmacy Modifications to Non-Prescription Medication Requests: A Simulated Patient Study. *Research in Social and Administrative Pharmacy*, *14*(5), 427-433. https://doi.org/10.1016/j.sapharm.2017.05.007

Connor, B. A., & Keystone, J. S. (2015). Antibiotic Self-Treatment of Travelers' Diarrhea: Helpful or Harmful? *Clinical Infectious Diseases*, *60*(6), 847-848. https://doi.org/10.1093/cid/ciu961

Connor, B. A., & Leung, D. T. (2025). Travelers' Diarrhea. In E. S. Halsey, K. M. Angelo, E. D. Barnett, L. H. Chen, C. Coyle, C. D. Ericsson, D. O. Freedman, S. M. Ostroff, K. Petersen, E. T. Ryan, M. Weinberg, S. Arshanapally, & M. C. Glynn (Eds.), *CDC Yellow Book, 2026 edition: Health Information for International Travel*. Centers for Disease Control and Prevention (US). https://www.cdc.gov/yellow-book/hcp/preparing-international-travelers/travelers-diarrhea.html

Derrien, M. M., Cerveny, L. K., & Wolf, K. L. (2019). The Human Health Dimensions of Sustainable Tourism. In *A research agenda for sustainable tourism* (pp. 140-158). Edward Elgar Publishing.

Dolezal, C., & Novelli, M. (2020). Power in Community-Based Tourism: Empowerment and Partnership in Bali. *Journal of Sustainable Tourism*, *30*(10), 2352-2370. https://doi.org/10.1080/09669582.2020.1838527

Durham, M. J., Goad, J. A., Neinstein, L. S., & Lou, M. (2011). A Comparison of Pharmacist Travel-Health Specialists' Versus Primary Care Providers' Recommendations for Travel-Related Medications, Vaccinations, and Patient Compliance in a College Health Setting. *Journal of Travel Medicine*, *18*(1), 20-25. https://doi.org/10.1111/j.1708-8305.2010.00470.x

Duro, J. A., Perez-Laborda, A., Turrion-Prats, J., & Fernandez-Fernandez, M. (2021). Covid-19 and Tourism Vulnerability. *Tourism Management Perspective*, *38*, 100819. https://doi.org/10.1016/j.tmp.2021.100819

El-Ghitany, E. M., Mohamed Abdelmohsen, M. A., Farghaly, A. G., Abd El-Gawwad, E. S., & Abd El-Wahab, E. W. (2018). Travel Health Survey: Risk Perception, Health-Seeking Behavior, and Subjective Evaluation of Travel Health Services in Egypt. *International Journal of Travel Medicine and Global Health*, *6*(1), 16-24. https://doi.org/10.15171/ijtmgh.2018.04

El-Osta, A., Webber, D., Gnani, S., Banarsee, R., Mummery, D., Majeed, A., & Smith, P. (2019). The Self-Care Matrix: A Unifying Framework for Self-Care. *SelfCare*, *10*(3), 38-56. https://selfcarejournal.com/article/the-self-care-matrix-a-unifying-framework-for-self-care/

Filmer, T. R., Ray, R. A., & Glass, B. D. (2023). How Can We Help You? A Qualitative Study of the Provision of Care to Culturally and Linguistically Diverse Clients in Community Pharmacy. *International Journal of Pharmacy Practice*, *31*(6), 601-607. https://doi.org/10.1093/ijpp/riad064

Flaherty, G. T., Chen, B., & Avalos, G. (2017). Individual Traveller Health Priorities and the Pre-Travel Health Consultation. *Journal of Travel Medicine*, *24*(6), 1-4. https://doi.org/10.1093/jtm/tax059

Flaherty, G. T., Hamer, D. H., & Chen, L. H. (2022). Travel in the Time of Covid: A Review of International Travel Health in a Global Pandemic. *Current Infectious Disease Reports*, *24*(10), 129-145. https://doi.org/10.1007/s11908-022-00784-3

Government of Indonesia. (2009). *[Pharmaceutical Practice]*. Jakarta: Government of Indonesia, Retrieved from https://peraturan.bpk.go.id/Details/4975/pp-no-51-tahun-2009

Government of Indonesia. (2020). *Rencana Pembangunan Jangka Menengah Nasional Tahun 2020-2024*. Jakarta: President of the Republic of Indonesia Retrieved from https://peraturan.bpk.go.id/Home/Details/131386/perpres-no-18-tahun-2020

Gravningen, K., Field, N., Blix, H. S., Asfeldt, A. M., & Smabrekke, L. (2020). Non-Prescription Purchase of Antibiotics During Travel Abroad among a General Adult Population in Norway: Findings from the Seventh Tromso Study. *PLOS ONE*, *15*(2), e0228792. https://doi.org/10.1371/journal.pone.0228792

Hamer, D. H., & Connor, B. A. (2004). Travel Health Knowledge, Attitudes and Practices among United States Travelers. *Journal of Travel Medicine*, *11*(1), 23-26. https://doi.org/10.2310/7060.2004.13577

Handayani, P. W., Hidayanto, A. N., Sandhyaduhita, P. I., Kasiyah, & Ayuningtyas, D. (2015). Strategic Hospital Services Quality Analysis in Indonesia. *Expert Systems with Applications*, *42*(6), 3067-3078. https://doi.org/10.1016/j.eswa.2014.11.065

Heslop, I. M., Speare, R., Bellingan, M., & Glass, B. D. (2018). Australian Pharmacists' Perceptions and Practices in Travel Health. *Pharmacy (Basel)*, *6*(3). https://doi.org/10.3390/pharmacy6030090

Hill, D. R. (2000). Occurrence and Self-Treatment of Diarrhea in a Large Cohort of Americans Traveling to Developing Countries. *American Journal of Tropical Medicine and Hygiene*, *62*(5), 585–589. https://doi.org/10.4269/ajtmh.2000.62.585

Hiranrusme, T., Piyaphanee, W., Kaewkungwal, J., Silachamroon, U., Leowattana, W., Chatapat, L., & Matsee, W. (2020). Risk Perception of Health Problems among Travelers Visiting a Travel Clinic in Bangkok, Thailand. *Tropical Diseases, Travel Medicine and Vaccines*, *6*(1), 7-7. https://doi.org/10.1186/s40794-020-00108-0

Hitchcock, M., & Putra, I. N. D. (2007). *Tourism, Development and Terrorism in Bali*. Routledge. https://www.routledge.com/Tourism-Development-and-Terrorism-in-Bali/Hitchcock/p/book/9781138358478

Houle, S. K. D., Bascom, C. S., & Rosenthal, M. M. (2018). Clinical Outcomes and Satisfaction with a Pharmacist-Managed Travel Clinic in Alberta, Canada. *Travel Medicine and Infectious Disease*, *23*, 21-26. https://doi.org/10.1016/j.tmaid.2018.02.011

Indonesia Investments. (2019). *Tourism Industry: How Can Indonesia Tap Its Tourism Potential? Challenges & Opportunities*. https://www.indonesia-

investments.com/news/news-columns/tourism-industry-how-can-indonesia-tap-its-tourism-potential-challenges-opportunities/item9094
Institute for Quality and Efficiency in Health Care. (2006). *Traveler's diarrhea*. InformedHealth.org. https://www.ncbi.nlm.nih.gov/books/NBK373093/
Istiono, W., Claramita, M., Ekawati, F. M., Gayatri, A., Sutomo, A. H., Kusnanto, H., & Graber, M. (2015). Physician's Self-Perceived Abilities at Primary Care Settings in Indonesia. *Journal of Family Medicine and Primary Care*, *4*(4), 551-551. https://doi.org/10.4103/2249-4863.174286
Kadir, N. A., Wahab, M. S. A., Suhaimi, A. M., & Othman, N. (2023). Practices, Barriers and Facilitators to the Delivery of Pretravel Health Services by Community Pharmacists: A Scoping Review Using the Theoretical Domains Framework. *Research in Social and Administrative Pharmacy*, *19*(11), 1412-1423. https://doi.org/10.1016/j.sapharm.2023.08.004
Kain, D., Findlater, A., Lightfoot, D., Maxim, T., Kraemer, M. U. G., Brady, O. J., Watts, A., Khan, K., & Bogoch, I. I. (2019). Factors Affecting Pre-Travel Health Seeking Behaviour and Adherence to Pre-Travel Health Advice: A Systematic Review. *Journal of Travel Medicine*, *26*(6). https://doi.org/10.1093/jtm/taz059
Larocque, R. C., Rao, S. R., Tsibris, A., Lawton, T., Anita Barry, M., Marano, N., Brunette, G., Yanni, E., & Ryan, E. T. (2010). Pre-Travel Health Advice-Seeking Behavior among Us International Travelers Departing from Boston Logan International Airport. *Journal of Travel Medicine*, *17*(6), 387-391. https://doi.org/10.1111/j.1708-8305.2010.00457.x
Lovey, T., Hedrich, N., Grobusch, M. P., Bernhard, J., Schlagenhauf, P., & Network, I. G. (2024). Surveillance of Global, Travel-Related Illness Using a Novel App: A Multivariable, Cross-Sectional Study. *BMJ Open*, *14*(7), e083065. https://doi.org/10.1136/bmjopen-2023-083065
Mahendradhata, Y. (2019). Proceed with Caution: Potential Challenges and Risks of Developing Healthcare Tourism in Indonesia. *Global Public Health*, *14*(3), 340-350. https://doi.org/10.1080/17441692.2018.1504224
Mahendradhata, Y., Trisnantoro, L., Listyadewi, S., Soewondo, P., Marthias, T., Harimurti, P., & Prawira, J. (2017). The Republic of Indonesia Health System Review. *Health Systems in Transition*, *7*(1). http://apps.who.int/iris/bitstream/10665/254716/1/9789290225164-eng.pdf
Marchand, C., Merrina, F., Gagnayre, R., & Bouchaud, O. (2017). A Descriptive Study of Advising Practices During Travel Health Consultations in France. *Journal of Travel Medicine*, *24*(5). https://pubmed.ncbi.nlm.nih.gov/28931133/
Marjadi, B., Alfian, R., Susanto, Y., Tjandra, L., Pratama, A. N. W., & Schneider, C. (2022). Pharmacists' Continuing Professional Development for Non-Communicable Diseases Management: A Consensus Study. *Reseach in Social and Administrative Pharmacy*, *18*(11), 3964-3973. https://doi.org/10.1016/j.sapharm.2022.07.002
Martinez, N., Connelly, C. D., Perez, A., & Calero, P. (2021). Self-Care: A Concept Analysis. *International Journal of Nursing Sciences*, *8*(4), 418-425. https://doi.org/10.1016/j.ijnss.2021.08.007
Mills, D. J., Ramsey, L., & Furuya-Kanamori, L. (2021). Pre- and Post-Travel Medical Consultations. In J. Wilks, D. Pendergast, P. A. Leggat, & D. Morgan (Eds.), *Tourist Health, Safety and Wellbeing in the New Normal* (pp. 47-69). Springer. https://doi.org/10.1007/978-981-16-5415-2_3
Ministry of Tourism and Creative Economy. (2021). *Alasan Menparekraf Fokus Kembangkan 5 Destinasi Super Prioritas*. Ministry of Tourism and Creative Economy. Retrieved 24

Oct from https://kemenparekraf.go.id/ragam-pariwisata/Alasan-Menparekraf-Fokus-Kembangkan-5-Destinasi-Super-Prioritas
Mohammad, A., Saini, B., & Chaar, B. B. (2021). Pharmacists' Experiences Serving Culturally and Linguistically Diverse Patients in the Australian Community Pharmacy Setting. *International Journal of Clinical Pharmacy*, *43*(6), 1563-1573. https://doi.org/10.1007/s11096-021-01284-5
Mutiah, D. (2019). Mana Yang Benar, 4 Atau 5 Destinasi Super Prioritas? https://www.liputan6.com/lifestyle/read/4059555/mana-yang-benar-4-atau-5-destinasi-super-prioritas
Noble, L. M., Willcox, A., & Behrens, R. H. (2012). Travel Clinic Consultation and Risk Assessment. In *Infectious Disease Clinics of North America* (Vol. 26, pp. 575-593): W.B. Saunders.
Nurfirda, N., Kristina, S. A., & Hanifah, S. (2021). Readiness to Provide Immunization Services among Community Pharmacists in Yogyakarta, Indonesia. *Research Journal of Pharmacy and Technology*, 2543-2547. https://doi.org/10.52711/0974-360x.2021.00448
Ollivaud, P., & Haxton, P. (2019). Making the Most of Tourism in Indonesia to Promote Sustainable Regional Development. In. Paris Cedex.
Piyaphanee, W., Stoney, R. J., Asgeirsson, H., Appiah, G. D., Diaz-Menendez, M., Barnett, E. D., Gautret, P., Libman, M., Schlagenhauf, P., Leder, K., Plewes, K., Grobusch, M. P., Huits, R., Mavunda, K., Hamer, D. H., & Chen, L. H. (2023). Healthcare Seeking During Travel: An Analysis by the Geosentinel Surveillance Network of Travel Medicine Providers. *Journal of Travel Medicine*, *30*(3). https://doi.org/10.1093/jtm/taad002
Potin, M., Carron, P.-N., & Genton, B. (2023). Injuries and Medical Emergencies among International Travellers. *Journal of Travel Medicine*, *31*(1). https://doi.org/10.1093/jtm/taad088
Rathjen, N. A., & Shahbodaghi, S. D. (2023). The Ill Returning Traveler. *American Family of Physician*, *108*(4), 396-403. https://www.aafp.org/pubs/afp/issues/2023/1000/ill-returning-traveler.html
Riddle, M. S., Ericsson, C. D., Gutierrez, R. L., & Porter, C. K. (2018). Stand-by Antibiotics for Travellers‘ Diarrhoea: Risks, Benefits and Research Needs. *Journal of Travel Medicine*, *25*(1). https://academic.oup.com/jtm/article-abstract/25/1/tay099/5127105
Riegel, B., Dunbar, S. B., Fitzsimons, D., Freedland, K. E., Lee, C. S., Middleton, S., Stromberg, A., Vellone, E., Webber, D. E., & Jaarsma, T. (2021). Self-Care Research: Where Are We Now? Where Are We Going? *International Journal of Nursing Studies*, *116*, 103402. https://doi.org/10.1016/j.ijnurstu.2019.103402
Rutter, P. (2015). Role of Community Pharmacists in Patients’ Self-Care and Self-Medication. *Integrated Pharmacy Research and Practice*, 57-65.
Rutter, P., & Barnes, N. (2024). Facilitating Self-Care through Community Pharmacy in England. *Exploratory Research in Clinical and Social Pharmacy*, *13*, 100404. https://doi.org/10.1016/j.rcsop.2023.100404
Shahinas, D., Lau, R., Khairnar, K., Hancock, D., & Pillai, D. R. (2010). Artesunate Misuse and Plasmodium Falciparum Malaria in Traveler Returning from Africa. *Emerging Infectious Diseases*, *16*(10), 1608-1610. https://doi.org/10.3201/eid1610.100427
Shen, A. K., & Peterson, A. (2020). The Pharmacist and Pharmacy Have Evolved to Become More Than the Corner Drugstore: A Win for Vaccinations and Public Health. *Human Vaccines & Immunotherapeutics*, *16*(5), 1178-1180. https://doi.org/10.1080/21645515.2019.1660119

Sironi, A., Bauloz, C., & Emmanuel, M. (2019). *Glossary on Migration*. International Organization for Migration.

Statistics Indonesia. (2024). *Jumlah Kunjungan Wisatawan Mancanegara Per Bulan Menurut Kebangsaan*. Statistics Indonesia. Retrieved 25 Oct from https://www.bps.go.id/id/statistics-table/2/MTQ3MCMy/jumlah-kunjungan-wisatawan-mancanegara-per-bulan-menurut-kebangsaan--kunjungan-.html

Susilo, D., Wulandari, L. P. L., Sukmayeti, E., Asante, A., Jan, S., Thabrany, H., Tangcharoensathien, V., Wiseman, V., & Liverani, M. (2025). Can Indonesia Achieve Universal Health Coverage? Organisational and Financing Challenges in Implementing the National Health Insurance System. *SSM - Health Systems*, *5*. https://doi.org/10.1016/j.ssmhs.2025.100138

Suzuki, S., Nishikawa, Y., Nakayama, T., & Okada, H. (2025). Pharmacist Accessibility for Non-Native Japanese Speakers: A Cross-Sectional Study in Japan. *Canadian Pharmacists Journal*, *158*(3), 140-147. https://doi.org/10.1177/17151635241305375

Tan, M., Kusriastuti, R., Savioli, L., & Hotez, P. J. (2014). Indonesia: An Emerging Market Economy Beset by Neglected Tropical Diseases (Ntds). *PLoS Neglected Tropical Diseases*, *8*(2), e2449-e2449. https://doi.org/10.1371/journal.pntd.0002449

Thidrickson, D. (2019). Standards of Travel Health Services by Canadian Pharmacists. *Journal of Travel Medicine*, *26*(1). https://doi.org/10.1093/jtm/tay126

Thomson, C. A., Gibbs, R. A., Giele, C., Firth, M. J., & Effler, P. V. (2016). Health Seeking Behaviours and Knowledge of Infectious Disease Risks in Western Australian Travellers to Southeast Asian Destinations: An Airport Survey. *Tropical medicine and infectious disease*, *1*(1). https://doi.org/10.3390/tropicalmed1010003

Tjiptono, F., Yang, L., Setyawan, A., Permana, I. B. G. A., & Widaharthana, I. P. E. (2022). Tourism Sustainability in Indonesia: Reflection and Reformulation. In *Asian Tourism Sustainability* (pp. 139-159). Springer Nature Singapore. https://doi.org/10.1007/978-981-16-5264-6_8

Utari, B. A., Arsallia, S., Ramdani, M. A., Rahmafitria, F., Belgiawan, P. F., Dirgahayani, P., & Nasution, R. A. (2024). Tourist Destination Choice on Five Priority Destinations of Indonesia During Health Crisis. *Journal of Destination Marketing & Management*, *32*. https://doi.org/10.1016/j.jdmm.2024.100880

Utzinger, K. S., Held, U., Hanscheid, T., Gultekin, N., Fehr, J., Grobusch, M. P., & Schlagenhauf, P. (2020). Self-Diagnosis and Self-Treatment of Plasmodium Spp. Infection by Travellers (1989-2019): A Systematic Review and Meta-Analysis. *Travel Medicine and Infectious Disease*, *38*, 101902. https://doi.org/10.1016/j.tmaid.2020.101902

Vajta, B., Holberg, M., Mills, J., & McBride, W. J. H. (2015). Weighing Up the Costs of Seeking Health Care for Dengue Symptoms: A Grounded Theory Study of Backpackers' Decision-Making Processes. *Australian Journal of Primary Health*, *21*(2), 245-248. https://doi.org/https://dx.doi.org/10.1071/PY13107

Van Herck, K., Castelli, F., Zuckerman, J., Nothdurft, H., Van Damme, P., Dahlgren, A.-L., Gargalianos, P., Lopéz-Vélez, R., Overbosch, D., Caumes, E., Walker, E., Gisler, S., & Steffen, R. (2004). Knowledge, Attitudes and Practices in Travel-Related Infectious Diseases: The European Airport Survey. *Journal of Travel Medicine*, *11*(1), 3-8. https://doi.org/10.2310/7060.2004.13609

Vilkman, K., Lääveri, T., Pakkanen, S. H., & Kantele, A. (2019). Stand-by Antibiotics Encourage Unwarranted Use of Antibiotics for Travelers' Diarrhea: A Prospective Study. *Travel Medicine and Infectious Disease*, *27*, 64-71. https://doi.org/10.1016/j.tmaid.2018.06.007

Vilkman, K., Pakkanen, S. H., Lääveri, T., Siikamäki, H., & Kantele, A. (2016). Travelers' Health Problems and Behavior: Prospective Study with Post-Travel Follow-Up. *BMC Infectious Diseases*, *16*(1), 328-328. https://doi.org/10.1186/s12879-016-1682-0

Weiss, D. J., Nelson, A., Gibson, H. S., Temperley, W., Peedell, S., Lieber, A., Hancher, M., Poyart, E., Belchior, S., Fullman, N., Mappin, B., Dalrymple, U., Rozier, J., Lucas, T. C. D., Howes, R. E., Tusting, L. S., Kang, S. Y., Cameron, E., Bisanzio, D., . . . Gething, P. W. (2018). A Global Map of Travel Time to Cities to Assess Inequalities in Accessibility in 2015. *Nature*, *553*(7688), 333-336. https://doi.org/10.1038/nature25181

Westoby, R., Gardiner, S., Carter, R. W., & Scott, N. (2021). Sustainable Livelihoods from Tourism in the "10 New Balis" in Indonesia. *Asia Pacific Journal of Tourism Research*, *26*(6), 702-716. https://doi.org/10.1080/10941665.2021.1908386

WHO Regional Office for South-East Asia. (2009). *Self-Care in the Context of Primary Health Care: Report of the Regional Consultation*. https://iris.who.int/handle/10665/206352

Wilder-Smith, A., Khairullah, N. S., Song, J.-H., Chen, C.-Y., & Torresi, J. (2004). Travel Health Knowledge, Attitudes and Practices among Australasian Travelers. *Journal of Travel Medicine*, *11*(1), 9-15. https://doi.org/10.2310/7060.2004.13600

Wirawan, I. A., Sutarsa, I., & Astuti, P. S. (2021). Healthy Tourism Initiative in the Age of Covid-19 in Indonesia. *Asian Pacific Journal of Tropical Medicine*, *14*(9). https://doi.org/10.4103/1995-7645.326258

Wirawan, I. M. A., Putri, W., Kurniasari, N. M. D., Mulyawan, K. H., Hendrayana, M. A., & Suharlim, C. (2020). Geo-Mapping of Hazards, Risks, and Travel Health Services in Bali: Results from the First Stage of the Integrated Travel Health Surveillance and Information System at Destination (Travhesid) Project. *Travel Medicine and Infectious Disease*, *37*, 101698. https://doi.org/10.1016/j.tmaid.2020.101698

Wong, J. K., Nashid, N., Pell, L. G., Lam, R. E., Louch, D. M., Science, M. E., & Morris, S. K. (2022). Pretravel Plans and Discrepant Trip Experiences among Travelers Attending a Tertiary Care Centre Family Travel Medicine Clinic. *PLOS ONE*, *17*(2), e0262075. https://doi.org/10.1371/journal.pone.0262075

World Economic Forum. (2013). *Travel & Tourism Competitiveness Report 2013 Reducing Barriers to Economic Growth and Job Creation*. http://www3.weforum.org/docs/WEF_TT_Competitiveness_Report_2013.pdf

World Economic Forum. (2019). *Travel & Tourism Competitiveness Report 2019 Travel and Tourism at a Tipping Point*. https://www.weforum.org/publications/the-travel-tourism-competitiveness-report-2019/

World Economic Forum. (2024). *Travel & Tourism Development Index 2024*. https://www.weforum.org/publications/travel-tourism-development-index-2024/

World Health Organization. (2021). *Who Guideline on Self-Care Interventions for Health and Well-Being*. World Health Organization. https://app.magicapp.org/#/guideline/Lr21gL

World Tourism Organization. (2010). *Tourism and Migration – Exploring the Relationship between Two Global Phenomena*. World Tourism Organization. https://doi.org/10.18111/9789284413140

World Travel & Tourism Council. (2020). *Economic Impact Reports*. https://wttc.org/Research/Economic-Impact

World Travel & Tourism Council. (2023). *Travel and Tourism Economic Impact 2023 Indonesia*. World Travel & Tourism Council. https://assets-global.website-files.com/6329bc97af73223b575983ac/64874f556ea69cc412ac0f35_EIR2023-Indonesia.pdf

World Travel & Tourism Council. (2024). *Indonesia's Booming Travel Tourism to Support More Than 12.5 Million Jobs*. World Travel & Tourism Council. Retrieved 1 October 2025 from https://wttc.org/news/indonesias-booming-travel-and-tourism-to-support-more-than-12-5-million-jobs

Wyler, B. A., Young, H. M., Hargarten, S. W., & Cahill, J. D. (2022). Risk of Deaths Due to Injuries in Travellers: A Systematic Review. *Journal of Travel Medicine*, *29*(5). https://doi.org/10.1093/jtm/taac074

Chapter 2. Methods

Chapter 2 provides an overview of the methods used in this thesis to answer the research aim and objectives. Chapter 2 presents the study locations, followed by the researcher's background, and details of each method employed, including needs assessment, qualitative interview, content analysis, framework analysis, Q-methodology, meta-synthesis, web scraping, and persona development. The final section outlines the ethical considerations for this thesis.

2.1 The Choice of Tourist Destinations as Study Locations

Four tourist destinations were selected as study locations, and their popular names were used for comparability with the literature: Bali, Borobudur-Yogyakarta, Labuan Bajo and Toraja (Table 2.1 and Figure 2.1). Each destination is geographically and administratively distinct. The destinations, along with a brief description and rationale for inclusion, are presented below.

Figure 2.1 Study locations

2.1.1. Bali

Bali is an island province with a long history of tourism development that dates back to the early 20th century (Hitchcock & Putra, 2007). Bali is considered Indonesia's most established international tourist destination. Among cities in Bali, Badung is the most developed tourism area (Wirawan et al., 2020).

2.1.2. Borobudur-Yogyakarta

Borobudur is famous for the Borobudur Temple, the world's largest Buddhist temple (Damanik & Yusuf, 2022) and one of the country's Five Superpriority Destinations (Ollivaud & Haxton, 2019). It is administratively located in the Central Java Province on the island of Java, the country's economic and administrative centre. International visitors to Borobudur often stay in

the adjacent City of Yogyakarta, located approximately 40 kilometres away, rather than Magelang (Kausar, 2012; Nagaoka, 2011) because Yogyakarta has more tourist destinations and better facilities than Magelang. For this reason, Magelang and Yogyakarta are considered one location for this thesis. Yogyakarta is located in the Special Region of Yogyakarta Province, Indonesia's second most important tourist destination (Kausar, 2012; Ramadhani et al., 2024). Yogyakarta's key attraction is the Sultan's Palace (*Kraton*) (Thipsingh et al., 2022), with other notable sites including the foreign visitor neighbourhood at Prawirotaman Village, Prambanan Temple, Malioboro Street, Merapi Mountain, and Parangtritis Beach, which also attract international tourists (Suharyanto et al., 2021; Thipsingh et al., 2022).

2.1.3. Labuan Bajo

Labuan Bajo is the capital of West Manggarai Regency on Flores Island in East Nusa Tenggara Province, one of the country's archipelagic provinces. Listed as a Superpriority Destination (Ollivaud & Haxton, 2019), Labuan Bajo serves as the gateway to the Komodo National Park, the natural habitat of the Komodo dragon, the world's largest lizard (Lasso & Dahles, 2020). International visitors to Labuan Bajo are required to reserve a boat tour to visit the national park.

2.1.4. Toraja

Toraja is located in South Sulawesi Province on Sulawesi Island. Toraja is often referred to as the area encompassing Toraja Utara and Tana Toraja Regencies, where the Torajan people reside (Kausar & Gunawan, 2018). Toraja is renowned for its ethnic and heritage tourism, characterised by unique traditional customs surrounding the celebration of death (Kausar & Gunawan, 2018). Toraja Utara boasts more tourist destinations than Tana Toraja, including Kete Kesu Village, which features traditional houses such as the *tongkonan* (a uniquely

architectured ancestral house) and *alang* (a rice barn), as well as burial cliff-face vaults (Kausar & Gunawan, 2018).

Table 2.1 Study locations with popular and administrative names

Popular name	Research site	Regency/City	Province	Island
Bali	Kuta Beach, Legian Beach, Double Six Beach, Seminyak Beach	Badung Regency	Bali	Bali
Borobudur-Yogyakarta*	Borobudur Temple complex	Magelang Regency	Central Java	Java
	Malioboro Street, Prawirotaman Village	City of Yogyakarta	Special Region of Yogyakarta	Java
Labuan Bajo	Labuan Bajo Marina, Komodo National Park, Padar Island, Pink Beach	West Manggarai Regency	East Nusa Tenggara	Flores, Rinca, Padar
Toraja	Kete Kesu Village, Londa Rock Cliff Graveyard, Kalimbuang Bori, Batutumonga	Tana Toraja Regency and North Toraja Regency	South Sulawesi	Sulawesi

* Yogyakarta is located about 40 kilometres from Borobudur, but travellers often stay in Yogyakarta instead of Borobudur (Kausar, 2012; Nagaoka, 2011).

The selection of the locations is based on two reasons. First, these four locations represent different stages of tourism development in Indonesia. Bali represents Indonesia's most well-established tourism destination. Borobudur-Yogyakarta and Labuan Bajo represent rapidly developing tourist destinations after being listed as the Five Superpriority Destinations. Both locations were more popular than the other three Superpriority Destinations: Lake Toba, Mandalika and Likupang (Wibowo & Hariadi, 2024). Toraja represents a destination that has not been listed as the "Ten New Balis", but has gained a long history of popularity among international travellers (Adams, 1997; Kausar & Gunawan, 2018). The second reason is from the perspective of healthcare service and infrastructure development. Unequal development of the health sector exists across the country (Mahendradhata et al., 2017; Suryanto et al., 2017). From Indonesia's independence in 1945 until the 2010s, most public infrastructure and human

resources, including healthcare, were primarily built on the Java and Bali islands rather than in other parts of Indonesia (Emma et al., 2024; Mahendradhata et al., 2017; Suryanto et al., 2017). Bali and Borobudur-Yogyakarta represent areas with better healthcare facilities and professional resources than Labuan Bajo and Toraja.

The four study locations have distinct characteristics, encompassing both tourism and healthcare development dimensions. Bali's healthcare system, including hospitals, clinics, and pharmacy services, has increasingly adapted to serving international traveller and expatriate customers, supported by policy attention to medical and wellness tourism (Asa et al., 2024; Ayuningtyas et al., 2020; Mahendradhata et al., 2017). Borobudur-Yogyakarta is situated within a region with a comparatively sound healthcare system, but health professionals in this area may have limited routine exposure to international travellers due to limited interactions, reflecting lower volumes and shorter stays of international visitors compared with Bali (Sadali et al., 2021; Shaluhiyah et al., 2023). Labuan Bajo and Toraja have a less developed healthcare system than Bali and Borobudur-Yogyakarta, and their health professionals are generally less accustomed to serving international traveller customers; nevertheless, Labuan Bajo has seen significant development driven by substantial public and private investment as part of Indonesia's "Five Superpriority Destinations" (Buntugayang & Hasniati, 2025; Dwibaskoro, 2024; Ollivaud & Haxton, 2019). For example, one of Indonesia's big private hospital operators has opened an international medical centre in Labuan Bajo in 2022 (Olavia, 2022). Toraja has no international clinics, let alone an international hospital, despite its long history as an international travel destination. Two government and four private hospitals serve the Torajans, with four of them classified as Class C and two as Class D (Ditjen Yankes, 2021). A Class C hospital in Indonesia must have at least 100 inpatient beds, while a Class D hospital must have at least 50 (Indonesian Ministry of Health, 2020). These classes highlight a limited number of specialties offered by the hospitals.

2.2 Epidemiology of Travel Health-Related Risks in the Study Locations

Epidemiological evidence relevant to travel health varies across the study locations. In Bali, hospital-based analyses of foreign tourists indicate that injuries, particularly due to road traffic incidents, remain a prominent health burden among travellers (Budiapsari et al., 2023; Subrata et al., 2024). Dengue transmission also persists in this high-tourism setting and requires ongoing prevention and risk communication (Yoshikawa et al., 2019). Rabies is likewise relevant for travellers in Bali, with veterinary epidemiological research documenting continued endemic transmission and recent increases (Tenaya et al., 2023). In the other study locations, comparatively fewer published epidemiological studies are available, but key travel-relevant infectious risks include dengue, malaria, and rabies (BPS-Statistics Sulawesi Selatan Province, 2024). In Yogyakarta–Borobudur, dengue remains a concern; however, Wolbachia-based *Aedes aegypti* deployments (2016–2017) were associated with substantial reductions in dengue incidence in treated areas (Indriani et al., 2020), and subsequent trial evidence indicates large protective effects against dengue and dengue hospitalisation (World Mosquito Program, 2026). Among international tourists at Borobudur, reported health risks include food- and beverage-related illness and travel-related accidents, indicating the need to address both infectious and injury hazards (Shaluhiyah et al., 2023). In Flores Island (including Labuan Bajo), malaria remains travel-relevant; polymerase chain reaction (PCR)-based surveillance documented prevalence of Plasmodium infections, including *P. falciparum* and *P. vivax*, and highlighted the potential role of submicroscopic infections in transmission (Kaisar et al., 2013). Consistent with this risk profile, port health authorities in Labuan Bajo have implemented malaria migration surveillance using rapid diagnostic testing at entry points to detect and prevent imported transmission from other islands (Nuka, 2022). In parallel, rabies is an established risk in East Nusa Tenggara, with documented outbreaks in West Manggarai and the development of vaccine logistics monitoring approaches (e.g., SMILE) to support timely access to post-

exposure prophylaxis (Access and Delivery Partnership, 2024; UNDP Indonesia et al., 2024). In Toraja, rabies is a salient travel-health issue, with regional reporting indicating high burdens in North Toraja and Tana Toraja, while official provincial statistics also track dengue and malaria morbidity across districts, supporting the need for destination-specific prevention and preparedness (BPS-Statistics Sulawesi Selatan Province, 2024; Wahyudi, 2024).

2.3 Researcher Background as a Qualitative Researcher

In qualitative research, the researcher's epistemological position is important to be recognised (Creswell, 2014; Polit & Beck, 2017). The relationship between the researcher's background and what is being researched inherently influences the interpretation of qualitative data (Creswell, 2014; Polit & Beck, 2017). In this section, I present the relevant background that influenced my selection of the thesis topic and interpretation of the qualitative data.

Two experiences influenced my decision to undertake the thesis topic and my positionality in qualitative research. First, I graduated with a Bachelor of Pharmacy degree and completed the Professional Pharmacist Training program in Yogyakarta, an Indonesian city renowned for its cultural and heritage tourism, attracting both domestic and international travellers. I subsequently founded and worked in a new non-governmental organisation, which required me to travel in a group and stay for about a month in a remote village in a malaria-endemic area of East Nusa Tenggara. I experienced acute diarrhoea in this hilly place, where the "nearest" and "operating" health facility was located about 30 kilometres away. There was no public transport available in this area, where villages were connected with uneven gravel and dirt roads. This particular incident influenced my positionality in interpreting self-care needs in unfamiliar and resource-limited environments.

Second, I began working as a lecturer in pharmacy at Universitas Jember, East Java, in 2009. After graduating with a Master of Public Health degree from an Australian university in 2014,

I was assigned to the International Office unit for a two-year period. During this assignment, the International Office organised several events, inviting and catering to international students from universities with which Universitas Jember has mutual cooperation agreements. At each event, there were excursions (< 24 hours of stay) or travel (> 24 hours of stay) to visit several tourist destinations in Jember Regency and neighbouring cities. These students visited various places, including beaches, savannahs, forests, mountains, batik workshops, cocoa and coffee plantations, and a thematic cultural village. On these trips, my main tasks were to ensure the students avoided any possible health risks and to provide first aid if necessary, as I was the only organising member with a health background. There were several unwanted health events during the trips, involving minor ailments and injuries that could mostly be managed with self-care, such as traveller's diarrhoea, leg cramps, and injuries due to stepping on sea urchins. When the condition could not be managed with self-medication, I took the students to the nearby hospital. I discovered that language and communication barriers impeded the interactions between the local doctor and students. This particular experience influenced my positionality in interpreting the challenges faced by international travellers when accessing local healthcare, especially when they are away from their vicinities.

Before returning to Australia and commencing a Doctor of Philosophy program, my research experience was primarily focused on quantitative approaches. As such, I was dominantly grounded in the post-positivist epistemological standpoint. I completed my first course in qualitative research at the beginning of my PhD program. This introduction to qualitative research has shifted my epistemological position to constructivism. A constructionist views knowledge as subjective and multiple, constructed through both individual and social experiences (Moon & Blackman, 2014). My relatively new knowledge and experience affected all aspects of the qualitative approach (development of the research question, choice of method, data collection, analysis and interpretation), which is dominant throughout this thesis. During

interviews, my prior knowledge and experience could have shaped the direction of probing and follow-up questions to the current and next participants, and during the analysis, they could have encouraged interpretations that emphasised individual rather than structural constraints. To mitigate these influences, I engaged in ongoing reflexive memoing after interviews and during analysis to identify assumptions and document how my interpretations were formed and revised. Regular analytic discussions with my supervisory team complemented the memoing, challenging the preliminary themes and exploring alternative interpretations.

2.4 The Summary of Methods and Their Positions in This Thesis

The two main objectives of this thesis were to assess the self-care needs of international travellers while visiting Indonesia and to determine the readiness requirements of Indonesian community pharmacies to meet the self-care needs of international travellers. The term 'self-care needs' in this thesis is defined as *the conditions and resources that enable individuals and communities to effectively engage in self-care*. As previously described in Chapter 1, the WHO's definition of self-care was used throughout this thesis. Several approaches using a qualitative design were employed to achieve these main objectives (Figure 2.2).

To achieve the first objective, a systematic literature review and meta-synthesis were employed to identify the self-care needs of international, voluntary, and transient travellers and migrants (Chapter 3). Qualitative interviews with international travellers, named "Initial Interviews", were done to explore the self-care information seeking and communication between international travellers and Indonesian community pharmacies or other healthcare providers (Chapter 4). A Q-method study was conducted to explore subjective views of international travellers regarding their prioritisation of self-care when travelling to Indonesia (Chapter 5). Statements collected from the meta-synthesis and interviews were supplemented with sampled posts from online discussion forums gathered via web scraping to develop a Q-set, the primary instrument of Q-methodology. The Q-set development involved an expert panel review.

To accomplish the second main objective, two waves of qualitative interviews, named "Readiness Interviews", were conducted. The first wave was conducted with the Indonesian community pharmacy staff. The second wave was conducted with the Indonesian community pharmacists and stakeholders, including pharmacy academics, board members of pharmacist organisations, travel health practitioners, policymakers, and tourism operators. In the second wave of interviews, the interview guide was supplemented with international traveller personas, informed by the Q-study results. A gap analysis was conducted to determine the readiness requirements of community pharmacies to facilitate self-care needs.

2.5 Needs Assessment

Needs assessments have been utilised for decades across various sectors and at different organisational levels to support planning and decision-making, with their adoption in the health sector increasing in the late 1980s (Jordan & Wright, 1997; Meiers et al., 2014; Watkins et al., 2012). This approach informs valuable planning decisions rather than program evaluation (Altschuld et al., 2014). Research in pharmacy has used needs assessments to identify and prioritise various aspects, including pharmaceutical care provision (Williams et al., 2000), learning and training (Bulkley et al., 2017; Truong et al., 2012; Wilbur, 2010), the necessity of developing a new service (Hind et al., 2008) or a national-level pharmacy workforce transformation (Meilianti et al., 2021). Experts have proposed different definitions of a needs assessment, including "a systematic process that provides information about social needs or issues in a place or population group and determines which issues should be prioritised for action" (Smart, 2019). Following this definition, the first social issue studied in this thesis was self-care practised by international travellers in developing countries such as Indonesia. The second social issue was the readiness of Indonesian community pharmacies to facilitate international travellers' self-care needs.

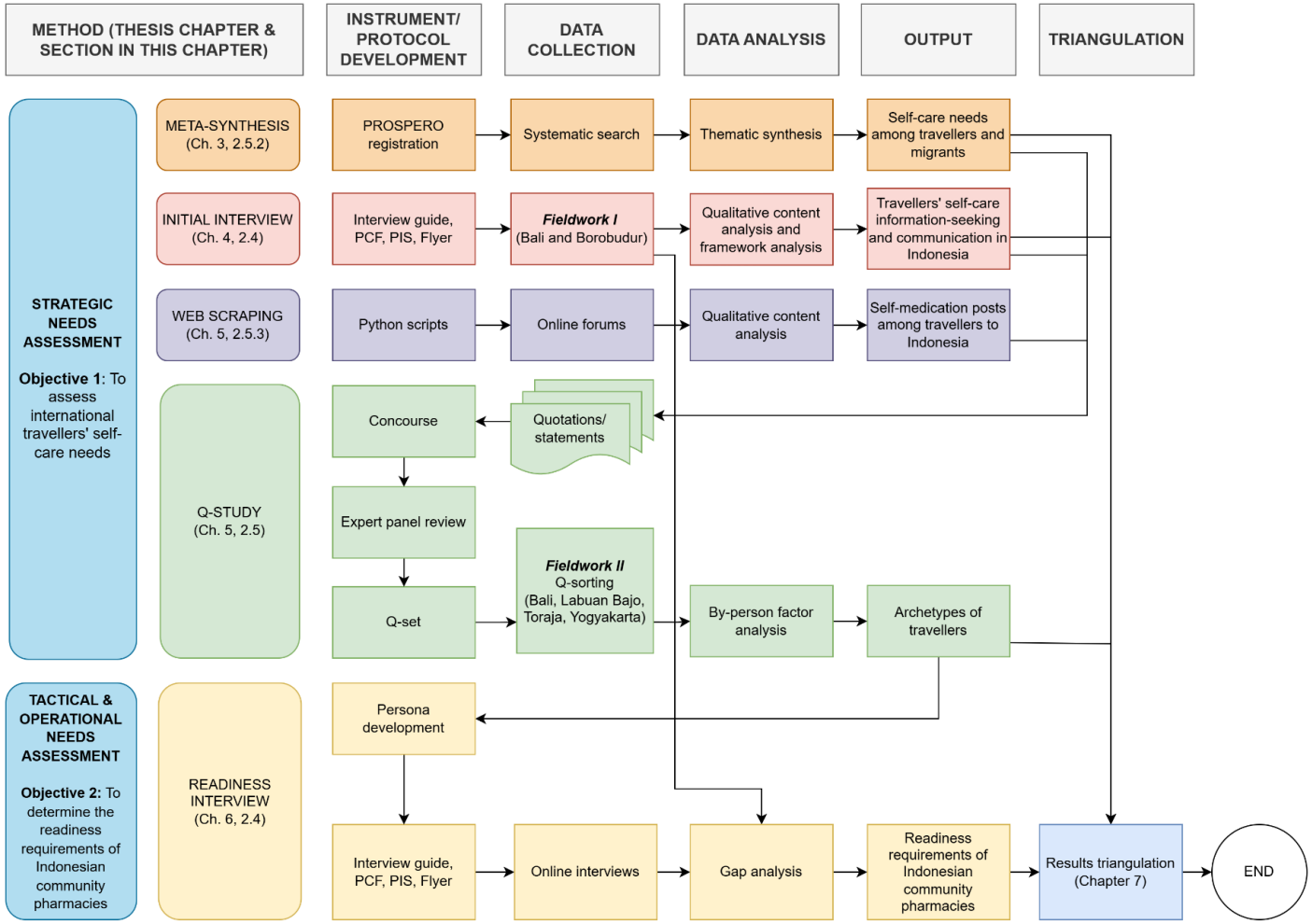


Figure 2.2 General overview of methods

PROSPERO: an international prospective register of systematic reviews, PCF: Participant Consent Form, PIS: Participant Information Statement

2.5.1. Definition of Needs

Conceptualising the "need" in a needs assessment is fundamental, although there is a lack of a universally accepted definition of this term (Asadi-Lari et al., 2003; Culyer, 2014; Watkins & Kavale, 2014; Wright et al., 1998). In healthcare, experts generally define need as the capacity to benefit from healthcare (Culyer & Wagstaff, 1993; Stevens & Gillam, 1998; Wright et al., 1998). Santana et al. (2023) maintain this definition and add that the benefit is derived from appropriate healthcare, excluding cost-ineffective care. However, this definition is unsuitable for this thesis because the authors explicitly describe their focus on healthcare rather than health (Santana et al., 2023). This definition does not acknowledge other forms of care, including self-care, that may contribute to health functioning. For example, when a traveller feels unwell due to mild diarrhoea and practices self-care by increasing fluid intake and resting, this self-care does not account for a need because they do not utilise or access a healthcare service. Asadi-Lari et al. (2003) note that this definition of the "economists' approach" can be problematic when studying human behaviour with complex interactions, which is the basis of this thesis. Moreover, it is argued that this need's definition limits the population's need to readily available healthcare services (Asadi-Lari et al., 2003).

Alternatively, the conceptualisation of need can also be found in sociology. Among many, Bradshaw's Taxonomy of Social Need, introduced in the early 1970s, is the most enduring concept (Bradshaw, 1972; Smart, 2019). Bradshaw (1972) distinguished between four types of needs: normative, felt, expressed, and comparative. Normative need arises from academic and professional judgement. Bradshaw (1972, p. 72) defined it as "that which the expert or professional, administrator or social scientist defines as need in any given situation." In the context of international travel, pre-travel vaccinations and consultations may be considered as travellers' normative needs, as these pre-travel preparations are routinely recommended by travel medicine practitioners (Flaherty et al., 2017; Potin et al., 2024). In this thesis, meta-

synthesis was employed to determine the normative needs of travellers. Felt need is "equated with want" (Bradshaw, 1972, p. 73). International travellers' expectations of more affordable medications and health services in a developing tourist destination like Indonesia may be considered a felt need. Felt needs are derived from individual perceptions (Bradshaw, 1972), and therefore, these needs can be collected through an approach or medium that accommodates individual perceptions. In this thesis, felt need was explored through a combination of interviews and examination of online discussions among travellers to Indonesia. Regarding an expressed need or demand, it is a felt need that is acted upon (Bradshaw, 1972). For example, international travellers with a minor illness who visit an Indonesian community pharmacy can expect to obtain medications like those available in their home countries. Similar to felt needs, expressed needs in this thesis were explored using interviews and online forums. Regarding comparative need, it is "obtained by studying the characteristics of the population in receipt of a service" (Bradshaw, 1972, p. 73). As the meta-synthesis in this thesis will compare different groups of travellers, its results indicate comparative needs among travellers. However, while Bradshaw's needs can be identified at the category level among international travellers through different approaches in this thesis, these terms were not used throughout this thesis. Rather, the term 'self-care needs' was chosen at the domain level as a pragmatic choice to enable comparison of the identified 'self-care needs' in Objective 1 to the wider self-care literature, as well as application of the identified needs for the gap analysis to address Objective 2. Moreover, Bradshaw's classification remains theoretically service-centric and expert-driven, making it less suitable for studying autonomous, preventive, and evolving practices such as self-care.

Another definition of need arises from needs assessment studies. When popularising needs assessment in the 1970s, Roger Kaufman proposed a definition of need as the performance gaps in results between "what should be" and "what is" (Meiers et al., 2014). Kaufman's approach, recognised as a "gap analysis", is widely used in needs assessment studies (Meilianti

et al., 2021; Trimby, 1979). Gap analysis can be used for studying organisational performance. Therefore, this approach is suitable to study Indonesian community pharmacies with regard to their readiness requirements for facilitating the self-care needs of international travellers. In this thesis, the term 'gaps' equates to 'readiness requirements'. The latter term is preferred to prevent confusion for readers, as the term 'needs' is also used to refer to international traveller 'self-care needs'. As such, readiness requirements are defined in this thesis as *gaps between the desired and current performance of Indonesian community pharmacies in facilitating self-care for international travellers.*

2.5.2. Methods of Needs Assessment

Various models and techniques of needs assessment have been developed, offering different numbers of steps to achieve a successful assessment (Benjamin, 1989; Cavanagh & Chadwick, 2005; Petersen & Alexander, 2001; Smart, 2019; Trimby, 1979; Watkins et al., 2012). This variation has resulted in a lack of a gold standard to define and assess health needs (McEwen et al., 1995; Smart, 2019; Williams et al., 2000). The term needs assessment has been used interchangeably by researchers with gap analysis, needs analysis, or performance analysis; however, others regard the latter three terms as distinct tools for needs assessment (Watkins et al., 2012). Nevertheless, there is a substantial consensus on four elements of a needs assessment, including (1) consideration of goals, (2) procedures for ascertaining the current status of goals, (3) methods for identifying, describing and analysing gaps and (4) methods for prioritising gaps (Benjamin, 1989; Meilianti et al., 2021).

The needs assessment approach proposed by Watkins et al. (2012) was adopted in this thesis. Watkins et al. (2012) explain three phases of needs assessment for a large study, including pre-assessment, assessment, and post-assessment. The pre-assessment phase involves preparations, including determining the scope, identifying resources, and developing a management plan (Watkins et al., 2012). In the assessment phase, needs are defined based on the performance

gaps between current and desired results (Watkins et al., 2012). A key activity in this phase is the initial prioritisation of needs, which is established based on parameters such as size, scope, distinguishing characteristics and relative importance (Watkins et al., 2012). The post-assessment phase is used to report findings, validate with stakeholders and recommend solutions (Watkins et al., 2012).

A needs assessment allows for the use of quantitative or qualitative methods, with a combination of both suggested to provide a balanced view of the need (Watkins et al., 2012). In this thesis, qualitative and mixed methods were selected because quantitative data on international travellers and community pharmacies in Indonesia are limited, and even if they exist, accessibility to them is challenging due to their fragmentation. For example, the purposes of travel for international inbound travellers (i.e. leisure, visiting friends and family, or business) remain unknown, despite the availability of data on domestic travellers (Chee et al., 2025; World Tourism Organization, 2025). For this reason, this thesis is more exploratory than explanatory, which warrants the predominant use of qualitative methods. In addition, Q-methodology, a mixed method approach, was employed because it can explicitly reveal shared views of individuals by combining quantitative data analysis with qualitative interpretation (Watts & Stenner, 2012). Previous studies in academic journals and grey literature used Q-methodology for a needs assessment (Chinnis et al., 2001; Erb, 1987; Hollingsworth, 2013; Ramlo, 2015; Tate, 1982). Q-methodology has been increasingly used in health and healthcare research (Churruca et al., 2021; Haua et al., 2022), including self-care (Cha et al., 2022; Fu et al., 2021; van Hooft et al., 2015). In this thesis, Q-methodology was used to explore the prioritisation of self-care needs among international travellers.

2.5.3. Scope of Needs Assessment

Watkins et al. (2012) describe three domains of needs assessment: strategic, tactical, and operational, each with a distinct focus. A strategic needs assessment focuses on the needs of

the beneficiaries of organisational services at the societal level (Watkins et al., 2012). It begins outside of the organisation (Watkins et al., 2012). In this thesis, international travellers were the beneficiaries of community pharmacy services, and their self-care needs were assessed using a strategic needs assessment. A tactical needs assessment focuses on the results delivered by the organisation to the communities (Watkins et al., 2012). Accordingly, the readiness requirements of the Indonesian community pharmacies in this thesis were assessed with a tactical needs assessment. An operational needs assessment focuses on the results produced by individuals or team members within the organisation. This operational scope was explored briefly during the first wave interviews with community pharmacy staff.

2.6 Qualitative Methods

The primary purpose of qualitative research is to explore and provide thorough insights and understanding of real-world problems (Moser & Korstjens, 2017). In contrast to quantitative research, qualitative research does not collect numerical data points or intervene in or introduce interventions; instead, it generates hypotheses that can be used to investigate and understand quantitative data (Tenny et al., 2025). Also, unlike quantitative research, generalisability is not a guiding principle of qualitative research (Korstjens & Moser, 2017). Qualitative research encompasses a variety of designs that share similar characteristics, including flexibility, holism, triangulation of data collection strategies, researcher involvement, and ongoing data analysis to inform subsequent strategies and the conclusion of data collection (Polit & Beck, 2017). The topic of this thesis, which is self-care among international travellers to Indonesia and the readiness of community pharmacies to facilitate self-care for them, has remained unexplored. Therefore, the exploratory nature of this thesis warrants a qualitative research approach.

2.6.1. Semi-Structured Interviews

Qualitative interviews are among the key strategies for data collection in qualitative research, not only in human and social sciences, but also in other scientific areas, such as health sciences (Brinkmann & Brinkmann, 2023; Denny & Weckesser, 2022). It is common to distinguish interviews into structured, semi-structured, and unstructured (Moser & Korstjens, 2018; Polit & Beck, 2017). However, Brinkmann and Brinkmann (2023) suggest that the distinction should be on a continuum between relatively structured and relatively unstructured formats. The argument is that even in a structured interview, the interviewees may answer beyond the pre-structured questions (Brinkmann & Brinkmann, 2023). This thesis employed a semi-structured interview format, in which the researchers prepared a written list of questions on the topic of interest (topic guide) to be used during each participant's interview (Knott et al., 2022; Polit & Beck, 2017). This semi-structured format was selected to enable in-depth exploration of complex or sensitive topics while maintaining methodological rigour through an interview guide (DeJonckheere & Vaughn, 2019). The interviews were used twice, during the early (Initial Interviews) and final (Readiness Interviews) phases of the thesis. Each wave served a different purpose: the first to explore self-care needs, and the second to understand the readiness of Indonesian community pharmacists to facilitate self-care for international travellers. Participants included Indonesian community pharmacy staff (pharmacists and pharmacy technicians), international travellers, and stakeholders such as pharmacy academics, board members of pharmacy organisations, travel health practitioners, travel and tour operators, and policymakers.

The interviews in this thesis were conducted individually, either face-to-face or online, to maximise feasibility and participation. Online interviews were considered less favourable among qualitative researchers, especially because they limit the insights and forms of immersion that face-to-face interviews provide (de Villiers et al., 2021; Knott et al., 2022).

However, at the same time, online interviews offer flexibility in terms of settings, scheduling, and time requirements (Knott et al., 2022), which are important considerations in this thesis, as they enabled a wide range of participants from different geographic locations in Indonesia. Potential drawbacks of mixed modes, e.g., differences in immersion and privacy, were mitigated through consistent use of the same semi-structured interview guide and procedures across modes (Carter et al., 2021; Saarijarvi & Bratt, 2021).

2.6.2. Data Recording and Analysis

With the participants' consent, data from face-to-face or online interviews were recorded in audio format and transcribed verbatim for further analysis. The video recordings automatically generated from the online platform were deleted when saving the audio data. In contrast to the reductionist nature of qualitative research's data management, qualitative data analysis is constructionist, where data segments are assembled into meaningful conceptual patterns (Polit & Beck, 2017). The "big three" in qualitative approaches, i.e., ethnography, phenomenology, and grounded theory (Korstjens & Moser, 2017), were not used in this thesis because they require a lengthy time commitment. Moreover, ethnography, phenomenology, and grounded theory were not adopted because the research questions in this thesis did not seek to produce the forms of knowledge typically associated with these traditions, i.e., a cultural description of a bounded group or setting, an essential structure of lived experience, or a formal explanatory theory developed through theoretical sampling (Korstjens & Moser, 2017; Moser & Korstjens, 2018). Instead, the research questions aimed to generate an applied understanding of international travellers' experiences and practices and to relate these empirically derived insights to a pre-specified conceptual framework relevant to self-care and travel health. Therefore, qualitative data analysis in this thesis was not bound to any analysis methods typically associated with those approaches. An inductive qualitative content analysis, followed by a deductive framework analysis, was used in this thesis.

Content analysis can be conducted inductively or deductively, with the former preferred when prior knowledge of the phenomenon of interest is insufficient or fragmented (Elo & Kyngas, 2008; Moser & Korstjens, 2018). Considering that the topic of this thesis has not been well described in the literature, inductive content analysis was selected. The main aim of content analysis is to identify themes and patterns within and among these themes (Moser & Korstjens, 2018). To achieve this aim, content analysis is performed through three main phases: preparation, organising, and reporting, with the second phase consisting of open coding, coding sheets, grouping, categorisation, and abstraction (Elo & Kyngas, 2008).

Qualitative data analysis may sometimes use inductive and deductive strategies together. Knott et al. (2022) explained that in practice, qualitative researchers often combine deductive and inductive reasoning and describe the process as iterative or an abductive approach. Abductive reasoning can be understood as the "logical inference toward the most plausible explanation, given a set of observations, although this explanation cannot be proven and is not necessarily true" (Voit, 2019). Fereday and Muir-Cochrane (2006) and Bingham (2023) argue that this hybrid approach enhances the rigour of qualitative inquiry. In this thesis, a deductive framework analysis was used to further analyse results from the inductive content analysis.

Among framework analysis methods is the Framework Method articulated by Gale and colleagues (Gale et al., 2013; Klingberg et al., 2024). This analytical method sits somewhere within a family of qualitative analysis methods, often referred to as thematic analysis or qualitative content analysis (Gale et al., 2013). Perhaps the most notable characteristic of the Framework Method is the use of a framework matrix, containing cases as rows, codes as columns, and summarised data as cells (Gale et al., 2013; Klingberg et al., 2024). The Framework Method can employ either inductive or deductive approaches, with interview data being most suitable for analysis (Gale et al., 2013). In the deductive approach employed in this thesis, themes and/or codes are pre-selected based on existing theories, prior studies, or specific

thesis objectives (Klingberg et al., 2024). The Framework Method comprises seven steps, including transcription, familiarisation, coding, developing a working analytical framework, applying the analytical framework, and data interpretation (Gale et al., 2013; Klingberg et al., 2024).

2.6.3. Sampling and Sample Size

A purposive sampling strategy with maximum variation, which is appropriate for content analysis, was used in this thesis (Moser & Korstjens, 2017). Maximum variation sampling by purposefully selecting participants or settings with variation was used to enrich the information gathering (Polit & Beck, 2017). As necessary, snowball sampling was also employed following the purposive attempts to achieve adequate samples.

The sample size in qualitative research is a subject of extensive discussions, but much of the literature embraces the data saturation concept, borrowing from the grounded theory methodology (Knott et al., 2022; Malterud et al., 2021; Malterud et al., 2016; Moser & Korstjens, 2018; Polit & Beck, 2017). The assumption of data saturation is that data collection and analysis are conducted simultaneously, guiding researchers to stop collecting new data once no new information emerges from the interviews (Knott et al., 2022; Polit & Beck, 2017). However, this can be challenging, especially for novice researchers. Knott et al. (2022) suggest a range of 12 to 20 interviews per participant category, but also agree that other researchers have reported saturation with smaller and larger samples than this range.

Criticisms towards the saturation concept question how saturation should be understood in different schools of thought, and how it serves to warrant the number of interviews (Malterud et al., 2016). Saturation also assumes that meaning inherently exists in the data and is waiting to be discovered and confirmed once saturation has been achieved (Knott et al., 2022). Consequently, some researchers advocate for an alternative concept of sample size

determination in qualitative research, particularly in health research and psychology (LaDonna et al., 2021; Malterud et al., 2021; Malterud et al., 2016). Malterud et al. (2016) proposed the concept of information power. This concept utilises five dimensions to guide researchers in gauging the sample: the breadth of the study aim, the density of sample specificity, the application of established theory, the strength of the quality of dialogue, and the type of analysis strategy (Malterud et al., 2021; Malterud et al., 2016). The application of these dimensions for each interview phase is described below. The interview guides were comprehensive. The interviews were divided into two waves to narrow the scope of the interview topics. The type of analysis strategy was framework analysis, utilising an established theory. Therefore, these considerations allow for a smaller sample size.

2.6.4. Initial Interviews

Initial Interviews were conducted at the beginning of this thesis work with community pharmacy staff (pharmacists and non-pharmacist staff) and international travellers as participants (Chapters 4-6). The fieldwork (Fieldwork I) was conducted in Borobudur and Bali. Participants who completed the interviews were eligible to receive a voucher of IDR 100,000 (approximately Australian Dollar (AUD) 9.50). The interview guides for both groups are available in Appendix A.

The sampling frame was challenging to determine for both groups of participants because public data were unavailable. For community pharmacy staff, sampling channels were the local professional associations and professional networks. The invitation flyer was disseminated through WhatsApp groups of the local professional associations. The inclusion criteria were being older than 18 years old and working as either a pharmacist or a non-pharmacist staff member in a community pharmacy located near a tourist destination. The exclusion criterion was incomplete interviews. The target and achieved sample sizes were correspondingly 10-20 and 12 participants, with the density of the sample (i.e. participants' professional role) as the

most important dimension of information power considered (Malterud et al., 2021; Malterud et al., 2016).

For international travellers, sampling channels were unavailable, and therefore, a direct approach in tourist destinations was conducted by distributing invitation flyers. The flyers were also distributed by community pharmacies near tourist destinations. International travellers must be 18 years of age or older, be able to have conversations in English, be travelling to Borobudur-Yogyakarta and/or Bali and not visit Indonesia with the primary purpose of undergoing any medical procedure (i.e., medical tourism). Data were excluded from analysis when the interviews were incomplete or when the participants refused to be audio-recorded. The target and achieved sample sizes were 10-20 and 17 participants, respectively, with sparse sample specificity (i.e. international travellers from any countries) as the most important dimension of information power considered (Malterud et al., 2021; Malterud et al., 2016). Face-to-face interviews were employed on-site with international travellers to balance out this decreased specificity. Interview data from one participant were excluded from analysis due to the participant's refusal to be audio-recorded.

The English-language inclusion criterion likely introduced sampling bias by under-representing travellers who do not speak English, and may skew the sample toward certain regions (Cuoco et al., 2022; Fiedler, 2022; Squires et al., 2020). However, this criterion is inevitable in the absence of a shared language, which introduces methodological complexity (Squires et al., 2020). Although cross-language research can be conducted with interpreters, it requires additional resources and careful attention to the interpretive role of translation to maintain rigour and transparency (Squires et al., 2020; Temple & Young, 2004). Multilingual interviewing with multiple interviewers did not align with the thesis's scope and resources; therefore, interviews were conducted in English to ensure consistency in data generation and analysis (Squires et al., 2020). English is widely used as a *lingua franca* in many international

contexts, although this does not imply that all travellers can participate in English (Albl-Mikasa et al., 2024; Fiedler, 2022). To avoid overgeneralisation beyond the sampled linguistic group, participant characteristics were documented, considered during interpretation, and reported during dissemination (Squires et al., 2020).

2.6.5. Readiness Interviews

Readiness Interviews were conducted online at the end of the work on this thesis with the community pharmacists and stakeholders, including pharmacy academics, board members of pharmacy organisations, travel health practitioners, travel and tour operators, and policymakers (Chapter 6). Participants were eligible to receive a voucher of IDR 100,000 (approximately AUD 9.50). The interview guide is available in Appendix B. The sampling frame was, again, difficult to estimate, and the channels used to purposively approach participants were professional networks. The inclusion criteria were 18 years of age or older and a professional role. Community pharmacist participants must be from outside Borobudur and Bali, as they were already represented by participants in the Initial Interviews. Incomplete interviews were excluded from analysis. The target and achieved sample sizes were correspondingly 10-20 and 14 participants, with the density of the sample (i.e. participants' professional role) as the most influential dimension of information power considered (Malterud et al., 2021; Malterud et al., 2016).

2.7 Q-Methodology

Although introduced nearly a century ago, in the 1930s, Q-methodology has been underutilised in health research, although it is gaining attention (Churruca et al., 2021; Haua et al., 2022; Watts & Stenner, 2012). Q-methodology uses abductive reasoning rather than deduction or induction (Watts & Stenner, 2012). Abduction examines the facts of a phenomenon to pursue an explanation and gain new insights, rather than providing a general description, as is the case

in induction (Watts & Stenner, 2012). Q-methodology lies on the mixed-methods continuum, employing both qualitative and quantitative approaches (Susan Ramlo, 2016; Ramlo & Newman, 2011).

Q-methodology is a systematic study of subjectivity (Susan Ramlo, 2016; Valenta & Wigger, 1997; Watts & Stenner, 2012) and applies to any topic that demands personal views to perceive the world. It is applicable to study self-care among international travellers because every traveller has personal views on performing self-care during travel. For example, some travellers may be prepared to self-treat a fever by bringing standby antipyretics, but others may not. Every individual has developed their own self-care knowledge and perceptions that are most likely to be translated into actions and behaviours. Therefore, self-care is a subjective concept, and Q-methodology can be a valuable tool for exploring and constructing perspectives. By applying Q-methodology, researchers can obtain multiple perspectives from a group of people rather than a singular view (Susan Ramlo, 2016). To conduct a Q-methodology study, researchers follow several steps, including "concourse" development, Q-set development, Q-sorting, by-person factor analysis, and interpretation and presentation (Brown, 1993; Haua et al., 2022; Lee, 2017; Watts & Stenner, 2012).

2.7.1. Concourse Development

A "concourse" is a collection of opinion statements on a particular topic (Brown, 1993; Watts & Stenner, 2012). Meanwhile, the Q-set is a subset of statements from the "concourse" (Brown, 1993; Watts & Stenner, 2012). The "concourse" and Q-set are similar to the study population and study sample in traditional R-methodology, which studies human psychological traits (Susan Ramlo, 2016; Solomon, 1955; Watts & Stenner, 2012).

Q-methodology studies differ from one another in terms of the subjective opinions to be collected and developed as a concourse. The opinions are usually expressed as verbal

statements, even though Q methodology allows the use of pictures, photographs, sounds, or other items (Akhtar-Danesh et al., 2008; Ramlo & Newman, 2011; Watts & Stenner, 2012). Statement items can be collected from various sources, such as interviews, focus-group discussions, newspaper articles, governmental hearings, or bulletins from interest groups (Brown, 1980; Ramlo & Newman, 2011). An example of the rich variety of sources that may be used to develop a single concourse is provided by Fontein-Kuipers (2016) who developed a concourse using statements collected from scientific literature, practitioner literature, reports and guidelines, interviews, media, and artworks. Statements were compiled in this study from multiple sources to gather relevant and comprehensive opinions on self-care needs among international travellers. Those sources included scientific literature, a meta-synthesis, interviews with international travellers and community pharmacy staff. Additionally the novel use of web-scraping of online discussion forums was employed to contribute statements to the concourse.

2.7.2. Meta-Synthesis

In this thesis, the literature review was conducted to serve two primary goals. The primary objective was to investigate the current understanding of self-care among individuals with voluntary, transient, and international mobility. Another goal was to collect the statements from those populations regarding self-care to assist the development of the Q-methodology's concourse. Therefore, evidence of self-care from qualitative studies, which contained direct quotations from study participants, were collected and synthesised in this study.

Over the years, approaches to synthesising qualitative research have proliferated in the health literature, and have been referred to as meta-synthesis (Mohammed et al., 2016). In contrast to meta-analysis, which synthesises quantitative studies, especially from randomised controlled trials or cohort studies, meta-synthesis does not seek to focus on an effect estimate of an intervention or treatment using statistical pooling of quantitative data (Ring et al., 2011).

Rather, meta-synthesis focuses on exploring and seeking to expand the understanding of a phenomenon (Ring et al., 2011).

Various methods of "bringing together", i.e. synthesising, qualitative research have been developed and termed differently (Ring et al., 2011; Tong et al., 2012). To name several methods used to perform a meta-synthesis, they include meta-ethnography (Noblit & Hare, 1988), meta-summary (Sandelowski & Barroso, 2003), meta-aggregation (Lockwood et al., 2015), critical interpretive synthesis (Dixon-Woods, 2011), and thematic synthesis (Thomas & Harden, 2008). Barnett-Page and Thomas (2009); Ring et al. (2011); and Tong et al. (2012) summarised and compared some of these major methods.

In this thesis, thematic synthesis was selected to guide the literature review. In comparison to other meta-synthesis approaches, Thomas and Harden's thematic synthesis offers a simple, yet clear step-by-step guide, which enhances transparency and reproducibility (Barnett-Page, 2009). The process includes line-by-line coding, developing descriptive themes from the free codes, and developing analytical themes (Thomas & Harden, 2008). Thematic synthesis aligns with traditional systematic reviews, as it enables a systematic and comprehensive search of the literature and quality appraisal to assess the degree to which the studies accurately represent their participants' views (Thomas & Harden, 2008; Tong et al., 2012). The method was based on preexisting methods, namely meta-ethnography and grounded theory, which have been developed within health research and have become popular in the field since their inception (Mohammed et al., 2016; Ring et al., 2011).

2.7.3. Web Scraping

The advent of the Internet has provided a common ground for disseminating and exchanging information about various topics, including health and self-care, with text being the most common format. Given the abundance of this pooled information, which carries a large amount

of data, it can be used for research using a technique called “web scraping”, also known as “data scraping”, “web data scraping”, “web extraction”, or “web harvesting”. Glez-Pena et al. (2014) define it as “the process of extracting and combining contents of interest from the Web in a systematic way”. Zhao (2017) incorporates data saving into the definition, which is “a technique to extract data from the World Wide Web (WWW) and save it to a file system or database for later retrieval or analysis”.

Web scraping technically involves several steps, phases or components, depending on which experts are followed (Glez-Pena et al., 2014; Krotov et al., 2020; Kumar & Roy, 2023; Zhao, 2017). Krotov et al. (2020) describe three main and interwoven phases: website analysis, website crawling, and data organisation. All phases require an understanding of some Web technologies, such as the WWW architecture, HTML, CSS, and a programming language (Krotov et al., 2020). Programming languages such as Python, C++, Ruby, Node.js, or R are several available options for the task (Kumar & Roy, 2023).

In this thesis, Internet-based forums discussing the shared experiences of international travellers preparing to visit or stay in Indonesia served as the sources for web scraping. Online forums were chosen because they serve as an online medium for sharing knowledge and information, particularly on health topics such as self-care. Studies have demonstrated the growing use of online discussions for help-seeking, which was particularly significant during the COVID-19 pandemic, despite the unknown accuracy and credibility of these sources (Lin & Kishore, 2021; Smedley & Coulson, 2018). Conversations generated from online platforms are considered authentic (Kirschbaum et al., 2019) and naturalistic (Smedley & Coulson, 2018), which are important features for concourse items in Q-methodology.

The Python language (with code examples in Appendix C) was used in this thesis, as it is known for its simplicity and extensive functionalities, including web scraping purposes (Kumar &

Roy, 2023). Python functionalities are supported by tools or frameworks known as libraries developed by its community. Several Python web scraping libraries are Scrapy, Selenium and Beautiful Soup (Glez-Pena et al., 2014; Kumar & Roy, 2023). The latter was used to supplement this thesis.

Web scraping was applied to four publicly accessible online forums from 14 to 18 December 2022: TripAdvisor (tripadvisor.com), BaliPod (balipod.com), the Living in Indonesia Expat Forum (livinginindonesiaforum.org), and the Expat Indo Forum (expatindo.org). Scraping was not limited by the posting time or language, considering the comprehensiveness and the use of mixed languages (i.e. English and Bahasa Indonesia) in a single post. Each platform has a different organisation of topics and discussions, necessitating a different scraping approach (i.e. with or without search keywords). While the Living in Indonesia Expat Forum and the Expat Indo Forum were scraped based on their organised forums/topics, TripAdvisor and BaliPod were scraped using keywords, such as 'health', 'sick', 'doctor', 'pharmacy', 'pharmacist' and 'vaccine', with each keyword executed individually. The complete list of keywords can be found in each code file (Appendix C). Deduplication was conducted before the scraped data was stored as a Comma-Separated Values (CSV) file. The scraped data were subsequently merged, systematically sampled, and preprocessed, including the removal of non-meaningful characters (e.g., HTML tags, BBCode tags, and emojis) (Appendix C).

2.7.4. Q-Set Development

The item statements composing the concourse should be reduced to a manageable number, suggested to be between 40 and 80 (Haua et al., 2022; Watts & Stenner, 2012), despite a report indicating that some participants felt 47 statements had already made them tired (Corr et al., 2005). Narrowing down the number of items from hundreds to the target range is a challenging task. Therefore, in this Q-study, two reduction steps were used while maintaining the transparency of the process.

The first step was the development of a preliminary Q-set. Prescriptive reduction methods are unavailable. However, researchers can choose between unstructured and structured sampling approaches, with the latter more suitable for subjects without pre-existing theory (Dieteren et al., 2023; Paige & Morin, 2016). In the structured approach, also known as a deductive approach, a framework or model is used to assist in mapping thematic similarities between items, regardless of their concordance or discordance (McKeown & Thomas, 2013; Paige & Morin, 2016). This technique ensures the representativeness of sampled items, clarity and credibility (Kenward, 2019; McKeown & Thomas, 2013). A self-care framework, the Self-Care Matrix (El-Osta et al., 2019) was used as a sensitising concept and to map similarities among concourse items. The matrix comprises four cardinal and interconnected dimensions: Self-Care Activities, Behaviours, Context, and Environment (El-Osta et al., 2019).

Following Paige and Morin (2016), the second step involved a review by a panel of experts on self-care, travel health, and pharmacy practice. They were invited to rate the clarity and heterogeneity of the items in the preliminary Q-set list. They were asked to rephrase statements deemed unclear. At the end of their assessment, experts were asked to provide statements that might be missed on the list. Expert ratings were calculated using a Content Validity Index (Paige & Morin, 2016). The rating process would be repeated when the number of items was not within the target range. The final number of items defines the development of the Q-grid, which is a board representing a forced-quasi-normal distribution from the agreement to disagreement continuum, where participants place the statement cards (Watts & Stenner, 2012).

2.7.5. Q-Sorting

The Q-sorting activities (Fieldwork II) took place in four study locations: Bali, Borobudur-Yogyakarta, Labuan Bajo and Toraja. The participants (called P-set) were international travellers and were approached using a maximum variation purposive sampling method. The inclusion criteria were as follows: participants were 18 years of age or older, from overseas,

with no primary purpose of medical tourism in Indonesia, able to converse in English and visiting either Bali, Borobudur-Yogyakarta, Labuan Bajo or Toraja. The exclusion criterion was incomplete Q-sorting. Participants were eligible to receive a voucher of IDR 100,000 (approximately AUD 9.5) when completing the Q-sorting.

Following a brief explanation of the study and after reading the Participant Information Statement, participants were asked to provide their consent if they voluntarily agreed to participate in the study. Participants were offered the option to sort using either digital or printed versions. The place and time for the sorting activity were determined by consensus between the prospective participants and the field researcher. Before the sorting activity, the participants were given instructions. Initially, the cards needed to be sorted into three piles: "unimportant", "no strong feeling", and "important". Each pile was then distributed to the Q-grid, responding to the question, “To what extent are these self-care-related statements the most or the least important for you as an international traveller in Indonesia?” When the items were wholly distributed to the Q-grid, participants were asked to have a final check of the configuration (Watts & Stenner, 2012). The Q-sort was recorded afterwards. Following the Q-sorting activity, participant was asked the reasons for placing particular statements on the two ends of the grid (Watts & Stenner, 2012). Q-methodology does not need a large number of participants, with 40-60 participants sufficient (Watts & Stenner, 2012). Alternatively, some researchers suggest using a ratio of 3:1 for the number of statements to participants, so that 60 Q-set statements require 20 participants (Webler et al., 2009). The achieved sample size of the Q-study in this thesis was 53 participants, as the sample size determination was conservative.

2.7.6. By-Person Factor Analysis

From the Q-sorting activities, each participant produces a Q-sort articulating their viewpoints on the topic of interest. These Q-sorts are analysed using factor analysis, referred to as a “by-person” factor analysis because the observed variable being analysed is the Q-sort rather than

the statement (Akhtar-Danesh, 2016, 2017; Susan Ramlo, 2016; Watts & Stenner, 2012). The general procedure of factor analysis remains similar to the typical method used in R-methodology, consisting of factor extraction, rotation, and interpretation.

2.7.6.1. Factor Analysis

Factor analysis is a data reduction method used to systematically study the structure of a phenomenon of interest, enabling researchers to interpret results more effectively (Akhtar-Danesh, 2016; Pett et al., 2003; Susan Ramlo, 2016; Tavakol & Wetzel, 2020; Watts & Stenner, 2012). It is not a hypothesis-testing statistical procedure, such as Student's *t*-test or ANOVA, and consists of multiple statistical methods (Pett et al., 2003). Factor analysis utilises correlation calculations, allowing researchers to group correlated observed variables, such as items in an instrument development using the R-methodology or similar viewpoints expressed as participants' Q-sorts in the Q-methodology (Akhtar-Danesh, 2016; Susan Ramlo, 2016; Tavakol & Wetzel, 2020; Watts & Stenner, 2012). The strength of the correlations between variables determines a factor's formation and distinguishes it from other factors (Akhtar-Danesh, 2016; Pett et al., 2003). The number of factors in the final solution is generally far less than the number of observed variables (Susan Ramlo, 2016; Tavakol & Wetzel, 2020).

Factor analysis has two types: Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA), with the former being the most commonly used in the Q-methodology (Pett et al., 2003; Tavakol & Wetzel, 2020; Watts & Stenner, 2012). Exploratory Factor Analysis assumes that underlying factors exist within the observed variables, which are fewer in number than the observed variables, and these factors explain the interrelationships among those variables (Kim & Mueller, 1978; Pett et al., 2003; Tavakol & Wetzel, 2020; Watkins, 2018). This assumption is substantial in Q-methodology, which aims to unravel the latent variables that explain participants' shared viewpoints, perspectives, or feelings about the topic of interest, as expressed in the Q-sorting activity.

2.7.6.2. Factor Extraction

As noted, factor analysis consists of several steps, including factor extraction, which is typically followed by factor rotation and interpretation. Several available methods for factor extraction in EFA include Principal Axis Factoring (PAF), Centroid Method, Maximum Likelihood Methods (ML), Unweighted Least Squares (ULS), Generalised Least Squares (GLS), Alpha Factoring, and Image Factoring (Akhtar-Danesh, 2016; Pett et al., 2003; Watts & Stenner, 2012). An umbrella term for these methods is Common Factor Analysis (Pett et al., 2003). Another technique commonly used for factor extraction, although not considered a factor analysis method by some experts, is Principal Component Analysis (PCA) (Tavakol & Wetzel, 2020; Watts & Stenner, 2012). In PCA, a factor is referred to as a component (Pett et al., 2003; Tavakol & Wetzel, 2020).

Pett et al. (2003) explain the main difference between these extraction methods, specifically that they calculate initial communality estimates as a prerequisite for factor extractions. The initial communality estimates are placed diagonally on the correlation matrix of the observed variables or Q-sorts in Q-methodology (Pett et al., 2003; Watts & Stenner, 2012; Zabala, 2014). PCA uses 1.00 as the initial communality estimate, the total variance that includes three types of variance: common, specific, and error (Mooi et al., 2017; Pett et al., 2003; Santos et al., 2019). Common variance is symbolised as h^2, while the combination of specific and error variances is described as unique variance ($1 - h^2$) (Mooi et al., 2017; Pett et al., 2003; Santos et al., 2019). On the other hand, the more classical approach, Common Factor Analysis, excludes the unique variance from the communality estimate (Pett et al., 2003). Therefore, methods in the Common Factor Analysis group generate values of less than 1.00 on the diagonal of the correlation matrix (Kaçak & Kılıç, 2025; Pett et al., 2003; Santos et al., 2019).

There are no strict guidelines for selecting the best factor extraction method for analysing Q-sorts among Q-methodology researchers. In fact, the factor analysis method can lead to

numerous possibilities for resulting factors (Pett et al., 2003). Statistically, PCA has gained popularity over the last decade, according to a recent systematic literature review of 613 Q methodology articles published between 2015 and 2019 (Dieteren et al., 2023). It reveals that PCA was the most common extraction method (48.5%), followed by Centroid Factor Analysis (25%) and combination or other methods (0.8%) (Dieteren et al., 2023). Interestingly, a quarter of published studies (25.6%) did not disclose the factor extraction method they employed (Dieteren et al., 2023).

Methodological debates among Q researchers agree to rule out PCA, focusing on the Centroid Method and PAF (Akhtar-Danesh, 2016, 2017; Akhtar-Danesh & Mirza, 2017; Susan Ramlo, 2016; Ramlo, 2015; Watts & Stenner, 2012). It is argued that because PCA, by design, does not seek latent variables by calculating the total variance instead of the common variance, it cannot represent the fundamental aim of Q studies, although it offers a single best mathematical solution for simplifying the structure of observed variables (Akhtar-Danesh, 2016, 2017; Akhtar-Danesh & Mirza, 2017; Susan Ramlo, 2016; Ramlo, 2015; Watts & Stenner, 2012). Proponents of the Centroid Method argue that this method offers indeterminacy or indeterminateness, a concept that enables investigators to explore multiple best solutions in pursuit of their inclinations, guided by abductive reasoning (Brown, 1980; Susan Ramlo, 2016). This indeterminacy feature made William Stephenson, the inventor of Q-methodology, choose the Centroid Method over other extraction methods (Susan Ramlo, 2016).

Indeterminacy, however, is not exclusive to the Centroid Method (Akhtar-Danesh, 2016). Pett et al. (2003) describe that factor score indeterminacy can arise from all methods in Common Factor Analysis, including the Centroid Method and PAF, because there is no unique solution to generate factor scores, unlike in PCA. Moreover, in the early development of Q methodology, the Centroid Method was used as an approximation of PAF (Akhtar-Danesh, 2016; Mulaik, 2009). It gained popularity due to saving significant computational work, which

was previously conducted manually before the advent of computers (Mulaik, 2009). Notably, Holzinger (1946), when comparing PAF and the Centroid Method to factor variances, suggested PAF as a superior method, because "they fit the data better than do the centroids". For these reasons, PAF was used for factor extraction in this Q-study.

2.7.6.3. Factor Rotation

In Factor Analysis, a factor rotation is used to make the factor solutions meaningful and easily interpretable (Akhtar-Danesh, 2017; Pett et al., 2003). In Q-methodology, manual rotation, also known as hand rotation, theoretical rotation, or judgmental rotation, is commonly used (Akhtar-Danesh, 2017; Akhtar-Danesh, 2023; Sue Ramlo, 2016). Manual rotation was introduced and commonly performed before the advent of the computer age, and its use in Q-methodology is defended as a part of abductive reasoning (Sue Ramlo, 2016). However, this method is criticised for its unclear link with abductive reasoning, and it can lead to a subjective data-driven solution (Akhtar-Danesh, 2016; Akhtar-Danesh, 2023). Other factor rotation methods are categorised into orthogonal and oblique rotations, with both having different underlying assumptions (Akhtar-Danesh, 2017; Akhtar-Danesh, 2023; Pett et al., 2003). Orthogonal rotations (e.g. Varimax, Quartimax) assume that factors are uncorrelated, contrasted with oblique rotations (e.g. Direct Oblimin, Promax) (Akhtar-Danesh, 2017; Akhtar-Danesh, 2023; Pett et al., 2003). In this thesis, self-care is recognised as a multidimensional concept (El-Osta et al., 2019; Narasimhan et al., 2019), and therefore factor solutions are considered correlated. For this reason, oblique rotations are preferable. Promax rotation works faster than Direct Oblimin and is thus more suitable for working with large datasets (Akhtar-Danesh, 2023; Pett et al., 2003). However, because the Q-study in this thesis used a small dataset of Q-sorts, Direct Oblimin was preferred. A p-value ≤ 0.05 was used to determine a statistically significant factor loading to one factor, with a factor loading referred to as a correlation between a Q-sort and the

factor (Akhtar-Danesh, 2018). Factor retention criteria, including the scree plot and Kaiser-Guttman criteria, are discussed in more detail in Chapter 5.

2.7.6.4. Software

Several software dedicated to Q-methodology data collection and analysis are available, some proprietary and others free, such as EQ Web Sort, PQMethod, KADE, Ken-Q Analysis, and qfactor (a Stata extension). In this thesis, EQ Web Sort version 6.0.0 (Banasick, 2024) was used for data collection because it is customisable and does not require programming skills. For data analysis, the qfactor module version 2.40 (Akhtar-Danesh, 2018) was used in Stata 18 because it accommodates PAF and Direct Oblimin. The Stata code is presented in Appendix D.

2.7.7. Interpretation and Presentation

By-person factor analysis provided a characteristic table, a distinguishing statement table, and a consensus table. These tables, combined with qualitative data, i.e. the reasons provided by the participants during the Q-sorting activity, become the basis of factor interpretation. Details on the interpretations are explained in Chapter 5. In terms of reporting, Dieteren et al. (2023) proposed the presentation structure of a Q-study. Along with other literature, a reporting style for a Q-study was also outlined (Hackert et al., 2019; Hazen et al., 2016; Watts & Stenner, 2012). Chapter 5 is presented in accordance with this reporting format.

2.8 Personas

In this thesis, personas were used during the second wave of interviews (Readiness Interviews) with Indonesian community pharmacy staff and stakeholders. Personas were first conceptualised in 1998 by Alan Cooper in the field of information technology as a practical interaction design tool (Cooper, 2003; Kerr & Kelly, 2024; Nielsen et al., 2015). Since then, its use has proliferated in various fields, including information technology, marketing, communication, and product development (Nielsen et al., 2015), as well as healthcare research

(Ali & Rogers, 2022). Cooper (2004) defined personas as pretend users with hypothetical archetypes of actual users. Nielsen et al. (2015) provided a more technical definition of a persona as "a description of a fictitious user constructed from different categories of field data—questionnaires, user interviews, observations, probes, and/or internal discussions".

Personas are used to represent the characteristics of multiple users, including behaviours, attitudes, aptitudes, goals, reasons, needs, and preferences (Cooper, 2004; Cooper et al., 2014; Nielsen, 2018; Nielsen et al., 2015). Personas serve as a medium for communication, especially among the design team, about different types of users and their needs throughout various stages of design (Cooper et al., 2014; Pruitt & Grudin, 2003; Ward, 2010). In information technology, personas help designers focus their attention on a specific target market, identifying to whom the product is designed and who it is not (Pruitt & Grudin, 2003).

There are variations on how designers and researchers develop personas. Following Cooper et al. (2014) and Floyd et al. (2008), Kerr and Kelly (2024, p. 192) identified personas' essential characteristics that are a persona's name, a visual representation of the persona, and a description to tell a story to create the persona "feel real" and to keep the focus on design-relevant details. In their attempt to develop a generic template for personas, Nielsen et al. (2015) identified five major categories, including background information, design-related information, business and marketing-related information, graphics, and miscellaneous. A persona is described by a name and a tagline that characterises the persona, e.g., "The digital self-servers" (Nielsen et al., 2015). Cooper (2004) noted that personas' names and personal details can be generated. Design-related information can include a scenario as part of a narrative about a daily routine (Nielsen et al., 2015). Visual representation, such as photographs or sketches, can be used to enhance personas' descriptions and foster empathy (Kerr & Kelly, 2024; Nielsen et al., 2015). However, the use of photographs of a real person can provide cultural cues that can interfere with understanding or relating to a persona (Nielsen et al., 2015).

Researchers allow the use of "twin personas", which are superficially different from each other but are similar or identical in regard to particular aspects of the design problem (Floyd et al., 2008; Nielsen et al., 2015). Although the use of twin personas provides information redundancy, it could broaden the designer's perspective by exploring diverse user characteristics and revealing a wide range of potential issues (Floyd et al., 2008).

Cooper (2004) suggested that although personas are fictitious, they are developed with significant rigour and precision, requiring research and observations of real people. Cooper et al. (2014) were in favour of qualitative studies to generate data sources to develop personas, with other inquiries being supplementary. Other researchers and designers utilised quantitative or mixed methods approaches (Floyd et al., 2008; Jansen et al., 2022).

In this thesis, results from the Q-study guided the development of personas. Previous reports have utilised this Q-methodology to create personas among higher education students (Yang, 2023) and patients and caregivers (Agapie et al., 2019), as well as to determine archetypes of farmers (Leonhardt et al., 2022). In this thesis, personas were used to communicate different self-care needs between traveller archetypes to the interviewees. Twin personas for each archetype were developed based on the country of origin of the Q-study participants and the government's visitor statistics to represent the diversity of language and communication challenges (Appendix B). Different clinical scenarios, informed by the study's initial interviews and Q-study, as well as a literature review, were added to the personas. Tourist destinations and relevant activities were elaborated to describe possible situations of the personas. The personas and clinical scenarios were presented during the interview after the participant responded to the first two questions about their professional background and perspectives on the roles of community pharmacies in supporting international travellers (Appendix B). Each participant was given time to review the personas and clinical scenarios and to clarify information.

2.9 Ethical Considerations

The University of Sydney's Human Research Ethics Committee, Australia (2022/HE000938) (Appendix E) and The Ethical Committee of Medical Research, Faculty of Dentistry, Universitas Jember, Indonesia (No. 1959/UN25.8/KEPK/DL/2023) (Appendix F) approved the protocol for Chapters 4-6. Web scraping in Chapter 4 was used to collect online forum posts only from publicly accessible pages, and the research team did not contact users, join discussions, or have a position to access restricted/private spaces (Franzke et al., 2020; Kaye et al., 2021). Ethical decision-making for internet-mediated research requires attention to contextual integrity and the public-private distinction; therefore, precautions were taken to minimise potential harm and identifiability (Franzke et al., 2020; Kaye et al., 2021). Usernames were excluded from the dataset during preprocessing, and analysis was conducted on de-identified text (Franzke et al., 2020; Kaye et al., 2021; Townsend & Wallace, 2016). The Indonesian national and local government offices, i.e. Ministry of Internal Affairs and the National and Political Unity Agency (*Badan Kesatuan Bangsa dan Politik*, *Bakesbangpol*), as well as the Indonesian Pharmacist Association (*Ikatan Apoteker Indonesia*, *IAI*) and the Indonesian Pharmacy Experts Union (*Persatuan Ahli Farmasi Indonesia*, *PAFI*), were informed of this thesis. The participant information statements were provided in both English and Bahasa Indonesia, along with the consent form and invitation flyers.

2.10 References

Access and Delivery Partnership. (2024). *Training Report: Smile for Rabies Application in Bali and East Nusa Tenggara Provinces*. UNDP. https://adphealth.org/resource/103/training-report-smile-for-rabies-application-in-bali-and-east-nusa-tenggara-provinces/

Adams, K. M. (1997). Touting Touristic Primadonas: On Tourism, Ethnic Negotiation and National Integration in Sulawesi Indonesia. In M. Picard & R. Woods (Eds.), *Tourism, Ethnicity, and the State in Asian and Pacific Societies*. University of Hawai'i Press.

Akhtar-Danesh, N. (2016). An Overview of the Statistical Techniques in Q Methodology: Is There a Better Way of Doing Q Analysis? *Operant Subjectivity*, *38*(3/4).

Akhtar-Danesh, N. (2017). A Comparison between Major Factor Extraction and Factor Rotation Techniques in Q-Methodology. *Open Journal of Applied Sciences*, *07*(04), 147-156. https://doi.org/10.4236/ojapps.2017.74013

Akhtar-Danesh, N. (2018). qfactor: A Command for Q-Methodology Analysis. *The Stata Journal*, *18*(2), 432-446. https://doi.org/10.1177/1536867x1801800209

Akhtar-Danesh, N. (2023). Impact of Factor Rotation on Q-Methodology Analysis. *PLOS ONE*, *18*(9), e0290728. https://doi.org/10.1371/journal.pone.0290728

Akhtar-Danesh, N., Baumann, A., & Cordingley, L. (2008). Q-Methodology in Nursing Research: A Promising Method for the Study of Subjectivity. *Western Journal of Nursing Research*, *30*(6), 759-773. https://pubmed.ncbi.nlm.nih.gov/18337548/

Akhtar-Danesh, N., & Mirza, N. (2017). Relation between Manual Rotation and Abductive Reasoning in Q-Methodology. *Open Journal of Social Sciences*, *05*(03), 198-204. https://doi.org/10.4236/jss.2017.53017

Albl-Mikasa, M., Ehrensberger-Dow, M., Gieshoff, A. C., & Hunziker Heeb, A. (2024). English as a Lingua Franca in Interpreting and Translation: A Survey of Practitioners. *Frontiers in Communication*, *9*. https://doi.org/10.3389/fcomm.2024.1413110

Ali, P., & Rogers, M. (2022). Use of Personas and Participative Methods When Researching with Hard-to-Reach Groups. In (pp. 41-50). https://doi.org/10.1007/978-3-030-94423-0_4

Altschuld, J. W., Hung, H. L., & Lee, Y. F. (2014). Needs Assessment and Asset/Capacity Building: A Promising Development in Practice. In *New Directions for Evaluation* (Vol. 2014, pp. 89-103).

Asa, G. A., Fauk, N. K., McLean, C., & Ward, P. R. (2024). Medical Tourism among Indonesians: A Scoping Review. *BMC Health Service Research*, *24*(1), 49. https://doi.org/10.1186/s12913-023-10528-1

Asadi-Lari, M., Packham, C., & Gray, D. (2003). Need for Redefining Needs. *Health and Quality of Life Outcomes*, *1*, 1-5. https://doi.org/10.1186/1477-7525-1-34

Ayuningtyas, D., Fachry, A., Sutrisnawati, N. N. D., & Munawaroh, S. (2020). Medical Tourism as the Improvement of Public Health Service: A Case Study in Bali and West Nusa Tenggara. *Enfermería Clínica*, *30*, 127-129. https://doi.org/10.1016/j.enfcli.2020.06.029

Banasick, S. (2024). *EQ Web Sort*. In (Version 7.0.0) Zenodo. https://doi.org/10.5281/zenodo.13684502

Barnett-Page, E., & Thomas, J. (2009). Methods for the Synthesis of Qualitative Research: A Critical Review. *BMC Medical Research Methodology*, *9*, 59. https://doi.org/10.1186/1471-2288-9-59

Benjamin, S. (1989). A Closer Look at Needs Analysis and Needs Assessment: Whatever Happened to the Systems Ppproach? *Performance and Instruction*, *28*(9), 12-16.

Bingham, A. J. (2023). From Data Management to Actionable Findings: A Five-Phase Process of Qualitative Data Analysis. *International Journal of Qualitative Methods*, *22*. https://doi.org/10.1177/16094069231183620

BPS-Statistics Sulawesi Selatan Province. (2024). *Kasus Penyakit Menurut Kabupaten/Kota Dan Jenis Penyakit Di Provinsi Sulawesi Selatan, 2020*. https://sulsel.bps.go.id/id/statistics-table/3/YTA1Q1ptRmhUMEpXWTBsQmQyZzBjVzgwUzB4aVp6MDkjMw==/kasus-penyakit-menurut-kabupate

Bradshaw, J. (1972). Taxonomy of Social Need. In G. McLachlan (Ed.), *Problems and progress in medical care: essays on current research* (pp. 71-82). Oxford University Press

Brinkmann, S., & Brinkmann, S. (2023). Introduction to Qualitative Interviewing. In *Qualitative Interviewing: Conversational Knowledge Through Research Interviews*. Oxford University Press. https://doi.org/10.1093/oso/9780197648186.003.0001

Brown, S. R. (1980). *Political Subjectivity: Applications of Q Methodology in Political Science* (Vol. 2). Yale University Press.

Brown, S. R. (1993). A Primer on Q Methodology. *Operant Subjectivity*, *16*, 91-138.

Budiapsari, P. I., Widhidewi, W., Muliawan, K. H., & Wirawan, A. (2023). Risk Factors of Injury Severity Level in Foreign Tourists Visiting Bali. *Muhammadiyah Medical Journal*, *4*(1). https://doi.org/10.24853/mmj.4.1.25-31

Bulkley, C. F., Miller, M. J., Bush, C. G., Nussbaum, B. B., & Draugalis, J. R. (2017). Needs Assessment for Developing a Program to Help Train Advanced-Practice Pharmacists for Research. *American Journal of Health-System Pharmacy*, *74*(23), 1986-1995.

Buntugayang, R. R., & Hasniati. (2025). Tourism as an Emerging Economic Driver: Analyzing Sector Competitiveness and Growth Potential in Tana Toraja Regency, Indonesia. *International Journal of Environmental Sciences*, 61-69. https://doi.org/10.64252/vtzxgr10

Carter, S. M., Shih, P., Williams, J., Degeling, C., & Mooney-Somers, J. (2021). Conducting Qualitative Research Online: Challenges and Solutions. *Patient*, *14*(6), 711-718. https://doi.org/10.1007/s40271-021-00528-w

Cavanagh, S., & Chadwick, K. (2005). *Health Needs Assessment: A Practical Guide*. National Institute for Health and Clinical Excellence. https://shisiradhikari.com/storage/uploads/library/files/ilide.info-health-needs-assessment-a-practical-guide-pr_a47556257a69a8d6c31fce9a26a01fb9.pdf

Cha, E., Shin, M. H., Smart, M., Jang, H., Lee, J., Joung, K. H., Kim, H. J., & Faulkner, M. S. (2022). Q-Methodology and Psychological Phenotyping to Design Patient-Centered Diabetes Education for Persons with Type 2 Diabetes on Insulin Therapy. *The Science of Diabetes Self-Management and Care*, *48*(2), 98-110. https://doi.org/10.1177/26350106221076035

Chee, H. Y., Kok, C., & JKo, I. (2025). *In Focus: Indonesia*. HVS. Retrieved 1 November 2025 from https://www.hvs.com/article/10215-in-focus-indonesia

Chinnis, A. S., Paulson, D. J., & Davis, S. M. (2001). Using Q Methodology to Assess the Needs of Emergency Medicine Support Staff Employees. *The Journal of emergency medicine*, *20*(2), 197-203.

Churruca, K., Ludlow, K., Wu, W., Gibbons, K., Nguyen, H. M., Ellis, L. A., & Braithwaite, J. (2021). A Scoping Review of Q-Methodology in Healthcare Research. *BMC Medical Research Methodology*, *21*(1), 125. https://doi.org/10.1186/s12874-021-01309-7

Cooper, A. (2003). *The Origin of Personas*. https://www.cooper.com/journal/2008/5/the_origin_of_personas

Cooper, A. (2004). *Why High-Tech Products Drive Us Crazy and How to Restore the Sanity*. Sams Publishing. https://books.google.com.au/books?id=04cFCVXC_AUC

Cooper, A., Reimann, R., Cronin, D., Noessel, C., Csizmadi, J., & LeMoine, D. (2014). *About Face: The Essentials of Interaction Design*. Wiley. https://books.google.com.au/books?id=w9Q5BAAAQBAJ

Corr, S., Neill, G., & Turner, A. (2005). Comparing an Occupational Therapy Definition and Consumers' Experiences. *British Journal of Occupational Therapy*, *68*(8), 338-346.

Creswell, J. W. (2014). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. SAGE Publications. https://books.google.com.au/books?id=4uB76IC_pOQC

Culyer, A. J. (2014). *The Dictionary of Health Economics*. Edward Elgar Publishing.

Culyer, A. J., & Wagstaff, A. (1993). Equity and Equality in Health and Health Care. *Journal of health economics*, *12*(4), 431-457.
Cuoco, A., Arcadi, P., Figura, M. C., Piervisani, L., Alvaro, R., Vellone, E., & Durante, A. (2022). Designing and Conducting Qualitative Research across Countries and Cultures: Challenges for Inclusiveness and Rigour. *European Journal of Cardiovascular Nursing*, *21*(8), 873-879. https://doi.org/10.1093/eurjcn/zvac067
Damanik, J., & Yusuf, M. (2022). Effects of Perceived Value, Expectation, Visitor Management, and Visitor Satisfaction on Revisit Intention to Borobudur Temple, Indonesia. *Journal of Heritage Tourism*, *17*(2), 174-189. https://doi.org/10.1080/1743873x.2021.1950164
de Villiers, C., Farooq, M. B., & Molinari, M. (2021). Qualitative Research Interviews Using Online Video Technology – Challenges and Opportunities. *Meditari Accountancy Research*, *30*(6), 1764-1782. https://doi.org/10.1108/medar-03-2021-1252
DeJonckheere, M., & Vaughn, L. M. (2019). Semistructured Interviewing in Primary Care Research: A Balance of Relationship and Rigour. *Family Medicine and Community Health*, *7*(2), e000057. https://doi.org/10.1136/fmch-2018-000057
Denny, E., & Weckesser, A. (2022). How to Do Qualitative Research?: Qualitative Research Methods. *BJOG*, *129*(7), 1166-1167. https://doi.org/10.1111/1471-0528.17150
Dieteren, C. M., Patty, N. J. S., Reckers-Droog, V. T., & van Exel, J. (2023). Methodological Choices in Applications of Q Methodology: A Systematic Literature Review. *Social Sciences & Humanities Open*, *7*(1). https://doi.org/10.1016/j.ssaho.2023.100404
Ditjen Yankes. (2021). *Daftar Rumah Sakit*. Retrieved 1 November 2025 from https://sirs.kemkes.go.id/fo/home/dashboard_rs?id=0
Dixon-Woods, M. (2011). Using Framework-Based Synthesis for Conducting Reviews of Qualitative Studies. *BMC Medicine*, *9*, 39. https://doi.org/10.1186/1741-7015-9-39
Dwibaskoro, A. (2024). *Labuan Bajo: A New Frontier for Foreign Investment in Tourism and Infrastructure*. https://expatindonesia.id/2024/labuan-bajo-a-new-frontier-for-foreign-investment-in-tourism-and-infrastructure/
El-Osta, A., Webber, D., Gnani, S., Banarsee, R., Mummery, D., Majeed, A., & Smith, P. (2019). The Self-Care Matrix: A Unifying Framework for Self-Care. *SelfCare*, *10*(3), 38-56.
Elo, S., & Kyngas, H. (2008). The Qualitative Content Analysis Process. *Journal of Advanced Nursing*, *62*(1), 107-115. https://doi.org/10.1111/j.1365-2648.2007.04569.x
Emma, R., Yuyun, U., Deni Wahyudi, K., Mochamad Iqbal, N., Mukhaer, P., Husnan, N., Slamet, B., & Virgo Sulianto, G. (2024). Analysis of the Market Structure of Hospital Industry in Indonesia. *Jurnal Administrasi Kesehatan Indonesia*, *12*(1), 37-48. https://doi.org/10.20473/jaki.v12i1.2024.37-48
Erb, M. (1987). *Identification of Training Needs: A Focus Group Interview/Q-Sort Methodology* Western Kentucky University]. Bowling Green.
Fereday, J., & Muir-Cochrane, E. (2006). Demonstrating Rigor Using Thematic Analysis: A Hybrid Approach of Inductive and Deductive Coding and Theme Development. *International Journal of Qualitative Methods*, *5*(1), 80-92. https://doi.org/10.1177/160940690600500107
Fiedler, S. (2022). English as a Lingua Franca and Linguistic Justice: Insights from Exchange Students' Experiences. *International Journal of the Sociology of Language*, *2022*(277), 17-32. https://doi.org/10.1515/ijsl-2021-0075
Flaherty, G. T., Chen, B., & Avalos, G. (2017). Individual Traveller Health Priorities and the Pre-Travel Health Consultation. *Journal of travel medicine*, *24*(6), 1-4. https://doi.org/10.1093/jtm/tax059

Floyd, I. R., Cameron Jones, M., & Twidale, M. B. (2008). Resolving Incommensurable Debates: A Preliminary Identification of Persona Kinds, Attributes, and Characteristics. *Artifact*, *2*(1), 12-26. https://doi.org/10.1080/17493460802276836

Fontein-Kuipers, Y. (2016). Development of a Concourse for a Q-Method Study About Midwives' Perspectives of Woman-Centered Care. *Health Education and Care*, *1*(2). https://doi.org/10.15761/hec.1000107

Franzke, A. S., Bechmann, A., Zimmer, M., & Ess, C. (2020). Internet Research: Ethical Guidelines 3.0. 2020. British Psychological Society,

Fu, Y. L., Yang, C. L., Yu, S. C., Lin, Y. H., Hsu, H. P., & Huang, C. M. (2021). Nursing Students' Perceptions of Menstrual Distress During Clinical Practice: A Q-Methodology Study. *International Journal of Environmental Research and Public Health*, *18*(6). https://doi.org/10.3390/ijerph18063160

Gale, N. K., Heath, G., Cameron, E., Rashid, S., & Redwood, S. (2013). Using the Framework Method for the Analysis of Qualitative Data in Multi-Disciplinary Health Research. *BMC Medical Research Methodology*, *13*, 117. https://doi.org/10.1186/1471-2288-13-117

Glez-Pena, D., Lourenco, A., Lopez-Fernandez, H., Reboiro-Jato, M., & Fdez-Riverola, F. (2014). Web Scraping Technologies in an API World. *Briefings in Bioinformatics*, *15*(5), 788-797. https://doi.org/10.1093/bib/bbt026

Hackert, M. Q. N., Brouwer, W. B. F., Hoefman, R. J., & van Exel, J. (2019). Views of Older People in the Netherlands on Wellbeing: A Q-Methodology Study. *Social Science & Medicine*, *240*, 112535. https://doi.org/10.1016/j.socscimed.2019.112535

Haua, R., Wolf, A., Harrison, J., & Aspden, T. (2022). Q Methodology: An Underutilised Tool in Pharmacy Practice Research. *Research in Social and Administrative Pharmacy*, *18*(1), 2178-2183. https://doi.org/10.1016/j.sapharm.2021.04.008

Hazen, A. C., Wal, A. W., Sloeserwij, V. M., Zwart, D. L., Gier, J. J., Wit, N. J., Leendertse, A. J., Bouvy, M. L., & Bont, A. A. (2016). Controversy and Consensus on a Clinical Pharmacist in Primary Care in the Netherlands. *International Journal of Clinical Pharmacy*, *38*(5), 1250-1260. https://doi.org/10.1007/s11096-016-0360-z

Hind, C. A., Bond, C. M., Lee, A. J., & Van Teijlingen, E. R. (2008). Needs Assessment Study for Community Pharmacy Travel Medicine Services. *Journal of travel medicine*, *15*(5), 328-334.

Hitchcock, M., & Putra, I. N. D. (2007). *Tourism, Development and Terrorism in Bali*. Routledge. https://www.routledge.com/Tourism-Development-and-Terrorism-in-Bali/Hitchcock/p/book/9781138358478

Hollingsworth, A. B. (2013). *Q Methodology as a Needs Assessment Tool for Biology Graduate Teaching Assistants Participating in an Instructional Training Program* The University of Akron].

Holzinger, K. J. (1946). A Comparison of the Principal-Axis and Centroid Factors. *The Journal of Educational Psychology*, *37*(8), 24.

Indonesian Ministry of Health. (2020). *[Hospital Classification and Licensing]*. Jakarta: Ministry of Health

Indriani, C., Tantowijoyo, W., Rances, E., Andari, B., Prabowo, E., Yusdi, D., Ansari, M. R., Wardana, D. S., Supriyati, E., Nurhayati, I., Ernesia, I., Setyawan, S., Fitriana, I., Arguni, E., Amelia, Y., Ahmad, R. A., Jewell, N. P., Dufault, S. M., Ryan, P. A., . . . Utarini, A. (2020). Reduced Dengue Incidence Following Deployments of Wolbachia-Infected Aedes aegypti in Yogyakarta, Indonesia: A Quasi-Experimental Trial Using Controlled Interrupted Time Series Analysis. *Gates Open Research*, *4*, 50. https://doi.org/10.12688/gatesopenres.13122.1

Jansen, B. J., Jung, S.-G., Nielsen, L., Guan, K. W., & Salminen, J. (2022). How to Create Personas: Three Persona Creation Methodologies with Implications for Practical Employment. *Pacific Asia Journal of the Association for Information Systems*, *14*, 1-28. https://doi.org/10.17705/1pais.14301

Jordan, J., & Wright, J. (1997). Making Sense of Health Needs Assessment. *The British Journal of General Practice*, *47*(424), 695.

Kaçak, T., & Kılıç, A. F. (2025). Factor Extraction in Exploratory Factor Analysis for Ordinal Indicators: Is Principal Component Analysis the Best Option? *International Journal of Assessment Tools in Education*, *12*(1), 113-130. https://doi.org/10.21449/ijate.1481201

Kaisar, M. M., Supali, T., Wiria, A. E., Hamid, F., Wammes, L. J., Sartono, E., Luty, A. J., Brienen, E. A., Yazdanbakhsh, M., & Van Lieshout, L. (2013). Epidemiology of Plasmodium Infections in Flores Island, Indonesia Using Real-Time PCR. *Malaria journal*, *12*(1), 169. https://doi.org/10.1186/1475-2875-12-169

Kausar, D. R. (2012). Sustainability in the Management of World Cultural Heritage. In M. Kasimoglu (Ed.), *Vision for Global Tourism Industry* (pp. 431-440). IntechOpen.

Kausar, D. R. K., & Gunawan, M. P. (2018). Managing Heritage Tourism in Toraja: Strengthening Local Values and Improving Tourists' Experiences. *Journal of Heritage Tourism*, *13*(6), 550-561. https://doi.org/10.1080/1743873x.2017.1411356

Kaye, L., Hewson, C., Buchanan, T., Coulson, N., Branley-Bell, D., Fullwood, C., & Devlin, L. (2021). *Ethics Guidelines for Internet-Mediated Research*. British Psychological Society London, UK. https://www.bps.org.uk/guideline/ethics-guidelines-internet-mediated-research

Kenward, L. (2019). A Literature Review to Guide Novice Researchers Using Q Methodology in the Development of a Framework for Concourse Management. *Nurse Researcher*, *27*(1), 17-21. https://doi.org/10.7748/nr.2019.e1616

Kerr, J., & Kelly, N. (2024). Use of Personas in Co-Designing Learning Experiences with Teachers: An Exploratory Case Study. *International Journal of Technology and Design Education*, *35*(1), 189-207. https://doi.org/10.1007/s10798-024-09900-x

Kim, J. O., & Mueller, C. W. (1978). *Introduction to Factor Analysis: What It Is and How to Do It*. SAGE Publications. https://books.google.com.au/books?id=0BySLTuM1EkC

Kirschbaum, M., Barnett, T., & Cross, M. (2019). Q Sample Construction: A Novel Approach Incorporating a Delphi Technique to Explore Opinions About Codeine Dependence. *BMC Medical Research Methodology*, *19*(1). https://doi.org/10.1186/s12874-019-0741-9

Klingberg, S., Stalmeijer, R. E., & Varpio, L. (2024). Using Framework Analysis Methods for Qualitative Research: AMEE Guide No. 164. *Medical Teacher*, *46*(5), 603-610. https://doi.org/10.1080/0142159X.2023.2259073

Knott, E., Rao, A. H., Summers, K., & Teeger, C. (2022). Interviews in the Social Sciences. *Nature Reviews Methods Primers*, *2*(1). https://doi.org/10.1038/s43586-022-00150-6

Korstjens, I., & Moser, A. (2017). Series: Practical Guidance to Qualitative Research. Part 2: Context, Research Questions and Designs. *European Journal of General Practice*, *23*(1), 274-279. https://doi.org/10.1080/13814788.2017.1375090

Krotov, V., Johnson, L., & Silva, L. (2020). Legality and Ethics of Web Scraping. *Communications of the Association for Information Systems*, *47*, 539-563. https://doi.org/10.17705/1cais.04724

Kumar, S., & Roy, U. B. (2023). A Technique of Data Collection. In *Statistical Modeling in Machine Learning* (pp. 23-36). https://doi.org/10.1016/b978-0-323-91776-6.00011-7

LaDonna, K. A., Artino, A. R., Jr., & Balmer, D. F. (2021). Beyond the Guise of Saturation: Rigor and Qualitative Interview Data. *Journal of Graduate Medical Education*, *13*(5), 607-611. https://doi.org/10.4300/JGME-D-21-00752.1

Lasso, A., & Dahles, H. (2020). Fishermen into Tour Boat Operators. In *Tourism and Development in Southeast Asia* (pp. 133-146). Routledge. https://doi.org/10.4324/9780429264191-9

Lee, B. S. (2017). The Fundamentals of Q Methodology. *Journal of Research Methodology*, *2*(2), 57-95. https://doi.org/10.21487/jrm.2017.11.2.2.57

Leonhardt, H., Braito, M., & Uehleke, R. (2022). Combining the Best of Two Methodological Worlds? Integrating Q Methodology-Based Farmer Archetypes in a Quantitative Model of Agri-Environmental Scheme Uptake. *Agric Human Values*, *39*(1), 217-232. https://doi.org/10.1007/s10460-021-10242-w

Lin, X., & Kishore, R. (2021). Social Media-Enabled Healthcare: A Conceptual Model of Social Media Affordances, Online Social Support, and Health Behaviors and Outcomes. *Technological Forecasting and Social Change*, *166*. https://doi.org/10.1016/j.techfore.2021.120574

Lockwood, C., Munn, Z., & Porritt, K. (2015). Qualitative Research Synthesis: Methodological Guidance for Systematic Reviewers Utilizing Meta-Aggregation. *International Journal of Evidence-Based Healthcare*, *13*(3), 179-187. https://doi.org/10.1097/XEB.0000000000000062

Mahendradhata, Y., Trisnantoro, L., Listyadewi, S., Soewondo, P., Marthias, T., Harimurti, P., & Prawira, J. (2017). The Republic of Indonesia Health System Review. *Health Systems in Transition*, *7*(1). http://apps.who.int/iris/bitstream/10665/254716/1/9789290225164-eng.pdf

Malterud, K., Siersma, V., Guassora, A. D., & Camic, P. M. (2021). Information Power: Sample Content and Size in Qualitative Studies. In (2nd ed., pp. 67-81). American Psychological Association. https://doi.org/10.1037/0000252-004

Malterud, K., Siersma, V. D., & Guassora, A. D. (2016). Sample Size in Qualitative Interview Studies: Guided by Information Power. *Qualitative Health Research*, *26*(13), 1753-1760. https://doi.org/10.1177/1049732315617444

McEwen, J., Russell, E., & Stewart, S. (1995). Needs Assessment in Scotland: Collaboration in Publichealth. *Public Health*, *109*(3), 179-185.

McKeown, B., & Thomas, D. B. (2013). *Q Methodology*. SAGE Publications. https://books.google.com.au/books?id=xzl1AwAAQBAJ

Meiers, M. W., Watkins, R., & Song, K. M. (2014). International Perspectives: Similarities and Differences around the Globe. In *New Directions for Evaluation* (Vol. 2014, pp. 75-87).

Meilianti, S., Smith, F., Ernawati, D. K., Pratita, R. N., & Bates, I. (2021). A Country-Level National Needs Assessment of the Indonesian Pharmacy Workforce. *Research in Social and Administrative Pharmacy*, *17*(11), 1989-1996.

Mohammed, M. A., Moles, R. J., & Chen, T. F. (2016). Meta-Synthesis of Qualitative Research: The Challenges and Opportunities. *International Journal of Clinical Pharmacy*, *38*(3), 695-704. https://doi.org/10.1007/s11096-016-0289-2

Mooi, E., Sarstedt, M., & Mooi-Reci, I. (2017). Principal Component and Factor Analysis. In *Market Research: The Process, Data, and Methods Using Stata* (pp. 265-311). Springer.

Moon, K., & Blackman, D. (2014). A Guide to Understanding Social Science Research for Natural Scientists. *Conservation biology*, *28*(5), 1167-1177.

Moser, A., & Korstjens, I. (2017). Series: Practical Guidance to Qualitative Research. Part 1: Introduction. *European Journal of General Practice*, *23*(1), 271-273. https://doi.org/10.1080/13814788.2017.1375093
Moser, A., & Korstjens, I. (2018). Series: Practical Guidance to Qualitative Research. Part 3: Sampling, Data Collection and Analysis. *European Journal of General Practice*, *24*(1), 9-18. https://doi.org/10.1080/13814788.2017.1375091
Mulaik, S. A. (2009). *Foundations of Factor Analysis* (2 ed.). Chapman and Hall/CRC. https://doi.org/10.1201/b15851
Nagaoka, M. (2011). Revitalization of Borobudur: Heritage Tourism Promotion and Local Community Empowerment in Cultural Industries. ICOMOS,
Narasimhan, M., Allotey, P., & Hardon, A. (2019). Self Care Interventions to Advance Health and Wellbeing: A Conceptual Framework to Inform Normative Guidance. *Bmj*, *365*, l688. https://doi.org/10.1136/bmj.l688
Nielsen, L. (2018). Design Personas – New Ways, New Contexts. *Persona Studies*, *4*, 1. https://doi.org/10.21153/psj2018vol4no2art799
Nielsen, L., Hansen, K. S., Stage, J., & Billestrup, J. (2015). A Template for Design Personas. *International Journal of Sociotechnology and Knowledge Development*, *7*(1), 45-61. https://doi.org/10.4018/ijskd.2015010104
Noblit, G. W., & Hare, R. D. (1988). Meta-Ethnography Synthesizing Qualitative Studies. In *Qualitative Research Methods* (pp. 27-37). Sage. https://doi.org/10.4135/9781412985000.n2
Nuka, F. M. (2022). KKP Labuan Bajo Perkuat Surveilans Migrasi Malaria. *Antara News NTT*. https://kupang.antaranews.com/berita/102631/kkp-labuan-bajo-perkuat-surveilans-migrasi-malaria-di-pintu-pintu-masuk
Olavia, L. (2022). Siloam's LBMIC Medical Center to Bolster Labuan Bajo's Tourism. *Jakartaglobe.id*. https://jakartaglobe.id/news/siloams-lbimc-medical-center-to-bolster-labuan-bajos-tourism
Ollivaud, P., & Haxton, P. (2019). *Making the Most of Tourism in Indonesia to Promote Sustainable Regional Development*. https://www.oecd-ilibrary.org/content/paper/c73325d9-en
Paige, J. B., & Morin, K. H. (2016). Q-Sample Construction. *Western Journal of Nursing Research*, *38*(1), 96-110. https://doi.org/10.1177/0193945914545177
Petersen, D. J., & Alexander, G. R. (2001). *Needs Assessment in Public Health: A Practical Guide for Students and Professionals*. Springer.
Pett, M., Lackey, N., & Sullivan, J. (2003). *Making Sense of Factor Analysis*. SAGE Publications, Inc. https://doi.org/10.4135/9781412984898
Polit, D. F., & Beck, C. T. (2017). *Nursing Research: Generating and Assessing Evidence for Nursing Practice*. Wolters Kluwer Health. https://books.google.com.au/books?id=O7HRoQEACAAJ
Potin, M., Carron, P. N., & Genton, B. (2024). Injuries and Medical Emergencies among International Travellers. *Journal of Travel Medicine*, *31*(1). https://doi.org/10.1093/jtm/taad088
Pruitt, J., & Grudin, J. (2003). *Personas: Practice and Theory*. https://doi.org/10.1145/997078.997089
Ramadhani, D. P., Alamsyah, A., Nada, M. S., & Reditya Murti, Y. (2024). *Long-Term Comparative Analysis of Tourist Mobility Patterns in Southeast Asia* 2024 International Conference on Data Science and Its Applications (ICoDSA),
Ramlo, S. (2016). Centroid and Theoretical Rotation: Justification for Their Use in Q Methodology Research. *Mid-Western Educational Researcher*, *28*(1), 20. https://scholarworks.bgsu.edu/mwer/vol28/iss1/5

Ramlo, S. (2016). Mixed Method Lessons Learned from 80 Years of Q Methodology. *Journal of Mixed Methods Research*, *10*(1), 28-45. https://doi.org/10.1177/1558689815610998
Ramlo, S. E. (2015). Q Methodology as a Tool for Program Assessment. *Mid-Western Educational Researcher*, *27*(3), 3.
Ramlo, S. E., & Newman, I. (2011). Q Methodology and Its Position in the Mixed-Methods Continuum. *Operant Subjectivity*, *34*(3), 172-191. https://doi.org/doi:10.15133/j.os.2010.009
Ring, N., Ritchie, K., Mandava, L., & Jepson, R. (2011). *A Guide to Synthesising Qualitative Research for Researchers Undertaking Health Technology Assessments and Systematic Reviews*. http://www.nhshealthquality.org/nhsqis/8837.html
Saarijarvi, M., & Bratt, E. L. (2021). When Face-to-Face Interviews Are Not Possible: Tips and Tricks for Video, Telephone, Online Chat, and Email Interviews in Qualitative Research. *European Journal of Cardiovascular Nursing*, *20*(4), 392-396. https://doi.org/10.1093/eurjcn/zvab038
Sadali, M. I., Rijanta, R., Mutaali, L., & Kurniawan, A. (2021). Study of the Service Functions of Health Facilities in Yogyakarta Special Province. E3S Web of Conferences,
Sandelowski, M., & Barroso, J. (2003). Classifying the Findings in Qualitative Studies. *Qualitative Health Research*, *13*(7), 905-923. https://doi.org/10.1177/1049732303253488
Santana, I. R., Mason, A., Gutacker, N., Kasteridis, P., Santos, R., & Rice, N. (2023). Need, Demand, Supply in Health Care: Working Definitions, and Their Implications for Defining Access. *Health Economics, Policy and Law*, *18*(1), 1-13.
Santos, R. O., Gorgulho, B. M., Castro, M. A., Fisberg, R. M., Marchioni, D. M., & Baltar, V. T. (2019). Principal Component Analysis and Factor Analysis: Differences and Similarities in Nutritional Epidemiology Application. *Revista Brasileira de Epidemiologia*, *22*, e190041. https://doi.org/10.1590/1980-549720190041
Shaluhiyah, Z., Suryoputro, A., & Septialti, D. (2023). Health and Safety Risks Behavior among Local and International Tourists at Borobudur Temple before COVID-19 Pandemic. *International Journal of Public Health Science*, *12*(1). https://doi.org/10.11591/ijphs.v12i1.22250
Smart, J. (2019). *Needs Assessment Families and Children Expert Panel Practice Resource*. Australian Institute of Family Studies.
Smedley, R. M., & Coulson, N. S. (2018). A Practical Guide to Analysing Online Support Forums. *Qualitative Research in Psychology*, *18*(1), 76-103. https://doi.org/10.1080/14780887.2018.1475532
Solomon, H. (1955). The Study of Behavior: Q-Technique and Its Methodology. *Journal of the American Statistical Association*, *50*(272), 1415-1417.
Squires, A., Sadarangani, T., & Jones, S. (2020). Strategies for Overcoming Language Barriers in Research. *Journal of Advanced Nursing*, *76*(2), 706-714. https://doi.org/10.1111/jan.14007
Stevens, A., & Gillam, S. (1998). Needs Assessment: From Theory to Practice. *British Medical Journal*, *316*(7142), 1448-1452.
Subrata, T., Apsari, P. I. B., Lestari, D. P. O., Suryanditha, P. A., & Wijaya, M. I. (2024). Prevalence and Characteristics of Injury among Travelers in Bali, Indonesia. *Jurnal Kedokteran: Media Informasi Ilmu Kedokteran dan Kesehatan*, *9*(2), 74-79. https://doi.org/10.36679/kedokteran.v9i2.66
Suharyanto, I., van Aalst, I., van Liempt, I., & Zoomers, A. (2021). More Than Jedug-Jedug: Dynamics of Discontent with Tourist Activity in Prawirotaman, Yogyakarta. *Tourism Geographies*, *25*(1), 177-197. https://doi.org/10.1080/14616688.2020.1861080

Suryanto, Boyle, M., & Plummer, V. (2017). Healthcare Workforce in Indonesia. *Asia Pacific Journal of Health Management*, *12*(3), 9.
Tate, S. (1982). Q-Sort as a Needs Assessment Technique. *Technical Notes*, *23*.
Tavakol, M., & Wetzel, A. (2020). Factor Analysis: A Means for Theory and Instrument Development in Support of Construct Validity. *International Journal of Medical Education*, *11*, 245-247. https://doi.org/10.5116/ijme.5f96.0f4a
Temple, B., & Young, A. (2004). Qualitative Research and Translation Dilemmas. *Qualitative research*, *4*(2), 161-178. https://doi.org/10.1177/1468794104044430
Tenaya, W. M., Suartha, N., Suarsana, N., Damriyasa, M., Apsasi, I. A. P., Sari, T. K., Agustini, L. P., Miswati, Y., & Agustina, K. K. (2023). Epidemiological and Viral Studies of Rabies in Bali, Indonesia. *Vet World*, *16*(12), 2446-2450. https://doi.org/10.14202/vetworld.2023.2446-2450
Tenny, S., Brannan, J. M., & Brannan, G. D. (2025). *Qualitative Study*. StatPearls Publishing, Treasure Island (FL). https://www.ncbi.nlm.nih.gov/books/NBK470395
Thipsingh, S., Srisathan, W. A., Wongsaichia, S., Ketkaew, C., Naruetharadhol, P., Hengboriboon, L., & Wong, J. (2022). Social and Sustainable Determinants of the Tourist Satisfaction and Temporal Revisit Intention: A Case of Yogyakarta, Indonesia. *Cogent Social Sciences*, *8*(1). https://doi.org/10.1080/23311886.2022.2068269
Thomas, J., & Harden, A. (2008). Methods for the Thematic Synthesis of Qualitative Research in Systematic Reviews. *BMC Medical Research Methodology*, *8*, 45. https://doi.org/10.1186/1471-2288-8-45
Tong, A., Flemming, K., McInnes, E., Oliver, S., & Craig, J. (2012). Enhancing Transparency in Reporting the Synthesis of Qualitative Research: ENTREQ. *BMC Medical Research Methodology*, *12*, 181. https://doi.org/10.1186/1471-2288-12-181
Townsend, L., & Wallace, C. (2016). *Social Media Research: A Guide to Ethics* (University of Aberdeen, Issue. University of Aberdeen. https://www.scu.edu.au/media/scu-dep/research/documents/hrec/Social-media-research-ethics---University-of-Aberdeen.pdf
Trimby, M. J. (1979). Needs Assessment Models: A Comparison. *Educational Technology*, *19*(12), 24-28.
Truong, C., Wyllie, A., Bailie, T., & Austin, Z. (2012). A Needs Assessment Study of Hospital Pharmacy Residency Preceptors. *The Canadian journal of hospital pharmacy*, *65*(3), 202.
UNDP Indonesia, Darmawi, V., Gantong, F., Mujamil, A., & Hasibuan, N. (2024). SMILE Innovation in the Fight against Rabies: A Story from East Nusa Tenggara (NTT). https://www.undp.org/indonesia/stories/smile-innovation-fight-against-rabies-story-east-nusa-tenggara-ntt
Valenta, A. L., & Wigger, U. (1997). Q-Methodology: Definition and Application in Health Care Informatics. *Journal of the American Medical Informatics Association*, *4*(6), 501-510. https://doi.org/10.1136/jamia.1997.0040501
van Hooft, S. M., Dwarswaard, J., Jedeloo, S., Bal, R., & van Staa, A. (2015). Four Perspectives on Self-Management Support by Nurses for People with Chronic Conditions: A Q-Methodological Study. *International Journal of Nursing Studies*, *52*(1), 157-166. https://doi.org/10.1016/j.ijnurstu.2014.07.004
Voit, E. O. (2019). Perspective: Dimensions of the Scientific Method. *PLoS Computational Biology*, *15*(9), e1007279. https://doi.org/10.1371/journal.pcbi.1007279
Wahyudi, I. (2024). Toraja Utara Dan Tana Toraja Tertinggi Kasus Rabies Di Sulsel. *Tribuntoraja.com*. https://toraja.tribunnews.com/2024/08/05/toraja-utara-dan-tana-toraja-tertinggi-kasus-rabies-di-sulsel

Ward, J. L. (2010). Persona Development and Use, or, How to Make Imaginary People Work for You. 2010 Library Assessment Conference,
Watkins, M. W. (2018). Exploratory Factor Analysis: A Guide to Best Practice. *Journal of Black Psychology*, *44*(3), 219-246. https://doi.org/10.1177/0095798418771807
Watkins, R., & Kavale, J. (2014). Needs: Defining What You Are Assessing. In *New Directions for Evaluation* (Vol. 2014, pp. 105-114).
Watkins, R., Meiers, M. W., & Visser, Y. (2012). *A Guide to Assessing Needs: Essential Tools for Collecting Information, Making Decisions, and Achieving Development Results*. World Bank Publications.
Watts, S., & Stenner, P. (2012). *Doing Q Methodological Research: Theory, Method and Interpretation*. SAGE Publications Ltd. https://doi.org/10.4135/9781446251911
Webler, T., Danielson, S., & Tuler, S. (2009). *Using Q Method to Reveal Social Perspectives in Environmental Research*. Social and Environmental Research Institute. https://www.betterevaluation.org/sites/default/files/Qprimer.pdf
Wibowo, J. M., & Hariadi, S. (2024). Indonesia Sustainable Tourism Resilience in the Covid-19 Pandemic Era: Case Study of Five Indonesian Super-Priority Destinations. *Millennial Asia*, *15*(2), 236-258.
Wilbur, K. (2010). Continuing Professional Pharmacy Development Needs Assessment of Qatar Pharmacists. *International Journal of Pharmacy Practice*, *18*(4), 236-241.
Williams, S. E., Bond, C. M., & Menzies, C. (2000). A Pharmaceutical Needs Assessment in a Primary Care Setting. *British Journal of General Practice*, *50*(451), 95-99.
Wirawan, I. M. A., Putri, W., Kurniasari, N. M. D., Mulyawan, K. H., Hendrayana, M. A., & Suharlim, C. (2020). Geo-Mapping of Hazards, Risks, and Travel Health Services in Bali: Results from the First Stage of the Integrated Travel Health Surveillance and Information System at Destination (TravHeSID) Project. *Travel Medicine and Infectious Disease*, *37*, 101698. https://doi.org/10.1016/j.tmaid.2020.101698
World Mosquito Program. (2026). *World Mosquito Program: Randomised Controlled Trial*. Monash University,. Retrieved 1 April from https://www.worldmosquitoprogram.org/en/randomised-control-trial-rct
World Tourism Organization. (2025). *Tourism Doing Business – Investing in Indonesia*.
Wright, J., Williams, R., & Wilkinson, J. R. (1998). Development and Importance of Health Needs Assessment. *British Medical Journal*, *316*(7140), 1310-1313.
Yoshikawa, M. J., Kusriastuti, R., & Liew, C. (2019). An Interdisciplinary Study: Disseminating Information on Dengue Prevention and Control in the World-Famous Travel Destination, Bali, Indonesia. *Evolutionary and Institutional Economics Review*, *17*(1), 265-293. https://doi.org/10.1007/s40844-019-00138-0
Zabala, A. (2014). qmethod: A Package to Explore Human Perspectives Using Q Methodology. *The R Journal*, *6*(2), 11. https://rjournal.github.io/
Zhao, B. (2017). Web Scraping. In *Encyclopedia of Big Data* (pp. 1-3). https://doi.org/10.1007/978-3-319-32001-4_483-1

Chapter 3. Self-care needs among international migrants and travellers: A systematic review and meta-synthesis

International travellers and migrants perform self-care to maintain their health in their destination countries. The aim of this Chapter 3 was to determine the self-care needs of international travellers and temporary migrants, and to assess how these needs align with existing self-care frameworks. A systematic review and meta-synthesis was conducted to achieve the aim.

The candidate acknowledges the contributions of Dr Jack Collins to this Chapter. Dr Jack Collins performed screenings of title, abstract and full-text and quality assessments.

3.1 Introduction

International travel and migration are driven by complex factors such as gaining new experiences and knowledge, and better livelihood and security (Dawson-Hahn et al., 2021). International travel has now mostly rebounded from the COVID-19 disruption and returned to growth, with an estimated 1.4 billion international tourist arrivals in 2024 (about 99% of 2019 levels) and a further increase to about 1.52 billion in 2025 (4% increase year-on-year) (UNWTO, 2025; World Tourism Organization, 2025). More efficient and accessible air travel and communication technology advancements are among the facilitators of this mobility (Dawson-Hahn et al., 2021). Aviation indicators similarly show recovery beyond pre-pandemic benchmarks, with global passenger demand in 2024 exceeding 2019 levels (IATA, 2025). Approximately 281 million people were migrants in 2020, which increased from 173 million in 2000 (Kaczmarska & Ono, 2022). Migrant workers constituted 69% (or 169 million) of international migrants in 2019 (International Labour Organization, 2021).

International travel and migration are different but related (World Tourism Organization, 2010). The identity boundary between international tourists and migrants is not lucid as actors mix mobility purposes, for example, "working holiday visa" holders and "digital nomads", referring to travellers who also work remotely from place to place (Cohen et al., 2013). This blurred boundary is often found between international travellers and migrants whose stay in the destination country is relatively short or transient compared to long-term and permanent migrants.

Regardless of the primary purpose of mobility, migration and transience disrupt social capital (the aggregate of resources embedded in social networks) and influence self-care practices (Bourdieu, 1986; Ziersch et al., 2023). Reduced social capital may limit access to health information and services in the destination, making social engagement important for rebuilding these networks. Moreover, international travellers and migrants need to understand and adapt

to the health system in their destination. Tourists, characterised by a short-term visit, may not need access to healthcare as intensively as long-term migrants, except in emergencies (Vilkman et al., 2016). Familiarity with and availability of support in destination countries can help ease barriers to accessing healthcare, but not all international travellers and migrants have these luxuries. Barriers to and facilitators of healthcare access and utilisation in the destination countries were identified among migrants and international students, but are less discussed among tourists (Hall et al., 2020; Masai et al., 2021). However, it remains unclear if barriers to accessing healthcare may or may not be a driver for self-care.

Self-care differs from related constructs, such as self-management (focused on managing chronic diseases), self-efficacy (confidence in performing tasks), and empowerment (capacity building) (El-Osta et al., 2019; Riegel et al., 2021). This review adopted WHO's definition of self-care as "the ability of individuals, families and communities to promote health, prevent disease, and maintain health and to cope with illness and disability with or without the support of a health-care provider" (WHO Regional Office for South-East Asia, 2009). We define self-care needs as conditions and resources that enable individuals and communities to engage effectively in self-care. The scope of self-care includes health promotion, prevention and control of disease, self-medication, provision of care to dependent people, seeking health services when necessary, and rehabilitation (WHO Regional Office for South-East Asia, 2009). Individuals perform self-care, including giving self-care to their children or a neighbour. Pre-departure preparations, such as travel vaccinations and insurance, can be included in self-care (Dawson-Hahn et al., 2021; Vilkman et al., 2016). Awareness of the risks of misadventures is also self-care. Migrant workers need to understand the health and safety aspects of their tasks to prevent occupational accidents. Minor health-related events often prompt travellers and migrants to self-medicate or seek care (Angelo et al., 2017; Vilkman et al., 2016). Upon

returning to their country of origin, international travellers must know they may import infectious diseases (Vilkman et al., 2016).

The breadth of the scope of self-care has led to several self-care theories, models, and frameworks (El-Osta et al., 2019; Martinez et al., 2021; Riegel et al., 2021). However, to our knowledge, no self-care theories, models, or frameworks have been specifically applied to travel and migrant populations to understand their self-care needs. The identification of self-care needs would assist in developing strategies for safe and effective self-care practices for international travellers and migrants. Therefore, we conducted a systematic review and meta-synthesis of qualitative literature to identify self-care needs among international travellers and temporary migrants, and to examine how these needs align with the concept of self-care.

3.2 Methods

This meta-synthesis was part of a larger study to identify self-care needs among travellers, differences between travellers based on self-care prioritisation, and measures to meet these needs. The review protocol was registered in PROSPERO (CRD42022372693), and findings were reported according to the Enhancing Transparency in Reporting the Synthesis of Qualitative Research (ENTREQ) (Appendix G) (Tong et al., 2012). The systematic reviews followed the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) checklist (Appendix H) (Page et al., 2021). Ethics approval was not applicable as this meta-synthesis analysed published data.

3.2.1. Scope, inclusion, and exclusion criteria

This review included studies on international travellers and migrants with voluntary and transient mobility. Voluntary mobility refers to cross-border movement that is not primarily driven by forced displacement, e.g., fleeing wars, religious persecutions, climate change, or other threats, and is instead undertaken for reasons such as travel, study, employment, or lifestyle opportunities, unlike the circumstances commonly shaping refugee and asylum-seeker

mobility (Sironi et al., 2019). Transiency refers to temporary, time-limited residence, which sometimes involves onward movement, rather than long-term or permanent settlement (Sironi et al., 2019). We included international tourists, backpackers, international students, business travellers and transient or seasonal migrant workers. Travellers and temporary migrants were analysed as a single conceptual category because they share similar adaptation challenges in unfamiliar environments, such as limited social capital, social positions, language difficulties, cultural differences, and barriers to healthcare access (Douglas et al., 2019; Goldenberg & Fischer, 2023; Hannigan et al., 2016). The synthesis was to identify and highlight commonalities across these populations rather than differences. Permanent migrants were excluded due to their long-term integration into destination health systems, which differs substantially from the temporary context of transient mobility (Hannigan et al., 2016). Refugees and asylum seekers were also excluded because their health needs may be shaped by forced displacement and trauma, requiring distinct analytical frameworks (Douglas et al., 2019).

A systematic search was conducted in MEDLINE, Embase, International Pharmaceutical Abstracts, PsycINFO, and CINAHL databases to find qualitative, multi-methods, and mixed-methods primary research articles focusing on self-care and travel without imposing language restrictions. Non-original research articles (non-peer-reviewed articles/preprints, posters, conference abstracts, protocols, book sections, book reviews, dissertations, letters to the editor, opinions, or commentaries) and quantitative-only studies were excluded. All co-authors and a health science librarian developed the search strategy using keywords related to self-care and travel (Appendix I). Searches were initially performed on 5 October 2022 without limiting publication date and language, and updated on 30 October 2024 to capture records since inception.

3.2.2. Study selection and quality assessment

A literature search was conducted, followed by manual and automated deduplication using Covidence (Innovation, 2023). Twenty records were selected for initial pilot screening. Title and abstract screening of the remaining articles was conducted afterwards, followed by full-text screening. Discrepancies were discussed until a consensus was reached. All processes that indicate a change in the number of articles were noted on the PRISMA flow diagram (Page et al., 2021). The following data were extracted from each article and tabulated: first author, publication year, aim, population, geographical location, sample size, data collection methods, and data analysis methods.

Eligible articles were assessed for quality using the CEBM Critical Appraisal of Qualitative Studies sheet, which consists of eight questions with "Yes", "No", or "Unclear" response options (CEBM, 2019). The questions included the study rationale, the appropriateness of a qualitative approach, the sampling strategy, data collection methods, data analysis, the researcher's position, whether the results made sense, a result-justified conclusion, and transferability of findings. The CEBM checklist does not specify exclusion thresholds; therefore, we adopted a conservative criterion, excluding studies with more than two 'No' responses to maintain methodological rigour. This pragmatic threshold was chosen because multiple negative responses indicate significant limitations in design or reporting. Each study was independently assessed, and discrepancies were resolved through consensus. Inter-rater reliability was supported by calibration exercises and documented decision logs.

3.2.3. Data synthesis

Meta-synthesis is a generic term for synthesising qualitative studies such as meta-ethnography, meta-aggregative review, meta-study, or thematic synthesis (Mohammed et al., 2016; Tong et al., 2012). Quantitative findings from multi-methods and mixed-methods articles were excluded. We applied the thematic synthesis approach by Thomas and Harden (Thomas &

Harden, 2008) as it provides a clear step-by-step guide and allows for the integration of qualitative findings across diverse contexts and methodologies while preserving interpretive depth. The approach uses three stages for synthesising the data: line-by-line coding, grouping codes into one or more descriptive themes, and generating analytical themes. Coding was conducted line-by-line for all texts under the original study's 'results' or 'findings' section (Thomas & Harden, 2008). For multi-methods and mixed-methods articles, the texts under the section that indicates the presentation of qualitative findings were subject to extraction. Codes were grouped into descriptive themes through an iterative process of comparison and refinement. Analytical themes were generated by interpreting relationships among descriptive themes in light of the review question and theoretical frameworks.

Coding reliability was ensured through a multi-step process. Each line of the text data from each article was coded by Researcher ANWP according to its meaning and content, and descriptive themes were developed by inductively grouping codes into a hierarchical tree structure based on similarities and differences. A preliminary codebook was developed by Researcher ANWP during pilot coding and refined iteratively as new codes emerged. Analytical themes were generated using descriptive themes to answer the review question. Researcher CS reviewed the descriptive and analytical themes. Discrepancies were discussed in detail to reach consensus within the research team, considering the meaning of each theme and its relevance to the research question. The descriptive and analytical themes were tabulated along with at least two supporting quotes from the original studies to enhance transparency. NVivo 13 was used for data management and theme development (Lumivero, 2020). Formal inter-coder reliability statistics were not calculated, as thematic synthesis prioritises consensus-building over quantitative agreement. All coding decisions were reviewed collaboratively to ensure consistency.

During the synthesis process, the SCM served as a sensitising concept (background ideas that shape and influence how the research problem is approached) during coding and interpretation (Bowen, 2019; El-Osta et al., 2019), ensuring theoretical integration beyond the mapping. The SCM constructed self-care in four dimensions using 32 existing theories, frameworks, and models.(El-Osta et al., 2019) Each dimension underscores different aspects of self-care, from personal actions to broader systemic and policy influences. The Self-Care Activities dimension focuses on individual activities and capabilities for self-care and includes the Seven Pillars of Self-Care (El-Osta et al., 2019; International Self-Care Foundation, 2018). The Self-Care Behaviour dimension addresses actions that support positive self-care behaviours and lifestyles. The Self-Care Context considers reliance on resources and their utilisation. The Self-Care Environment focuses on drivers and barriers to self-care within the broader fiscal and policy environment, along with cultural and social factors. Codes and descriptive themes were iteratively compared against the SCM dimensions during analysis.

3.2.4. Mapping to the Self-Care Matrix

To map the meta-synthesis results with current theory in self-care, the SCM was employed (El-Osta et al., 2019). A mapping procedure was developed by Researcher ANWP, with close consultation with Researcher CS, to assess conceptual similarities between the meta-synthesis descriptive themes and the SCM's dimensions and domains. The relationships were categorised into convergence, partial convergence, and lack of convergence. A relationship was convergent when one or more descriptive themes were similar to a dimension or domain. Partial convergence occurred when a descriptive theme related to more than a single dimension or domain. A lack of convergence occurred when a descriptive theme was unrelated to the SCM dimensions or domains. Discussions were made to address disagreements with consensus-building among the research team.

3.2.5. Reflexive statement

The research team comprised health professionals from different backgrounds, including pharmacy, medicine, nursing, and public health. All members were experienced in conducting qualitative meta-synthesis (collective experience=23 years), qualitative or mixed-methods studies (collective experience=80 years), and research in topics of self-care (collective experience=73 years) and travel health (collective experience=10 years). Most team members were well-travelled globally. This exposure to navigating unfamiliar environments may have sensitised the team to particular 'adaptation' and 'access' narratives during coding and mapping, e.g., language barriers and system navigation. Recognising that this could influence interpretive attention during coding and mapping, this risk was mitigated through codebook development and refinement and consensus-based review of coding and mapping decisions.

3.3 Results

3.3.1. Study characteristics

Of the 2,394 articles retrieved after deduplication, 105 were assessed for eligibility (Figure 3.1), and 17 were included in the synthesis (Table 3.1). Two studies were conducted among tourists (Liew & Flaherty, 2020; Vajta et al., 2015), and 15 were among the migrants (Arcury et al., 2006; Fauk et al., 2022; Khirikoekkong et al., 2023; Kilanowski, 2010; Lin et al., 2016; Madden et al., 2017; McElfish et al., 2016; McVea, 1997; Obach et al., 2024; Parent et al., 2022; Porqueddu, 2017; Shahab et al., 2019; Tyson et al., 2019; Westerling et al., 2020; Yan et al., 2020) (Table 3.1). The articles reported self-care practices for skin diseases (Arcury et al., 2006), dengue fever (Vajta et al., 2015), malaria (Parent et al., 2022; Yan et al., 2020), unspecified fever (Khirikoekkong et al., 2023), type-2 diabetes (McElfish et al., 2016; Porqueddu, 2017; Shahab et al., 2019; Tyson et al., 2019), and cardiovascular disease (Liew & Flaherty, 2020). Five articles did not report specific health conditions (Kilanowski, 2010; Lin et al., 2016; Madden et al., 2017; McVea, 1997; Westerling et al., 2020). Unless otherwise

specified, this section's term 'travellers' encompasses both international travellers and migrants. When assessed with the CEBM checklist, common risks for quality were the reporting of the researcher's positionality (Appendix J). However, all identified studies met the quality threshold for meta-synthesis and were included for analysis.

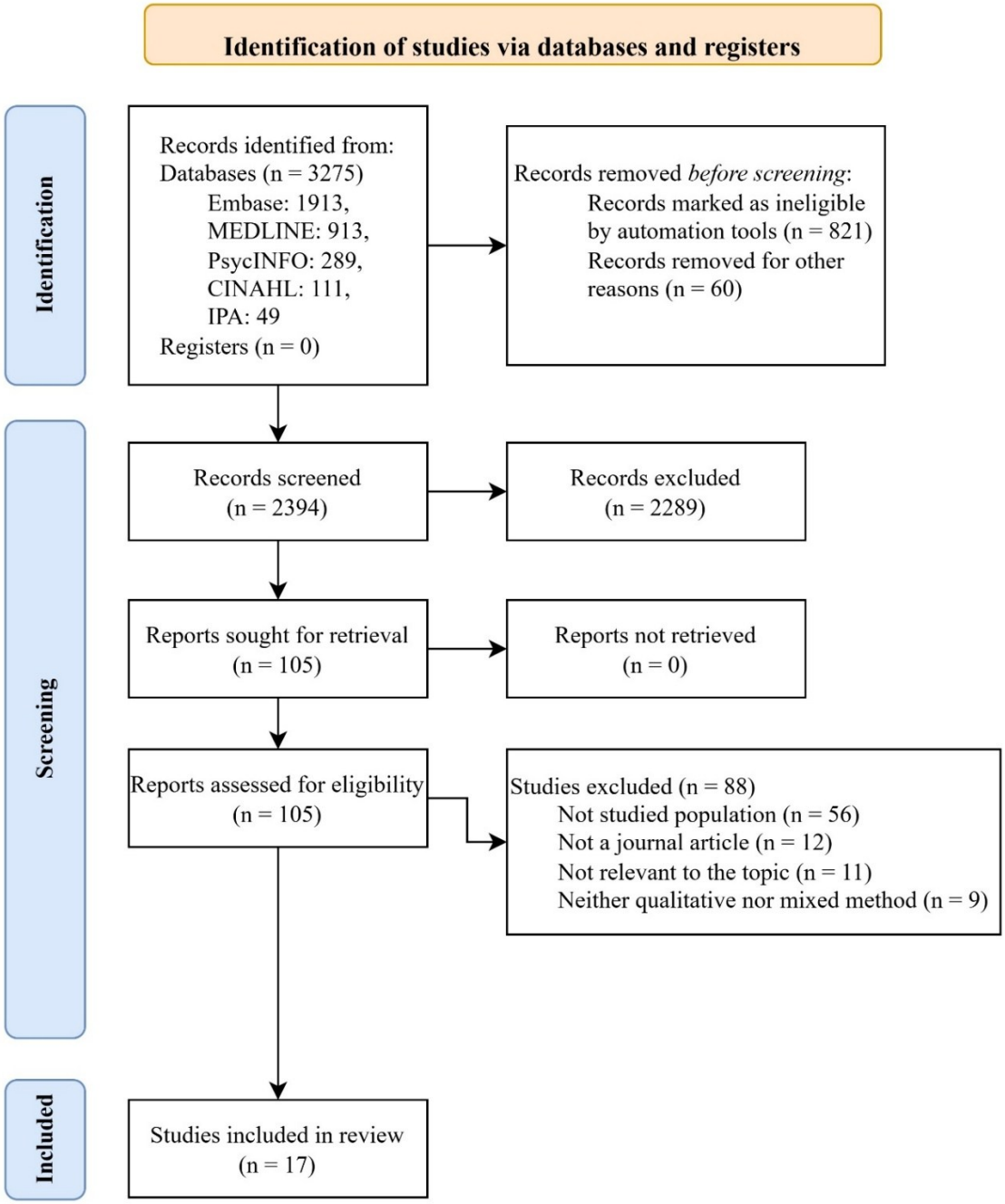


Figure 3.1 PRISMA flow diagram

Table 3.1 Study characteristics

No	Author(s) (Year)	Aim(s)	Study location	Sample	Data collection method	Data analysis*
1	Arcury et al. (2006) (Arcury et al., 2006)	To describe the self-management of skin disease in Latino migrant and seasonal farmworkers in North Carolina	US	Latino migrant and seasonal farmworkers (N = 30, F = 6, M = 24, age range: 18 – 59 years, LoS unreported)	In-depth interviews	Systematic analysis
2	Fauk et al. (2022) (Fauk et al., 2022)	To understand barriers to accessing HIV care services in destination countries among Indonesian, male, former (returned) migrant workers living with HIV	Indonesia	Returned Indonesian migrant workers from Malaysia, Thailand, Taiwan, and Hongkong (China) (N = 22, M = 22, age range: 25 – 48 years, LoS unreported)	In-depth, in-person interviews	Qualitative data analysis framework
3	Khirikoekkong et al. (2023) (Khirikoekkong et al., 2023)	To understand the concept of fever and its believed causes amongst migrants alongside the Thai-Myanmar border, and explore the association between migrants' determinants and health-seeking behaviours	Thai-Myanmar border	Migrants/community members, Village Health Volunteers, primary care staff, key informants, Tak-Province Community Advisory Board, Primary care unit staff (N = 56, gender, age, LoS unreported)	In-depth interviews, focus group discussions, participatory visual method workshop	Thematic analysis
4	Kilanowski et al. (2010) (Kilanowski, 2010)	To describe the meaning of food in the family life of migrant farmworker mothers; specifically to describe their understanding of the relationship of dietary intake to health, the environmental contributors to their families' dietary intake, and the use of foods in the commemoration of family occasions.	US	Migrant farmworker mothers (N = 57, F = 57, age range: 18 - >48 years, LoS unreported)	Interviews	Thematic analysis

F: Female, M: Male, LoS: Length of Stay *Unspecified: The original authors did not explicitly specify or mention their analytical approach.

No	Author(s) (Year)	Aim(s)	Study location	Sample	Data collection method	Data analysis*
5	Liew et al. (2020) (Liew & Flaherty, 2020)	(1) To identify perceived barriers to travel (2) To explore potential travel health benefits (3) To generate recommendations for CVD travellers and the clinicians caring for and advising them	Ireland	Adults older than 18 years with various cardiovascular conditions travelled overseas (N = 12, F = 4, M = 8, age range: 58 – 82 years, LoS unreported)	In-depth interviews	Thematic analysis
6	Lin et al. (2016) (Lin et al., 2016)	(1) To examine strategies that African migrants in Guangzhou have adopted in response to healthcare barriers (2) To explore their perceptions of how to address their healthcare needs as their numbers continue to grow	China	African migrants, including businessmen, students, housewives, and English teachers (N = 35, F = 10, M = 25, age mean: 33.7 years, LoS mean: 4.4 years)	Semi-structured interviews	Unspecified
7	Madden et al. (2017) (Madden et al., 2017)	To understand the health needs and health service experiences of the Eastern European population in a town in Northern England	UK	Eastern European migrants (N = 42, F = 26, M = 16, age range: 16 – 60s years, LoS unreported)	Focus groups, one-to-one interviews, and small group interviews	Framework analysis
8	McElfish et al. (2016) (McElfish et al., 2016)	To identify barriers at the organisational, community, and policy levels that constrain efforts to achieve diabetes self-management	US	Marshallese migrants (N = 69, gender, age, and LoS unreported)	Focus groups	Unspecified
9	McVea (1997) (McVea, 1997)	To describe the practice of self injection of antibiotics, vitamins and other medicinal compounds among migrant farmworkers in order to	US	Migrant farmworkers (N = 31, F = 24, M = 7, age range: 18 – 53 years, LoS unreported)	Semi-structured interviews	Unspecified

No	Author(s) (Year)	Aim(s)	Study location	Sample	Data collection method	Data analysis*
		determine the magnitude of the public health concern for its potential to spread the HIV virus.				
10	Obach et al. (2024) (Obach et al., 2024)	To identify the barriers and facilitators that young migrants experience to access sexual and reproductive healthcare in the Tarapacá region of Chile	Chile	International young migrants from Colombia, Venezuela, and Ecuador (N = 25, F = 12, M = 13, age range: 18 – 29 years, LoS unreported) and health workers (N = 10)	Semi-structured interviews	Thematic analysis
11	Parent et al. (2022) (Parent et al., 2022)	(1) To determine the contextual elements influencing the use of Malakit (2) To understand the way gold miners perceive Malakit (3) To identify the elements that are favorable and unfavorable to the use of Malakit (4) To identify what can be improved in the project	French Guiana (main site), Brazil, Suriname	Gold miners working illegally (main target) (N = 20, gender, age, and LoS unreported), local actors (N = 6, gender, age, and LoS unreported), health facilitators (N = 6, gender, age, and LoS unreported)	On-site observation, semi-structured interviews, group interviews	Thematic analysis
12	Porqueddu (2017) (Porqueddu, 2017)	To understand Indian and Pakistani migrants' understandings of diabetes, their experiences of the illness and their strategies for managing the disease	UK	Indian and Pakistani migrants (N = 21, gender, age, and LoS unreported)	Participant observation, group discussions, semi-structured interviews	Grounded theory

No	Author(s) (Year)	Aim(s)	Study location	Sample	Data collection method	Data analysis*
13	Shahab et al. (2019) (Shahab et al., 2019)	To understand how beliefs, culture, and life experiences may contribute to the community burden of diabetes and may affect individual diabetes care	Australia	Samoan migrants (N = 20, F = 7, M = 13, age range: 36 – 67 years, LoS unreported)	Semi-structured interviews, field notes	Thematic analysis using a constructivist-grounded theory
14	Tyson et al. (2019) (Tyson et al., 2019)	To explore the cultural and political economic factors that influence diabetes management among Hispanics residing in a rural farm working community in Florida	US	Latino farmworkers (N = 30, F = 15, M = 15, age range: 28 – 74 years, LoS unreported)	Semi-structured interviews	Thematic analysis
15	Vajta et al. (2015) (Vajta et al., 2015)	To understand backpackers' knowledge of dengue fever and the decision-making process they use when considering utilising the Australian healthcare system	Australia	Backpackers (N = 34, gender unreported, age range: 18 – 30 years, LoS unreported), hostel receptionists (N = 5, gender, age, and LoS unreported), travel agents (N = 5, gender, age, and LoS unreported), pharmacists (N = 5, gender, age, and LoS unreported), government employee (N = 1, gender, age, and LoS unreported)	Semi-structured interviews, field notes	Open coding, intermediate coding
16	Westerling et al. (2020) (Westerling et al., 2020)	(1) To explore the variation in implemented policies related to rational antibiotic use that citizens in Turkey and Turkish migrants in Germany, the Netherlands and Sweden are subjected to	Turkey, Germany, Netherlands, Sweden	Citizens of Turkey (N = 37, F = 25, M = 12, age range: 21 -50 years); Turkish migrants in Germany, the Netherlands, and Sweden (N = 47, F = 28, M = 19, age range: 23 – 70 years,	Focus groups, in-depth interviews	Inductive content analysis

No	Author(s) (Year)	Aim(s)	Study location	Sample	Data collection method	Data analysis*
		(2) To discuss the implications for the promotion of rational antibiotic use		LoS unreported); family physicians and pharmacists in those four countries (N = 45, F = 27, M = 18, age range: 26 – 57 years)		
17	Yan et al. (2020) (Yan et al., 2020)	To understand behavioural barriers and opportunities to improve testing and treatment for malaria as part of the first stage of the larger Breakthrough ACTION Guyana initiative, a social and behaviour change (SBC) project led by Johns Hopkins Center for Communication Programs (CCP)	Guyana	Gold miners (N = 70, gender, age, and LoS unreported), other mining camp staff (N = 17, gender, age, and LoS unreported), and other key stakeholders (N = 22, gender, age, and LoS unreported)	Focus groups, in-depth interviews	Framework analysis

3.3.2. Descriptive themes, analytical themes, and mapping to the Self-Care Matrix

We generated 21 descriptive themes (Appendix K) using an inductively developed codebook (Appendix L), considering travellers' health statuses and strategies to maintain health conditions and cope with acute or chronic illness, such as relying on self-treatment and accessing health services at and outside the destination country. The sample of quotations from primary studies for theme generations was also presented in Appendix K. Descriptive themes varied from individual factors, such as hygiene practices, to broader social and environmental factors, such as stigma, legal status, and discrimination. We synthesised five analytical themes to answer the review question: self-care empowerment, mutual understanding of cultures, healthcare challenges and opportunities, preventive self-care, and facilitated self-care.

All descriptive themes, except social engagement, mapped to the SCM (Figure 3.2). Partial convergences were observed on three descriptive themes: self-care products and medicines, self-treatment, and adherence to treatment, which were linked to Self-Care Activities (Rational use of products and services), Self-Care Context, and Self-Care Environment dimensions of the SCM. Social Engagement did not converge with the Seven Pillars of Self-Care, which are part of the SCM's Self-Care Activities dimension. This divergence is because it represents a relational determinant with social networks, i.e. social capital as a meta-contextual factor, rather than a discrete self-care activity.

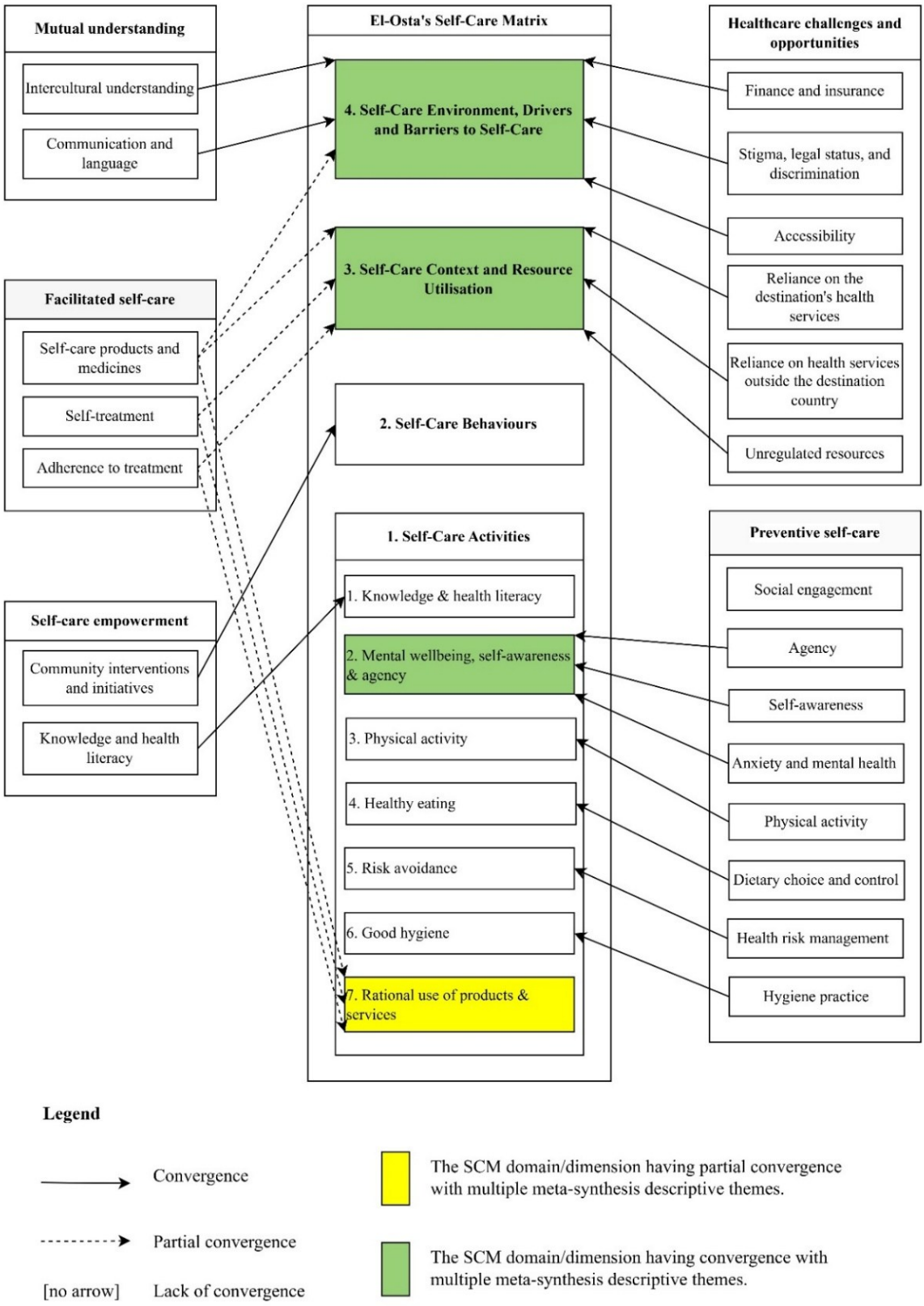


Figure 3.2 Meta-synthesis descriptive themes mapped to the Self-Care Matrix

3.3.3. Self-care empowerment

Self-care empowerment theme refers to preparation, knowledge, health literacy, confidence, and enabling interventions. Voluntary international travellers tended to have some degree of preparation driven by knowledge and health literacy, but could miss some important matters. Travellers prioritised personal medicines and devices on the checklist, but attending pre-travel consultations appeared lacking (Fauk et al., 2022; Liew & Flaherty, 2020). Health insurance was essential, but only for those who could access and afford it (Liew & Flaherty, 2020; Lin et al., 2016; Vajta et al., 2015). Some travellers understood possible risks related to individual health and environmental situations, but sometimes did not understand the details (Liew & Flaherty, 2020; Obach et al., 2024; Yan et al., 2020). Most often, travellers did not know the destination country's healthcare system until they needed to access it (Fauk et al., 2022; Liew & Flaherty, 2020; Lin et al., 2016; Madden et al., 2017; Vajta et al., 2015). Unfortunately, navigating the health system was not always easy, especially when social capital was deficient and other barriers were present (Fauk et al., 2022; Liew & Flaherty, 2020; Lin et al., 2016; Madden et al., 2017).

Travellers needed self-care empowerment through community interventions and initiatives to overcome those gaps. Interventions and initiatives improved travellers' knowledge, motivating them towards positive behaviour change and reducing layered barriers to healthcare access (Obach et al., 2024; Parent et al., 2022; Shahab et al., 2019). The involvement of community-based organisations and community figures, such as religious leaders, could improve the delivery and acceptance of interventions (Obach et al., 2024; Shahab et al., 2019).

3.3.4. Mutual understanding of cultures

This theme concerns language and cultural barriers, as well as the need for culturally responsive interactions. As foreigners in an unfamiliar environment, travellers felt at a disadvantage due to cultural differences. Language barriers were common, as well as major cultural barriers

(Arcury et al., 2006; Fauk et al., 2022; Khirikoekkong et al., 2023; Liew & Flaherty, 2020; Lin et al., 2016; McElfish et al., 2016). For example, travellers with limited language struggled to explain their problems to a health professional, which could deter them from future access (Fauk et al., 2022; Liew & Flaherty, 2020). Unpleasant feelings were reported when interacting with the locals, even when an interpreter was present (Liew & Flaherty, 2020; Lin et al., 2016). Moreover, travellers may bring cultural practices and beliefs that are at odds with the destination country's culture (Fauk et al., 2022; Madden et al., 2017; McElfish et al., 2016; McVea, 1997; Porqueddu, 2017).

Many travellers understand that the benefits of travel include broadening their language and cultural horizons (Liew & Flaherty, 2020). Some travellers were able to learn and adjust to the destination country's culture (Madden et al., 2017). Meanwhile, others wanted the destination country's recognition of their cultural background, practices, and beliefs (Lin et al., 2016; McElfish et al., 2016; Porqueddu, 2017). For instance, travellers suggested the integration of their languages into the destination country's health services from translated information materials (McElfish et al., 2016) to the provision of health professionals who can speak their languages (Lin et al., 2016). Therefore, there was a need for mutual understanding of cultures, i.e. travellers wanted their cultures to be understood and accommodated, and they needed to understand the destination country's culture in relation to self-care. This underscores the importance of practical communication supports, such as professional interpreters and translated materials, to enable culturally safe interactions.

3.3.5. Healthcare challenges and opportunities

This theme refers to barriers to care and the practical routes people use to obtain support. Travellers typically did not require daily access to the destination country's healthcare services. However, when access was required, availability and accessibility were sometimes limited (Fauk et al., 2022; Liew & Flaherty, 2020). Despite language barriers, travellers often faced

other challenges generated inside and outside the destination's healthcare systems, such as stigma and discrimination, legal status, and financial and insurance constraints (Arcury et al., 2006; Khirikoekkong et al., 2023; Kilanowski, 2010; Liew & Flaherty, 2020; Lin et al., 2016; McElfish et al., 2016; Obach et al., 2024; Shahab et al., 2019; Tyson et al., 2019; Vajta et al., 2015).

Despite these barriers, travellers identified several formal and informal opportunities to maintain self-care and access treatment, such as visiting other countries (Lin et al., 2016) or returning to their country of origin (Arcury et al., 2006; Lin et al., 2016; Westerling et al., 2020). Some travellers rely on themselves, family, or other immediate circles, if any, which could delay seeking care (Arcury et al., 2006; Khirikoekkong et al., 2023; Parent et al., 2022; Vajta et al., 2015; Yan et al., 2020). Other travellers opted for unregulated resources, such as online marketplaces (Westerling et al., 2020), the black market (Arcury et al., 2006), or lay injectionists (Khirikoekkong et al., 2023; McVea, 1997). Therefore, there is a need to reduce travellers' challenges in accessing formal healthcare to improve health outcomes.

3.3.6. Preventive self-care

The theme of preventive self-care refers to behaviours aimed at preventing illness or the deterioration of chronic conditions. Practising self-care to prevent unwanted health events or deterioration of pre-existing health conditions can maximise travel benefits. Preventative self-care practices reported by travellers included maintaining hygiene to prevent skin problems and preparing food (Arcury et al., 2006; Kilanowski, 2010), identifying foods and beverages they thought were healthy from the unhealthy, including traditional foods (Kilanowski, 2010; Liew & Flaherty, 2020; Shahab et al., 2019; Tyson et al., 2019), and travelling with a partner or group for help in times of health need (Arcury et al., 2006; Liew & Flaherty, 2020; Vajta et al., 2015). Solo travellers sought some degree of social engagement with the locals and fellow travellers, especially those from similar countries of origin (Fauk et al., 2022; Liew & Flaherty,

2020; Lin et al., 2016; Madden et al., 2017; McVea, 1997; Shahab et al., 2019; Vajta et al., 2015).

Not all travellers were able to practice self-care without difficulty. Travellers reported psychological challenges such as anxiety, fear, and worry that occurred as a result of both personal and environmental deficits (Fauk et al., 2022; Khirikoekkong et al., 2023; Liew & Flaherty, 2020; Obach et al., 2024; Parent et al., 2022; Tyson et al., 2019). For example, travellers without legal status feared being detained and deported (Fauk et al., 2022; Khirikoekkong et al., 2023). Meanwhile, elderly travellers with limited physical fitness expressed concerns about engaging in demanding physical activity, although some also described maintaining or increasing physical activity as a preventive strategy to sustain fitness and avoid deterioration while travelling (Liew & Flaherty, 2020). Other travellers struggled to manage physical activity due to unpredictable schedules and competing priorities for self-care for their chronic illness (Liew & Flaherty, 2020; Tyson et al., 2019). Addressing these psychological concerns with preventive self-care was needed to maintain mental well-being.

3.3.7. Facilitated self-care

The theme of facilitated self-care refers to self-treatment and professional support when necessary, including reliance on accessible services when self-management is insufficient. Self-treatment in any form, such as self-medication and self-management, was often a response to layered barriers to accessing healthcare services (Arcury et al., 2006; Fauk et al., 2022; Khirikoekkong et al., 2023; Lin et al., 2016; McVea, 1997; Porqueddu, 2017; Tyson et al., 2019; Vajta et al., 2015; Yan et al., 2020). Travellers used any products and services they could afford and access, even if they posed an additional risk and were not in line with the destination country's regulations and policies (Arcury et al., 2006; Fauk et al., 2022; Khirikoekkong et al., 2023; Lin et al., 2016; McVea, 1997). Self-treatment with herbal and traditional medicines was

not always perceived as superior to treatments from an authorised health professional, with some using it for a complementary purpose (Fauk et al., 2022; Porqueddu, 2017).

Adherence to prescription treatment may be compromised for those on treatment for acute or chronic conditions (Fauk et al., 2022; Liew & Flaherty, 2020; Porqueddu, 2017; Yan et al., 2020). Some travellers intended not to adhere to the treatment they received due to side effects, for example (Porqueddu, 2017; Yan et al., 2020). Others became non-adherent due to uncontrollable factors, such as the mobile nature of travel and inaccessibility to products and services (Fauk et al., 2022; Liew & Flaherty, 2020; Porqueddu, 2017; Yan et al., 2020).

Depending on their perceived necessity and severity of an illness, travellers went to the nearest accessible health facility, with those offering free services preferred, such as community pharmacies, which provided free consultations (Arcury et al., 2006; Parent et al., 2022; Vajta et al., 2015; Yan et al., 2020). Facilitation by a health professional improved travellers' adherence to treatment (Yan et al., 2020). Therefore, there was a need for facilitated self-care from health professionals and facilities that are accessible to travellers.

3.4 Discussion

To our knowledge, this is the first review to explore self-care needs among international travellers using thematic synthesis, addressing a knowledge gap in unfamiliar environments. This review primarily synthesises evidence from transient migrants, with limited data on short-term travellers. Findings should be interpreted with this scope in mind. Overall, our findings highlight the importance of social engagement and the need to recognise the social aspect of self-care. Our study advances theory by the integration of social capital into the SCM, addressing a gap in travel and migration health literature.

The SCM (El-Osta et al., 2019) was a suitable framework by which we could conduct our analysis. However, we identified two key issues for consideration in the SCM as a sensitising

concept in our analysis. First, we identified overlapping and interconnected terms, such as ‘knowledge’ and ‘health literacy’, and ‘mental wellbeing’, ‘self-awareness’, and ‘agency’, which were combined to form an SCM domain or theme. While the use of overlapping concepts offers advantages, such as providing a holistic and realistic understanding of human experience, it can lead to conceptual ambiguity, making it difficult to define, distinguish, and measure constructs accurately. This issue may stem from the development process of the SCM, which brought together 32 self-care models, frameworks, concepts, and theories. Accordingly, we suggest refining the framework through expert consensus. Second, our study's findings demonstrate the value of social interaction for self-care. Specifically, social engagement and social capital can enrich the SCM’s Self-Care Activity and Self-Care Context dimensions, respectively.

We propose adding social engagement as a self-care component for international travel. People have social capital to support health outcomes in a familiar environment. Social capital can be understood as the value of the individuals’ or groups’ social networks (Bourdieu, 1986; Ziersch et al., 2023). Social capital may decrease when moving to a new, unfamiliar environment. Social engagement can build social capital. Satisfaction with social networks was correlated with satisfaction with social support, leading to a sense of belonging to the community and overall happiness in the destination country (Ziersch et al., 2023). Social capital increases among international students engaged in campus organisations due to the more extensive social networks they develop (Glass & Gesing, 2018). In addition, social engagement can positively impact social determinants of health. For example, international students receiving group training in social skills and adaptation to self-help groups improved their social capital and mental health (Khosravi et al., 2018). Findings from this meta-synthesis have identified that social engagement is a form of social capital important for travellers’ self-care.

Among travellers, social capital can be developed in the destination countries by engaging with others, such as fellow travellers, existing traveller communities, or the locals. Travellers gain different benefits from whom they socially engage because self-care is a social construct (Ankers et al., 2023) and an individual's social environment shapes their self-care knowledge, attitudes, and practices. For example, engaging with fellow travellers helps them practise preventive self-care, such as increased physical activity. Engaging with existing traveller communities or the locals helps travellers access and navigate the destination country's healthcare system, overcome language barriers, and become accustomed to the destination country's culture and customs around health maintenance. Existing traveller communities, especially those with similar cultural or national backgrounds, help travellers have a sense of belonging and maintain cultural self-care practices such as self-treatment with herbal and traditional medicines. This meta-synthesis found that what travellers used to know and practice in their country of origin will be brought along when they travel to other countries, despite possible incompatibility with mainstream systems and practices at the destination countries, for example, self-injection.

Our findings extend current discourse on global migration health by highlighting how mobility intersects with self-care practices in ways that are increasingly mediated by digital technologies. Emerging evidence suggests that mobile health applications, remote consultations, and digital health literacy interventions can serve as critical enablers of self-care for migrants and travellers, mitigating barriers to continuity of care and access to health information (Alkhuzaimi et al., 2025; Yameogo et al., 2025). This aligns with WHO's self-care agenda, which positions digital tools as central to empowering individuals (WHO, 2022). By situating our results within this ground, we contribute novel insights into how self-care strategies adapt under conditions of global mobility, offering implications for inclusive digital health design and equity-focused policy development.

Seemingly incompatible self-care practices with the destination country's policies and practices can be addressed through several findings from this study, i.e. self-care empowerment, reducing healthcare challenges, and self-care facilitation. An example of self-care empowerment can be supplying accurate and appropriate information pertaining to travel health, including possible health risks, through accessible outlets. Inappropriate information potentially promotes harmful consequences rather than self-care (Martinez et al., 2021). Pre-travel health consultation in the country of origin is one outlet for seeking appropriate health information (Kain et al., 2019). However, considering the low utilisation of this pre-travel service, primarily due to the perceived low risk of infections (Kain et al., 2019), the destination country should tailor interventions and initiatives that provide travel-health information to target travellers. In fact, there is a demand for strategically disseminating health information and promotional messages to help travellers practise self-care, for example, at the airport (Kurniasari et al., 2021). Providing selected pre-travel services at airports, such as brief risk assessment, targeted counselling, and time-possible preventive measures) could improve preparedness for last-minute travellers, while recognising that multi-dose vaccine series are often not completable at short notice (Mills et al., 2021; Rosselot & Flaherty, 2025).

Regarding healthcare challenges, most sick travellers delay seeking care due to multi-layered access barriers. The healthcare access barriers identified in this study have confirmed previous studies (Hall et al., 2020; Masai et al., 2021). Our findings also confirm past studies that inadequate access leads to unregulated sources, products, and services, especially driven by more affordable costs (Luque et al., 2018). Efforts to reduce access barriers, such as providing translation tools or interpreters and improving accessibility and affordability, should be selected carefully to prevent harmful practices. Reliance on unregulated medicine sources due to challenging access to healthcare raises ethical and public health concerns, including

antimicrobial resistance (Desai et al., 2022). Addressing these risks requires targeted health education and regulatory interventions.

Regarding self-care facilitation, sick travellers who are delayed seeking care from clinics or hospitals may seek care from a community pharmacy. Pharmacies are more numerous and widespread than referral facilities, offering better community accessibility. Previous research explored the interactions between community pharmacies and foreign-speaking customers (Sletvold & Nguyen, 2021; Suzuki et al., 2025). Participants wanted medication information, including dosage, side effects, administration techniques, and missed doses from the pharmacies (Sletvold & Nguyen, 2021). These interactions allow pharmacists to offer self-care facilitation services, assisting travellers in obtaining effective self-treatment and improved adherence for those already in therapy.

3.4.1. Limitations

There were five limitations in our study, including the migration status, researcher's positionality, and research focus of the original studies, the COVID-19 context, and the risks of publication and selection bias. Firstly, establishing the travel or migration status of participants was challenging. However, this challenge was related to the body of literature, where some studies did not clearly define the participants' migration status. Despite the small number of articles included in this review, the included studies reported data from a total of 769 participants, with two studies having more than 100 participants due to the multi-site settings and multiple stakeholders involved. Secondly, the majority of included studies (12 out of 17) did not report the researcher's positionality, preventing us from conducting sensitivity analysis by excluding them to reassess the final themes. The qualitative design of the included studies also prevented us from conducting a weighting analysis. Thirdly, most of the synthesised studies focused on either an illness or a phenomenon, making this review potentially missing the full range of health problems faced by travellers and migrants.

However, our search strategies did not limit the year of publication, ensuring a comprehensive retrieval of the current knowledge of the topic. Fourthly, none of the studies included in this meta-synthesis focused on the COVID-19 pandemic, which may impact the magnitude of self-care practices among travellers and migrants. However, this limitation also showed the scarcity of studies on travellers and migrants during the COVID-19 pandemic. Fifthly, excluding grey literature may introduce publication bias, as unpublished qualitative studies could provide additional perspectives. Also, including only qualitative components in mixed-method studies may introduce selection bias. To address potential publication and selection bias, we conducted a sensitivity check by excluding three borderline studies with two 'No' responses in the quality assessment. The five analytical themes remained unchanged, with only one descriptive theme (i.e. 'Health Risk Management') disappearing, suggesting that the synthesis was sufficiently robust to this exclusion.

3.5 Conclusion

This study has identified five primary self-care needs: self-care empowerment, mutual understanding of cultures, healthcare challenges and opportunities, preventive self-care, and facilitated self-care. Our study reveals that when people travel or migrate, they frequently lose social connections that contribute to their overall well-being. Strengthening established social ties and the development of new social ties are key to effective self-care. This review contributes to self-care theory in the context of international mobility by advancing social capital as a meta-contextual factor and offering practical guidance for policy and digital health interventions.

3.6 References

Alkhuzaimi, F., Rainey, D., Brown Wilson, C., & Bloomfield, J. (2025). The Impact of Mobile Health Interventions on Service Users' Health Outcomes and the Role of Health Professions: A Systematic Review of Systematic Reviews. *BMC Digital Health*, *3*(1). https://doi.org/10.1186/s44247-024-00143-3

Angelo, K. M., Kozarsky, P. E., Ryan, E. T., Chen, L. H., & Sotir, M. J. (2017). What Proportion of International Travellers Acquire a Travel-Related Illness? A Review of the Literature. *Journal of Travel Medicine*, *24*(5). https://doi.org/10.1093/jtm/tax046

Ankers, M., Parry, Y., & Willis, E. (2023). Social Constructionism, Power, and Understanding the Health Needs of Different Groups Engaged in a Shared Reality. In *Handbook of Social Sciences and Global Public Health* (pp. 1-15). https://doi.org/10.1007/978-3-030-96778-9_141-1

Arcury, T. A., Vallejos, Q. M., Feldman, S. R., & Quandt, S. A. (2006). Treating Skin Disease: Self-Management Behaviors of Latino Farmworkers. *Journal of agromedicine*, *11*(2), 27-35.

Bourdieu, P. (1986). The Forms of Capital. In J. Richardson (Ed.), *Handbook of Theory and Research for the Sociology of Education* (pp. 241-258). Greenwood Press. Handb. Theory Res. Sociol. Educ New York.

Bowen, G. A. (2019). *Sensitizing Concepts*. SAGE Publications Limited London.

CEBM. (2019). *Critical Appraisal of Qualitative Studies*. Retrieved 3 November from https://www.cebm.net/wp-content/uploads/2019/01/Qualitative-Studies.pdf

Cohen, S. A., Duncan, T., & Thulemark, M. (2013). Lifestyle Mobilities: The Crossroads of Travel, Leisure and Migration. *Mobilities*, *10*(1), 155-172. https://doi.org/10.1080/17450101.2013.826481

Dawson-Hahn, E. E., Pidaparti, V., Hahn, W., & Stauffer, W. (2021). Global Mobility, Travel and Migration Health: Clinical and Public Health Implications for Children and Families. *Paediatrics and International Child Health*, *41*(1), 3-11. https://doi.org/10.1080/20469047.2021.1876821

Desai, A. N., Mohareb, A. M., Hauser, N., & Abbara, A. (2022). Antimicrobial Resistance and Human Mobility. *Infection and Drug Resistance*, *15*, 127-133. https://doi.org/10.2147/IDR.S305078

Douglas, P., Cetron, M., & Spiegel, P. (2019). Definitions Matter: Migrants, Immigrants, Asylum Seekers and Refugees. *Journal of Travel Medicine*, *26*(2). https://doi.org/10.1093/jtm/taz005

El-Osta, A., Webber, D., Gnani, S., Banarsee, R., Mummery, D., Majeed, A., & Smith, P. (2019). The Self-Care Matrix: A Unifying Framework for Self-Care. *SelfCare*, *10*(3), 38-56. https://selfcarejournal.com/article/the-self-care-matrix-a-unifying-framework-for-self-care/

Fauk, N. K., Gesesew, H. A., Seran, A. L., Raymond, C., Tahir, R., & Ward, P. R. (2022). Barriers to Accessing HIV Care Services in Host Low and Middle Income Countries: Views and Experiences of Indonesian Male Ex-Migrant Workers Living with HIV. *International Journal of Environmental Research and Public Health*, *19*(21). https://doi.org/10.3390/ijerph192114377

Glass, C. R., & Gesing, P. (2018). The Development of Social Capital through International Students' Involvement in Campus Organizations. *Journal of International Students*, *8*(3), 19. https://doi.org/10.5281/zenodo.1254580

Goldenberg, S. M., & Fischer, F. (2023). Migration and Health Research: Past, Present, and Future. *BMC Public Health*, *23*(1), 1425. https://doi.org/10.1186/s12889-023-16363-7

Hall, B. J., Yang, X., Huang, L., Yi, G., Chan, E. W. W., Tucker, J. D., & Latkin, C. A. (2020). Barriers and Facilitators of Rapid HIV and Syphilis Testing Uptake among Filipino Transnational Migrants in China. *AIDS and Behavior*, *24*(2), 418-427. https://doi.org/10.1007/s10461-019-02449-0

Hannigan, A., O'Donnell, P., O'Keeffe, M., & MacFarlane, A. (2016). *How Do Variations in Definitions of "Migrant" and Their Application Influence the Access of Migrants to*

Health Care Services? (Health Evidence Network Synthesis Report, No. 46., Issue. https://www.ncbi.nlm.nih.gov/books/NBK391032/
IATA. (2025). *Global Air Passenger Demand Reaches Record High in 2024* https://www.iata.org/en/pressroom/2025-releases/2025-01-30-01/
Innovation, V. H. (2023). *Covidence Systematic Review Software*. In Veritas Health Innovation. www.covidence.org
International Labour Organization. (2021). *ILO Global Estimates on International Migrant Workers: Results and Methodology* (3rd ed.). International Labour Organization.
International Self-Care Foundation. (2018). *The Seven Pillars of Self-Care Framework* https://isfglobal.org/seven-pillars-self-care-framework/
Kaczmarska, R., & Ono, M. (2022). *UN DESA 2022 Policy Brief 133 - Migration Trends and Families*. https://www.un.org/development/desa/dpad/publication/un-desa-policy-brief-no-133-migration-trends-and-families/
Kain, D., Findlater, A., Lightfoot, D., Maxim, T., Kraemer, M. U. G., Brady, O. J., Watts, A., Khan, K., & Bogoch, I. I. (2019). Factors Affecting Pre-Travel Health Seeking Behaviour and Adherence to Pre-Travel Health Advice: A Systematic Review. *Journal of Travel Medicine*, *26*(6). https://doi.org/10.1093/jtm/taz059
Khirikoekkong, N., Asarath, S. A., Munruchaitrakun, M., Blay, N., Waithira, N., Cheah, P. Y., Nosten, F., Lubell, Y., Landier, J., & Althaus, T. (2023). Fever and Health-Seeking Behaviour among Migrants Living Along the Thai-Myanmar Border: A Mixed-Methods Study. *BMC Infectious Disease*, *23*(1), 501. https://doi.org/10.1186/s12879-023-08482-8
Khosravi, R., Azman, A., Ayasreh, E. A. M., & Khosravi, S. (2018). Can a Building Social Capital Intervention Improve the Mental Health of International Students? A Non-Randomized Quasi-Experimental Study. *International Social Work*, *62*(5), 1384-1403. https://doi.org/10.1177/0020872818797996
Kilanowski, J. F. (2010). Migrant Farmworker Mothers Talk About the Meaning of Food. *The American Journal of Maternal Child Nursing*, *35*(6), 6. https://doi.org/https://doi.org/10.1097/NMC.0b013e3181f0f27a
Kurniasari, N. M. D., Widyanthini, D. N., Mulyawan, I. K. H., & Wirawan, I. M. A. (2021). Travel Health Knowledge and Perception of Foreign Backpackers Traveling in Bali. *Jurnal Ilmu Kesehatan Masyarakat*, *12*(2), 128-142. https://doi.org/10.26553/jikm.2021.12.2.128-142
Liew, C. H., & Flaherty, G. T. (2020). Experiences and Attitudes of International Travelers with Cardiovascular Disease: A Qualitative Analysis. *American Journal of Tropical Medicine and Hygiene*, *102*(3), 689-697. https://doi.org/https://dx.doi.org/10.4269/ajtmh.19-0793
Lin, L., Brown, K. B., Hall, B. J., Yu, F., Yang, J., Wang, J., Schrock, J. M., Bodomo, A. B., Yang, L., Yang, B., Nehl, E. J., Tucker, J. D., & Wong, F. Y. (2016). Overcoming Barriers to Health-Care Access: A Qualitative Study among African Migrants in Guangzhou, China. *Global Public Health*, *11*(9), 1135-1147. https://doi.org/https://dx.doi.org/10.1080/17441692.2015.1076019
Lumivero. (2020). *Nvivo*. In (Version 13) Lumivero. https://lumivero.com/products/nvivo/
Luque, J. S., Soulen, G., Davila, C. B., & Cartmell, K. (2018). Access to Health Care for Uninsured Latina Immigrants in South Carolina. *BMC Health Service Research*, *18*(1), 310. https://doi.org/10.1186/s12913-018-3138-2
Madden, H., Harris, J., Blickem, C., Harrison, R., & Timpson, H. (2017). "Always Paracetamol, They Give Them Paracetamol for Everything": A Qualitative Study Examining Eastern European Migrants' Experiences of the UK Health Service. *BMC*

health services research, *17*(1), 604. https://doi.org/https://dx.doi.org/10.1186/s12913-017-2526-3

Martinez, N., Connelly, C. D., Perez, A., & Calero, P. (2021). Self-Care: A Concept Analysis. *International Journal of Nursing Sciences*, *8*(4), 418-425. https://doi.org/10.1016/j.ijnss.2021.08.007

Masai, A. N., Guciz-Dogan, B., Ouma, P. N., Nyadera, I. N., & Ruto, V. K. (2021). Healthcare Services Utilization among International Students in Ankara, Turkey: A Cross-Sectional Study. *BMC Health Service Research*, *21*(1), 311. https://doi.org/10.1186/s12913-021-06301-x

McElfish, P. A., Moore, R., Woodring, D., Purvis, R. S., Maskarinec, G. G., Bing, W. I., Hudson, J., Kohler, P. O., & Goulden, P. A. (2016). Social Ecology and Diabetes Self-Management among Pacific Islanders in Arkansas. *Journal of family medicine and disease prevention*, *2*(1). https://doi.org/https://dx.doi.org/10.23937/2469-5793/1510026

McVea, K. L. S. (1997). Lay Injection Practices among Migrant Farmworkers in the Age of AIDS Evolution of a Biomedical Folk Practice. *Social Science & Medicine*, *45*(1), 91-98. https://doi.org/10.1016/s0277-9536(96)00318-8

Mills, D. J., Ramsey, L., & Furuya-Kanamori, L. (2021). Pre- and Post-Travel Medical Consultations. In J. Wilks, D. Pendergast, P. A. Leggat, & D. Morgan (Eds.), *Tourist Health, Safety and Wellbeing in the New Normal* (pp. 47-69). Springer. https://doi.org/10.1007/978-981-16-5415-2_3

Mohammed, M. A., Moles, R. J., & Chen, T. F. (2016). Meta-Synthesis of Qualitative Research: The Challenges and Opportunities. *International Journal of Clinical Pharmacy*, *38*(3), 695-704. https://doi.org/10.1007/s11096-016-0289-2

Obach, A., Blukacz, A., Sadler, M., Carreno Calderon, A., Cabieses, B., & Diaz, C. (2024). Barriers and Facilitators to Access Sexual and Reproductive Health Services among Young Migrants in Tarapaca, Chile: A Qualitative Study. *BMC Public Health*, *24*(1), 386. https://doi.org/10.1186/s12889-024-17884-5

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hrobjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., . . . Moher, D. (2021). The PRISMA 2020 Statement: An Updated Guideline for Reporting Systematic Reviews. *Systematic Reviews*, *10*(1), 89. https://doi.org/10.1186/s13643-021-01626-4

Parent, A. A., Galindo, M. S., Lambert, Y., & Douine, M. (2022). Combatting Malaria Disease among Gold Miners: A Qualitative Research within the Malakit Project. *Health promotion international*, *37*(4). https://doi.org/https://dx.doi.org/10.1093/heapro/daac058

Porqueddu, T. (2017). Herbal Medicines for Diabetes Control among Indian and Pakistani Migrants with Diabetes. *Anthropology & Medicine*, *24*(1), 17-31. https://doi.org/10.1080/13648470.2016.1249338

Riegel, B., Dunbar, S. B., Fitzsimons, D., Freedland, K. E., Lee, C. S., Middleton, S., Stromberg, A., Vellone, E., Webber, D. E., & Jaarsma, T. (2021). Self-Care Research: Where Are We Now? Where Are We Going? *International Journal of Nursing Studies*, *116*, 103402. https://doi.org/10.1016/j.ijnurstu.2019.103402

Rosselot, G. A., & Flaherty, G. T. (2025). Timing is Everything: Navigating the Challenges of Untimely Travellers in Clinical Practice. *Journal of Travel Medicine*, *32*(8). https://doi.org/10.1093/jtm/taaf113

Shahab, Y., Alofivae-Doorbinnia, O., Reath, J., MacMillan, F., Simmons, D., McBride, K., & Abbott, P. (2019). Samoan Migrants' Perspectives on Diabetes: A Qualitative Study.

Health Promotion Journal of Australia, *30*(3), 317-323. https://doi.org/10.1002/hpja.240
Sironi, A., Bauloz, C., & Emmanuel, M. (2019). *Glossary on Migration*. International Organization for Migration.
Sletvold, H., & Nguyen, T. (2021). Experiences and Perceptions of Foreign-Language Customers on Medication Information Received in the Pharmacy - a Focus Group Study. *International Journal of Pharmacy Practice*, *29*(4), 330-335. https://doi.org/10.1093/ijpp/riab021
Suzuki, S., Nishikawa, Y., Nakayama, T., & Okada, H. (2025). Pharmacist Accessibility for Non-Native Japanese Speakers: A Cross-Sectional Study in Japan. *Canadian Pharmacists Journal*, 17151635241305375. https://doi.org/10.1177/17151635241305375
Thomas, J., & Harden, A. (2008). Methods for the Thematic Synthesis of Qualitative Research in Systematic Reviews. *BMC Medical Research Methodology*, *8*, 45. https://doi.org/10.1186/1471-2288-8-45
Tong, A., Flemming, K., McInnes, E., Oliver, S., & Craig, J. (2012). Enhancing Transparency in Reporting the Synthesis of Qualitative Research: ENTREQ. *BMC Medical Research Methodology*, *12*, 181. https://doi.org/10.1186/1471-2288-12-181
Tyson, D. M., Arriola, N. B., Medina-Ramirez, P., Dao, L. U., Smith, C. A. S., & Livingston, T. (2019). "You Have to Control It However You Can": Type 2 Diabetes Management in a Hispanic Farmworker Community in Rural Florida. *Human Organization*, *78*(3), 205-217. https://doi.org/https://dx.doi.org/10.17730/0018-7259.78.3.205
UNWTO. (2025). *Global and Regional Tourism Performance* https://www.unwto.org/tourism-data/global-and-regional-tourism-performance
Vajta, B., Holberg, M., Mills, J., & McBride, W. J. H. (2015). Weighing up the Costs of Seeking Health Care for Dengue Symptoms: A Grounded Theory Study of Backpackers' Decision-Making Processes. *Australian Journal of Primary Health*, *21*(2), 245-248. https://doi.org/https://dx.doi.org/10.1071/PY13107
Vilkman, K., Pakkanen, S. H., Laaveri, T., Siikamaki, H., & Kantele, A. (2016). Travelers' Health Problems and Behavior: Prospective Study with Post-Travel Follow-Up. *BMC Infectious Disease*, *16*, 328. https://doi.org/10.1186/s12879-016-1682-0
Westerling, R., Daryani, A., Gershuni, O., Czabanowska, K., Brand, H., Erdsiek, F., Aksakal, T., Uner, S., Karadag Caman, O., Ozcebe, H., & Brzoska, P. (2020). Promoting Rational Antibiotic Use in Turkey and among Turkish Migrants in Europe - Implications of a Qualitative Study in Four Countries. *Globalization and Health*, *16*(1), 108. https://doi.org/https://dx.doi.org/10.1186/s12992-020-00637-5
WHO. (2022). *WHO Guideline on Self-Care Interventions for Health and Well-Being, 2022 Revision*. World Health Organization.
WHO Regional Office for South-East Asia. (2009). *Self-Care in the Context of Primary Health Care: Report of the Regional Consultation*. https://iris.who.int/handle/10665/206352
World Tourism Organization. (2010). *Tourism and Migration – Exploring the Relationship between Two Global Phenomena*. World Tourism Organization. https://doi.org/10.18111/9789284413140
World Tourism Organization. (2025). *World Tourism Barometer* 1). https://doi.org/10.18111/wtobarometereng
Yameogo, A. R., Deletroz, C., Sasseville, M., Amil, S., Da, S., Plaisimond, J., Bergeron, F., Tadlaoui, S., Bodenmann, P., & Gagnon, M. P. (2025). Effectiveness of Interventions to Improve Digital Health Literacy in Forced Migrant Populations: Mixed Methods

Systematic Review. *Journal of Medical Internet Research*, *27*, e69880. https://doi.org/10.2196/69880

Yan, S. D., Orkis, J., Khan Sohail, S., Wilson, S., Davis, T., & Storey, J. D. (2020). Digging for Care-Seeking Behaviour among Gold Miners in the Guyana Hinterland: A Qualitative Doer Non-Doer Analysis of Social and Behavioural Motivations for Malaria Testing and Treatment. *Malaria Journal*, *19*(1), 235. https://doi.org/https://dx.doi.org/10.1186/s12936-020-03289-3

Ziersch, A., Walsh, M., & Due, C. (2023). 'Having a Good Friend, a Good Neighbour, Can Help You Find Yourself': Social Capital and Integration for People from Refugee and Asylum-Seeking Backgrounds in Australia. *Journal of Ethnic and Migration Studies*, *49*(15), 3877-3899. https://doi.org/10.1080/1369183x.2023.2177628

Chapter 4. International travellers' information behaviour for self-care in Indonesia: A deductive framework analysis

As indicated by findings in Chapter 3, language and communication barriers were frequently encountered by international travellers and migrants, limiting accessibility to care services. The aim of this Chapter 4 was to investigate self-care information behaviour of international travellers visiting Indonesia. A qualitative study with a deductive framework analysis using Robson and Robinson's Information-Seeking and Communication Model (ISCM) was conducted among travellers who were purposively approached in Bali and Borobudur-Yogyakarta, Indonesia.

4.1 Introduction

Ill-health is a common risk in international travel, with up to 87% of travellers reporting illness during or after their trip (Angelo et al., 2017). Traveller's diarrhoea and other gastrointestinal symptoms, e.g. nausea and constipation, are most common, followed by dermatological, respiratory, and febrile conditions (Angelo et al., 2017). Injuries and emergencies also occur, with an estimated 1 in 100,000 deaths among travellers (Long & Flaherty, 2018; Potin et al., 2024).

Self-care can mitigate travel-related health risks (Potin et al., 2024). It encompasses more than self-diagnosis, self-medication, or self-management (Narasimhan et al., 2019). Self-care is "the ability of individuals, families and communities to promote health, prevent disease, and maintain health and cope with illness and disability with or without the support of a health-care provider" (World Health Organization & Regional Office for South-East Asia, 2009). Travellers engage in self-care before, during, and after travel. Pre-travel self-care includes consultations and vaccinations, which reflect risk avoidance and responsible use of health services—two pillars of self-care (International Self-Care Foundation, 2018; Mills et al., 2021; Wendland & Skinner, 2020). During travel, self-care often involves managing minor symptoms with standby or over-the-counter products, controlling food and alcohol consumption, avoiding rabid animals, and self-testing for malaria (Ahlm et al., 1994; Hill, 2000; Mills et al., 2021; Utzinger et al., 2020; Wang et al., 2019). Post-travel consultations are also a form of self-care (Mills et al., 2021).

Information behaviour is closely linked to self-care, especially with the rise of online health information (Bertolazzi et al., 2023; Wang & Karl, 2021; Wang et al., 2019; Zhang et al., 2021). Information behaviour is "generation, acquisition, management, use and communication of information, and information seeking" (Ingwersen & Järvelin, 2005; Robson & Robinson,

2013). In international travel, cultural and language barriers can hinder effective communication (Lin et al., 2016; Madden et al., 2017).

Travellers seek information for self-care from diverse outlets, including government websites, e.g. Smartraveller, risk assessment websites, local media, tourism operators, and healthcare providers (Arcury et al., 2006; Lin et al., 2016; Parent et al., 2022; Vajta et al., 2015; Wang & Karl, 2021; Yan et al., 2020). However, most studies on travellers' information behaviour focus on tourism management and marketing, rather than self-care (Kambele et al., 2015; Kang et al., 2020; Varotsis & Mylonas, 2024). A Google Scholar search using a combination of "information behaviour", "self-care", and "traveller" keywords yielded only one relevant study (Lee et al., 2025). Understanding how travellers seek and use health information can help healthcare providers, such as community pharmacies, better support self-care. Therefore, this study aimed to investigate information behaviour among international travellers in Indonesia as part of a larger study exploring international travellers' self-care and pharmacy-based support.

4.2 Methods

4.2.1. Ethics approval

The University of Sydney's Human Research Ethics Committee, Australia (2022/HE000938) and The Ethical Committee of Medical Research, Faculty of Dentistry, Universitas Jember, Indonesia (No. 1959/UN25.8/KEPK/DL/2023) approved the study protocol.

4.2.2. Data collection

4.2.2.1. Instruments

A semi-structured interview question list was developed in English. Six out of 13 questions on the interview guide were based on the Self-Care Matrix (El-Osta et al., 2019). The matrix was selected as it is a recent comprehensive framework developed from 32 models, theories, and

frameworks of self-care (El-Osta et al., 2019). The matrix consists of four cardinal dimensions of self-care, including Self-Care Activities, Behaviours, Context, and Environment (El-Osta et al., 2019). The other seven questions were about the planned or actual interactions with community pharmacies, including the trust or confidence in their service, trust in product quality, communication, accessibility, availability, affordability, and satisfaction.

The Participant Information Statement and Participant Consent Form were provided in English in print and digital formats. A flyer in English was explicitly designed to invite participants, containing basic information about the study, including the eligibility criteria, contact number and email address, and ethics review registration numbers. Information about incentives was not stated on the flyer.

4.2.2.2. Locations and time period

This multisite study was conducted in Badung, Bali Province and in Magelang, Central Java Province. Bali represents Indonesia's most well-established tourist destination, with Badung home to the largest number of tourist spots. Meanwhile, Magelang represents Indonesia's developing tourist destination for international visitors. Magelang is home to the world's largest Buddhist temple, Borobudur, which has been declared one of Indonesia's Super-priority Destinations since 2016 (Ollivaud & Haxton, 2019). Data were collected between May and June 2023.

4.2.2.3. Recruitment

Study participants were recruited using purposive sampling for maximum variation, where the researcher (ANWP) purposefully approached different types of travellers, e.g. those who travelled solo, with friend(s), with family, or elderly travellers. Information power was used to determine when the sampling was sufficient (Malterud et al., 2021).

In Magelang, where there are fewer international travellers than in Bali, the flyer distribution occurred in the parking area of the Borobudur Temple complex, including Pawon and Mendut Temples, and nearby homestays. The parking area lacked benches and other resting places for the visitors, making approaching potential participants more challenging. Most travellers were approached after finishing the temple visit. Three community pharmacies near the Borobudur Temple Complex assisted by displaying the flyers on their counter. Meanwhile, in Badung, potential participants were approached on popular tourist beaches such as Kuta, Legian, Seminyak, Double Six, and Canggu, with the flyer directly distributed to travellers. No relationship was established between the field researcher and participants prior to interview.

4.2.2.4. Interviews

Semi-structured qualitative interviews were conducted once in English. When prospective participants were interested in joining the study, they needed to contact the field researcher and choose between virtual or face-to-face individual interviews. Virtual participants were provided with the digital version of the Participant Information Statement before the interviews, and the meeting was scheduled for a mutually convenient time. At the agreed time, the Participant Consent Form was read, and consent was sought from the participant. The conversation was audio-recorded using the interview platform. Meanwhile, face-to-face interview participants were offered the choice to either have the interview in the present or arrange another meeting schedule. The Participant Information Statement was given to them to read, followed by the Participant Consent Form. Once a participant provided their consent, the interview started. The interviews were audio-recorded. As the face-to-face interviews took place at tourism spots, non-participants were present, but interview location and timing were agreed with participants to support comfort and privacy, e.g., selecting quieter areas slightly away from foot traffic and avoiding peak hours. When complete privacy could not be guaranteed, participants were reminded that they could decline to answer any question, pause the interview, or

relocate/reschedule if they felt overheard or distracted. The interviewer monitored for interruptions and, when necessary, paused recording and resumed once privacy and attention were restored. Each participant completing the interview was eligible to receive an IDR 100,000 electronic voucher.

4.2.3. Data analysis

We pragmatically conducted a deductive framework analysis using the Information-Seeking and Communication Model (ISCM) as a confirmatory approach to our interview data (Gale et al., 2013; Robson & Robinson, 2015). Robson and Robinson formulated ISCM in 2013 and subsequently updated it in 2015 after applying the model to healthcare settings, i.e. information-seeking by physicians (Robson & Robinson, 2013, 2015). The model describes the process whereby an information user or users seek or use information by communicating with an information provider or providers, using one or multiple information sources (Robson & Robinson, 2015). Through the model, the researchers indicate that information behaviour encompasses information-seeking and two-way communication, along with information assessment, use, or dismissal, and outcomes of the process.

In our study, users were international travellers, and providers were healthcare providers in Indonesia, including community pharmacy staff. However, our interviews were only with the users and were not initially designed for exploring travellers' information behaviour exclusively. Therefore, we were unable to delve into providers, communication by information provider, and some ISCM elements, such as source selection and assessment based on utility, i.e. perceived usefulness, and credibility, i.e. perceived trustworthiness. Following Ahmadinia et al. (2021) who applied ISCM to their systematic review on health-seeking behaviours of immigrants, asylum seekers, and refugees, we deliberately selected the following elements of ISCM into our framework analysis:

1. Information user's context
2. Information user's needs/wants/goals
3. Information user's perceptions
4. Information user's motivating or inhibiting factors
5. Information-seeking activities/feelings/thoughts
6. Information sources
7. Information providers
8. Information products
9. Communication by information user: process/medium
10. Users' needs satisfaction
11. Outcomes: actions, decisions, knowledge

Audio recordings were transcribed verbatim. NVivo Release 1.7.1 software (QSR International, Melbourne, Australia, https://lumivero.com/) was used to facilitate analysis. Transcripts were read repeatedly for familiarisation and to identify meanings. Initial coding was undertaken by ANWP using the 11 elements of ISCM, with close consultation with CS. Coding decisions and interpretations were discussed in regular meetings among the research team. Text segments that did not fit any of the 11 ISCM elements were not discarded. Instead, they were assigned to an "out-of-framework" category for further review to determine whether they represented contextual influences on self-care information behaviours.

4.2.4. Reflexivity

The research team members were health professionals from different backgrounds, including pharmacy, medicine, nursing, and public health. All members were experienced in conducting qualitative and/or mixed-methods studies (collective experience=72 years). Most team members travelled well globally.

4.2.5. Reporting standard

We followed the Consolidated Criteria for Reporting Qualitative Research (COREQ) reporting standard (Tong et al., 2007) (Appendix M).

4.3 Results

4.3.1. Participant characteristics

Seventeen international travellers from 11 nationalities agreed to participate in the study. Male participants were proportional to female participants. Almost all participants were interviewed in Bali face-to-face (n=15; Table 4.1). One participant refused to be audio-recorded, hence was excluded from the analysis, leaving 16 participants for further analysis. We present ISCM elements and the representing quotes in Table 4.2.

Table 4.1 Participant characteristics

Characteristic		**Site 1: Badung (Bali)**	**Site 2: Borobudur (Central Java)**
N		15*	2
Sex	Male	7	1
	Female	8	1
Country of origin	Netherlands	1	2
	Australia	2	-
	Canada	1	-
	Czech	1	-
	France	1	-
	Germany	2	-
	Ireland	1	-
	Lithuania	1	-
	Russia	1	-
	UK	3	-
	US	1	-
Mode of interview	Face-to-face	15	-
	Online	-	2
Travel party composition	Solo	7	-
	With friends/partner	5	2
	With family	3	-

* One participant was excluded from the analysis due to a refusal to be audio recorded.

4.3.2. Information user's context

Based on travel experience, travellers varied in familiarity with Indonesia. Some travellers understood their itinerary may include locations away from "vicinities" (G1-002-IT-BR) or the "jungle areas"(G1-004-IT-BL). Potential social support networks varied between travellers, with some having friends who had lived in Indonesia "for about ten years" (G1-006-IT-BL) or local friends because of "volunteering activity" (G1-003-IT-BL). Other travellers had relatives in Indonesia or an Indonesian family background that increased their self-perceived familiarity with Indonesia's health system. Trust in Indonesia's health system also varied.

4.3.3. Information user's needs/wants/goals

Self-care-related information sought by participants was both general and case-specific. Pre-travel advice (e.g. standby medications and vaccinations), the healthcare system, potential health issues, or local policies exemplified travellers' general information needs. When encountering a health problem, travellers sought case-specific information, e.g. health status assessment, medicine recommendations and instructions, and the closest or recommended healthcare providers.

4.3.4. Information user's perceptions

Travellers expressed various perceptions pertinent to self-care. Some travellers did not trust pharmaceuticals other than vitamins and naturally-sourced products, citing that they were "very bad value for money" and "destroy people's health" (G1-010-IT-BL). Other travellers perceived the cost-ineffectiveness of local medical care and would "try to avoid it at all costs" (G1-013-IT-BL). Some travellers revealed perceptions of possible health problems, with malaria well-recognised as a possible threat, although not always accurate to the current situation. Some felt reassured by the local health system's awareness and readiness because the destination was designated for mass tourism.

Table 4.2 Elements from Robson and Robinson's Information-Seeking and Communication Model (ISCM) and quote examples

ISCM Elements	Analytical line	Quote Example
Information user's context	Travellers' information behaviour was shaped by embeddedness and trust, ranging from being hosted by locals/family networks to holding explicit distrust of Indonesia's medical system.	*"Well, I'm not staying in a hotel. I'm staying in like a house, such someone's house, a family house. They're like Indonesian people, like other volunteers."* (G1-003-IT-BL)
		"I have family. My family is partly Indonesian, and [they] have had some experience travelling to Indonesia, and they told me that the healthcare system in Indonesia is very well established." (G1-001-IT-BR)
		"The thing is, I don't trust […], to be honest, the medical system in Indonesia." (G1-004-IT-BL)
Information user's needs/wants/goals	Travellers sought both preventiion (vaccines/medicines) and situated guidance, often following a stepwise escalation pathway from pharmacist advice to clinic/hospital depending on severity and proximity.	*"We googled and we asked our friends that were in Bali or Indonesia, should we […] have some vaccines? What medicine we should bring with us?"* (G1-011-IT-BL)
		"I would start going through a local pharmacist and seek for advice there to understand what level. And then maybe […] a clinic or the hospital, depending on what I'm told each step along the way, considering also what's closest." (G1-002-IT-BR)
Information user's perceptions	Risk perceptions (e.g., malaria differences between Bali vs Java/"jungle" areas) and assumptions about "tourism readiness" shaped what travellers felt they needed and how confident they were in local support.	*"I mean it's like we know that we go to some jungle areas, we should take some antimalaria, [...] mosquito repellents with the sunscreen." (G1-004-IT-BL)*
		"But, I know that when you're coming, going in the mainland [Java] […], you need [anti-]malaria and everything. But in Bali, it's not so." (G1-016-IT-BL)
		"I feel like especially that [...] as a tourist in a country that […] is heavily tourism-based, and has a lot of preparation for tourists, they'd be very aware of the common issues we'd face. […] probably you have a very well-stocked on things to take care about." (G1-008-IT-BL)
Information user's inhibiting or motivating factors	Language barriers inhibited information- or help-seeking, but travellers	*"Like they do struggle with understanding what the problem is […] Even yesterday I was like pointing to my knee, and she's like did not know at all what was wrong." (G1-003-IT-BL)*

ISCM Elements	Analytical line	Quote Example
	compensated through translation support (partner/friends) and were often prompted into seeking care only when a concrete health incident occurred (e.g., infection).	*"If I really, really sick […] I also have a boyfriend from Indonesia so he can translate for me [when I need to] go to the doctor." (G1-016-IT-BL)*
		"Honestly, I think you become aware of this if you need something. So, recently, my travel friend, my partner, has been swimming here and got an ear infection. And then, it was when we went to [the] chemist here, that's when we learned we could get, you know, antibiotics and stuff like that." (G1-007-IT-BL)
Information-seeking activities/feelings/thoughts	Travellers used iterative 'triangulation' (Artificial Intelligence/chatbots, medical websites, clinician verification) and expressed confidence when they perceived risks and guidance as widely communicated pre-arrival.	*"I would use chatbot Large Language Model AI like Bard from Google. When I get a specific answer, I always verify by researching again the same question and answer [on] medical websites and I finally verify also with the doctor." (G1-001-IT-BR)*
		"[I] feel like everybody in Indonesia is very open on […] few risks you guys have for tourists coming here […] But the information is very prevalent before you get here. So, I feel very confident that if something were to happen here, I'd be alright." (G1-008-IT-BL)
Information sources	Informal digital channels (e.g., Facebook groups) functioned for identifying trusted local providers.	*"I think Kelly, who I've travelled with, she's a member on Facebook [group] and whatnot. So she knows of a good doctor around here." (G1-014-IT-BL)*
Information providers	Travellers relied on proximal human expertise (travel companions with clinical training, tour guides) and contrasted home-system access constraints with Indonesia's perceived accessibility at destination.	*"Funnily enough, I actually am travelling […] with three nurses […] and someone trained to be a doctor. So, sit with their opinion. And then […] I have the travel insurance. So I'd speak to my tour guide that I'm with and he'd point me to view the pharmacy or [other health facilities], whatever's close by."* (G1-008-IT-BL)
		"In Canada, it's really hard to get a doctor, well, where we're from anyway. In our city, it's very difficult, like people are on a long waiting list." (G1-009-IT-BL)
Information products	Desired outputs ranged from high-certainty clinical judgments ("what is	*"I would generally go to a doctor to find out what is wrong first."* (G1-010-IT-BL)

ISCM Elements	Analytical line	Quote Example
	wrong"/diagnosis) to actionable directives (what to take, where to go), showing that "information" was often treated as a decision-ready product.	
Communication by information user: process/medium	Communication was pragmatic and multimodal (offline dictionary, pointing, limited Indonesian terms), with some travellers preferring product-based requests over symptom narratives to reduce miscommunication.	*"I would use an offline dictionary, which I have on my phone. And just to be sure, I would point at certain areas of my body. If I am saying specific words like 'pipi' (cheek), 'gulu' (neck), kelek' (armpit), that are words that I happen to know. So if I would say those words, I would point at those body parts. […] If it seems like people are accepting my word choice and my body language combined then I would trust that translation has gone well."* (G1-001-IT-BR)
		"I mean, I've never been and not known what I wanted […] because usually if I go to the pharmacy, I just say, "Can I have this charcoal or can I have the Vermox?" I find out for myself what […] I need, and then I've never been, and said, "Oh, I have this condition. Can you help me?" Yeah." (G1-010-IT-BL)
Users' needs satisfaction	Satisfaction depended on whether travellers could reach an understandable/helpful endpoint (referrals, English-capable staff, non-judgmental service), but could be undermined by surprise about product legitimacy/quality in pharmacies.	*"I think everybody that I interacted with was very helpful, and they were not afraid to point me to somebody else. […] Sometimes I'm able to go with English. […] Sometimes that's not possible, so I'll use a translator online. […] but eventually, I reach somebody that I can speak in English with or write."* (G1-002-IT-BR)
		"Actually, they're very helpful and not judgmental. I had to buy [a] pregnancy test the other day, and nobody would say anything or treat me differently, you know." (G1-013-IT-BL)
		"But, we were really surprised that we got this [vitamin] sold in a real pharmacy. I mean if I were buying it from you know some old woman on the street, who sells like you know Xanax, and then I would like [to] anticipate that, but not in [a] pharmacy yeah." (G1-004-IT-BL)
Outcomes: actions, decisions, knowledge	Information behaviour translated into concrete self-care decisions (avoid doctor due cost, adopt locally	*"I try to avoid the doctor because it's too expensive. One year I come here and I cut my toe open. Yeah, in the swimming pool in the ceramic and they tried to, I don't know, charge me like $300 or something for stitches and I was like, no, I will let it bleed it on my foot, yeah."*

ISCM Elements	Analytical line	Quote Example
	learned remedies, selectively purchase products) and produced "learning for next time" (e.g., packing ear drops)	(G1-013-IT-BL)
		"So yesterday I hurt my knee while I was surfing, and I got Tiger balm […] I never see a medication that's like that. […] Tiger balm does not exist in Ireland at all. I never knew what that was until my friend just told me about it. […] Yesterday I couldn't walk on my leg. Now I can walk on my leg." (G1-003-IT-BL)
		"And you know, if you have to buy something at the chemist, it's not always completely very cheap. [...] They wanted me to buy vitamins the other day, and I thought, like, $30.00 for one bottle of vitamins. I didn't buy it basically because I don't think I really need it." (G1-013-IT-BL)
		"And as soon as I had some particular issue, now I know I should bring some sort of ear drops […] next time. I'll do so." (G1-002-IT-BR)

ISCM: Information-Seeking and Communication Model

4.3.5. Information user's inhibiting or motivating factors

Language barriers were the main inhibiting factor in seeking information from locals. However, travellers prepared solutions, such as pointing to affected body parts. Having local friends, needing to self-care for a recent minor ailment, knowing some local words and idioms, such as *"masuk angin"* (G1-016-IT-BL), being present in tourist areas, and recognising the locals' hospitality were motivating factors for information-seeking. The term "*masuk angin*" is literally translated to English "trapped wind", referring to an illness induced by cold weather or to a common cold.

4.3.6. Information-seeking activities/feelings/thoughts

Searching information using search engines, e.g. "Google" (G1-007-IT-BL), or "the Internet" (G1-016-IT-BL) was typical. Some triangulated information they retrieved by repeating information-seeking to understand or solve the same problem using other online platforms, such as generative artificial intelligence, and consultations. Some travellers felt the sufficiency and transparency of information on possible risks from the locals.

4.3.7. Information sources

Some travellers may simultaneously access information sources acting as information providers. Information sources included search engine, generative artificial intelligence, medical websites, online discussion forums, local news, or social media groups.

4.3.8. Information providers

Travellers sought information from both formally trained and informal providers. These providers were expatriate friends, hotel staff, tour guides, local or country of origin's health professionals, travel insurance companies, or travel companions. Some travellers could not access the telehealth service available in their country of origin while overseas.

4.3.9. Information products

In line with the user's needs or wants, information products varied, including "local policy" (G1-008-IT-BL), "vaccination" (G1-016-IT-BL), standby medications prepared before travel, and self-care products for recent minor ailments. The product can be simple (e.g. directions to the "nearest" and "best" doctor (G1-007-IT-BL)) or complex (e.g. diagnosis).

4.3.10. Communication by information user: process/medium

Communication with the locals was typically face-to-face, with some travellers insisting on using "only English" (G1-014-IT-BL). Occasionally, communication was made with some forms of helpers, including translation apps, gestures, bilingual locals (e.g. strangers, tour guides, or friends), and use of some local words. When looking for self-care products, some travellers preferred a product-based over a symptom-based request to avoid confusion.

4.3.11. Users' needs satisfaction

Some travellers contrasted their experience of interactions with local health providers with their initial perception and expectations. Some travellers expressed a simple confirmation of expectations. For example, one traveller described the journey of finding assistance in English. Other travellers expressed disconfirmation positively or negatively. A traveller was surprised that the pharmacy staff were not judgmental in handling a product request for a health matter considered culturally sensitive in Indonesia. Meanwhile, others expressed a negative disconfirmation, such as a traveller buying vitamins of perceived substandard quality sold at a local pharmacy.

4.3.12. Outcomes: actions, decisions, knowledge

Outcomes from information behaviour for self-care included actions or decisions, such as selecting self-care over medical care, or *vice versa*, and buying pharmaceutical products. Some travellers recalled that despite many pharmaceutical products being affordable, some were not,

making them more selective in buying. These actions or decisions can shape new knowledge perceived as useful for future travels. For example, a traveller with a recent ear infection after water activities expressed that their plan was to bring an ear drop from home next time they travelled.

4.4 Discussion

This study investigated international travellers' information behaviour for self-care in Indonesia. Although data were collected from Bali and Magelang, participants' experiences often reflected broader travel across the country, with Bali and Java often being visited (Ramadhani et al., 2024).

Travellers sought both general and case-specific information, aligning with previous findings in Bali (Kurniasari et al., 2021). The most important information needed related to health issues, nearby facilities, and preventive measures, ideally available at strategic locations, e.g. websites and places of accommodation (Kurniasari et al., 2021). Our study also revealed appreciation for local transparency about potential health risks, contrasting with literature suggesting that tourism sectors may avoid disclosing such information to prevent fear and revenue loss (Do et al., 2021; Gao et al., 2022; Tarlow, 2021; Wang et al., 2019). Initiatives like Bali's mapping of hazards, risks, and travel health services (Wirawan et al., 2020) offer important ingredients to concoct site-specific, accurate information for travellers' exercise of self-care. Meeting the need for this information is important, as our study also found an inaccurate understanding of current health issues among travellers. Demands for transparent information highlight the importance of health and safety promotion, whose practice can increase turnover, prevent litigation, and improve customer satisfaction and loyalty, benefiting tourism sectors (Wang et al., 2019; Wilks et al., 2021).

Language barriers were a consistent challenge for foreigners (Arcury et al., 2006; Lin et al., 2016; Madden et al., 2017), especially outside tourist-heavy areas. While travellers in southern Bali often encountered English-speaking locals, those in Magelang might face more difficulties. Travellers cited diverse strategies to overcome these problems, like using mobile translation apps, with offline mode preferable, considering inconsistent network coverage. Translation apps often lacked contextual accuracy, especially for idioms or informal speech (Dewayanti & Margana, 2024; Thanh, 2015). For example, a typical medicine instruction, "*minum tiga kali sehari*" was translated to "*drink three times a day*", instead of "*take three times a day*". However, this does not belittle the practicality and usefulness of the current state-of-the-art of mobile translator apps, which are promising to solve contextual translation problems in the near future. Instead, we propose a wise use of the apps and complement it with other methods, e.g. gestures, bilingual local persons, or some local words, making communication more meaningful and successful (Islam & Kirillova, 2020), and benefitting travellers by feeling safer and being taken more seriously by locals (Carvalho, 2021).

Travellers used some forms of digital technology, aligning with previous studies (El-Ghitany et al., 2018; Kurniasari et al., 2021). Some travellers can access telehealth with their country of origin's providers, while others cannot. This highlights opportunities for telehealth startups, such as Indonesia's Halodoc (halodoc.com), to expand their business, reaching international travellers.

Information-seeking was often repetitive, with travellers triangulating sources to confirm accuracy and credibility. This behaviour is unsurprising as it aligns with ISCM (Robson & Robinson, 2013, 2015). Destination health professionals should be aware of this repetitive information-seeking and should integrate prior information into the consultation. In pharmacies, for example, this information reconciliation can enrich the existing methods for

information-gathering (The Pharmaceutical Journal, 2019), leading to shared decision-making to support self-care.

The confirmation and disconfirmation of expectations align with Oliver's Expectancy Disconfirmation Theory (Oliver, 1993, 2014). Travellers from developed countries often expect more affordable prices and less advanced infrastructure, including health facilities. Their experiences—whether confirming or disconfirming expectations—influenced satisfaction and revisit intentions (Damanik & Yusuf, 2021; Nguyen Huu et al., 2024; Zeng & Yi Man Li, 2021). While tourism research has explored satisfaction extensively (Damanik & Yusuf, 2021; Nguyen Huu et al., 2024; Zeng & Yi Man Li, 2021), few studies address travellers' expectations of health services outside (Almodawer et al., 2024; Mahmud et al., 2021). This is understandable as health services are not the core business, but an essential support of the tourism sector. Meanwhile, studies on satisfaction with health services were usually among the locals (Azhar et al., 2022; Ferreira et al., 2023). It leaves a niche for future research.

4.4.1. Strengths and limitations

To the best of our knowledge, this study pioneers the examination of international travellers' self-care-related information behaviour in developing countries like Indonesia. The ISCM was robust in presenting and interpreting our interview data. However, this study focused only on consumer experiences, limiting insights into provider perspectives. Most participants were those visiting Bali, where the locals commonly understand English. Consequently, results may not be transferable to other parts of Indonesia. Moreover, all participants were from developed economies that may not be among the top five visitors to Indonesia, including Malaysia, Australia, Singapore, China, and Timor-Leste (BPS-Statistics Indonesia, 2025). Malaysian, Singaporean, and Timorese travellers were more likely to be familiar with Bahasa Indonesia, reducing the language barriers. Also, travellers from developed countries tend to bear greater responsibility for their health through self-care (Armstrong, 2014; Madden et al., 2017;

Petrakaki et al., 2018). Therefore, results may not be transferable to travellers from developing countries.

In conclusion, travellers' information behaviour for self-care intentions is diverse; therefore, one size does not fit all. Travellers use digital technology to seek information during their stay, but telehealth access needs improvement. The use of digital technology is sometimes complemented by communication with the locals using various methods, such as gestures and local words, to increase the effectiveness. The findings suggest that travellers' expectations matter and demand further research on this topic, especially on the side of local health providers. Expanding the study sites and targeted participants can provide a more comprehensive understanding of travellers' information behaviour. These findings can be a reference point for the destination country's or country of origin's healthcare providers to tailor more effective self-care information services for travellers.

4.5 References

Ahlm, C., Lundberg, S., Fessé, K., & Wiström, J. (1994). Health Problems and Self-Medication among Swedish Travellers. *Scandinavian Journal of Infectious Diseases*, *26*(6), 711-717. https://doi.org/10.3109/00365549409008640

Ahmadinia, H., Eriksson-Backa, K., & Nikou, S. (2021). Health-Seeking Behaviours of Immigrants, Asylum Seekers and Refugees in Europe: A Systematic Review of Peer-Reviewed Articles. *Journal of Documentation*, *78*(7), 18-41. https://doi.org/10.1108/jd-10-2020-0168

Almodawer, Y., Alam, S. S., Sinniah, S., & Ali, M. H. (2024). Patient Satisfaction Determinants in Malaysian Medical Tourism: An Analysis of MENA Patients. *International Journal of Spa and Wellness*, 1-34. https://doi.org/10.1080/24721735.2024.2444705

Angelo, K. M., Kozarsky, P. E., Ryan, E. T., Chen, L. H., & Sotir, M. J. (2017). What Proportion of International Travellers Acquire a Travel-Related Illness? A Review of the Literature. *Journal of Travel Medicine*, *24*(5). https://doi.org/10.1093/jtm/tax046

Arcury, T. A., Vallejos, Q. M., Feldman, S. R., & Quandt, S. A. (2006). Treating Skin Disease: Self-Management Behaviors of Latino Farmworkers. *Journal of Agromedicine*, *11*(2), 27-35. https://doi.org/10.1300/J096v11n02_06

Armstrong, D. (2014). Actors, Patients and Agency: A Recent History. *Sociology of Health & Illness*, *36*(2), 163-174. https://doi.org/10.1111/1467-9566.12100

Azhar, A., Wasif Gillani, S., Jiaan, N., Menon, V., Abdi, S., & Rathore, H. A. (2022). Patient Satisfaction with Inpatient Pharmacy Services at Tertiary Care Setting—a Meta-Analysis of Recent Literature. *Journal of Pharmaceutical Health Services Research*, *13*(3), 191-197. https://doi.org/10.1093/jphsr/rmac022

Bertolazzi, A., Lombi, L., Lovari, A., Ducci, G., & D'Ambrosi, L. (2023). I Know That I Know: Online Health Information Seeking, Self-Care and the Overconfidence Effect. *Sociological Forum*, *38*(3), 793-812. https://doi.org/10.1111/socf.12925

BPS-Statistics Indonesia. (2025). *International Visitor Arrivals Statistics 2024* (Vol. 16). BPS-Statistics Indonesia. https://www.bps.go.id/id/publication/2025/03/20/a85d584df19ea65a5e2b3d0b/statistik-kunjungan-wisatawan-mancanegara-2024.html

Carvalho, I. (2021). 'You Can See Both Sides of the Coin' How the Pursuit of Language Skills Influences the Travel Experience. *Tourism Recreation Research*, *48*(1), 17-29. https://doi.org/10.1080/02508281.2021.1894044

Damanik, J., & Yusuf, M. (2021). Effects of Perceived Value, Expectation, Visitor Management, and Visitor Satisfaction on Revisit Intention to Borobudur Temple, Indonesia. *Journal of Heritage Tourism*, *17*(2), 174-189. https://doi.org/10.1080/1743873x.2021.1950164

Dewayanti, D. P. S. P., & Margana, M. (2024). The Impact of Contextual Understanding on Neural Machine Translation Accuracy: A Case Study of Indonesian Cultural Idioms in English Translation. *Englisia: Journal of Language, Education, and Humanities*, *12*(1). https://doi.org/10.22373/ej.v12i1.24433

Do, B., Nguyen, N., D'Souza, C., Bui, H. D., & Nguyen, T. N. H. (2021). Strategic Responses to COVID-19: The Case of Tour Operators in Vietnam. *Tourism and Hospitality Research*, *22*(1), 5-17. https://doi.org/10.1177/1467358421993902

El-Ghitany, E. M., Mohamed Abdelmohsen, M. A., Farghaly, A. G., Abd El-Gawwad, E. S., & Abd El-Wahab, E. W. (2018). Travel Health Survey: Risk Perception, Health-Seeking Behavior, and Subjective Evaluation of Travel Health Services in Egypt. *International Journal of Travel Medicine and Global Health*, *6*(1), 16-24. https://doi.org/10.15171/ijtmgh.2018.04

El-Osta, A., Webber, D., Gnani, S., Banarsee, R., Mummery, D., Majeed, A., & Smith, P. (2019). The Self-Care Matrix: A Unifying Framework for Self-Care. *SelfCare*, *10*(3), 38-56. https://selfcarejournal.com/article/the-self-care-matrix-a-unifying-framework-for-self-care/

Ferreira, D. C., Vieira, I., Pedro, M. I., Caldas, P., & Varela, M. (2023). Patient Satisfaction with Healthcare Services and the Techniques Used for Its Assessment: A Systematic Literature Review and a Bibliometric Analysis. *Healthcare (Basel)*, *11*(5). https://doi.org/10.3390/healthcare11050639

Gale, N. K., Heath, G., Cameron, E., Rashid, S., & Redwood, S. (2013). Using the Framework Method for the Analysis of Qualitative Data in Multi-Disciplinary Health Research. *BMC Medical Research Methodology*, *13*, 117. https://doi.org/10.1186/1471-2288-13-117

Gao, Q., Liu, Y., Ayub, B., & Hussain, M. (2022). Does Health Crises Effect Tourism: Role of Financial Inclusion for Green Financial Development. *Frontiers in Public Health*, *10*, 896894. https://doi.org/10.3389/fpubh.2022.896894

Hill, D. (2000). Occurrence and Self-Treatment of Diarrhea in a Large Cohort of Americans Traveling to Developing Countries. *The American Journal of Tropical Medicine and Hygiene*, *62*(5), 585-589.

Ingwersen, P., & Järvelin, K. (2005). *The Turn: Integration of Information Seeking and Retrieval in Context*. Springer. https://books.google.com.au/books?id=714-wAYltZQC

International Self-Care Foundation. (2018). *The Seven Pillars of Self-Care*. https://isfglobal.org/

Islam, M. S., & Kirillova, K. (2020). Non-Verbal Communication in Hospitality: At the Intersection of Religion and Gender. *International Journal of Hospitality Management*, *84*. https://doi.org/10.1016/j.ijhm.2019.102326

Kambele, Z., Li, G., & Zhou, Z. (2015). Travelers' Information-Seeking Behaviors. *Journal of Travel & Tourism Marketing*, *32*(1-2), 141-152. https://doi.org/10.1080/10548408.2014.986017

Kang, S., Kim, W. G., & Park, D. (2020). Understanding Tourist Information Search Behaviour: The Power and Insight of Social Network Analysis. *Current Issues in Tourism*, *24*(3), 403-423. https://doi.org/10.1080/13683500.2020.1771290

Kurniasari, N. M. D., Widyanthini, D. N., Mulyawan, I. K. H., & Wirawan, I. M. A. (2021). Travel Health Knowledge and Perception of Foreign Backpackers Traveling in Bali. *Jurnal Ilmu Kesehatan Masyarakat*, *12*(2), 128-142. https://doi.org/10.26553/jikm.2021.12.2.128-142

Lee, Y. C., Lee, Y. H., Lu, C. W., & Huang, K. C. (2025). Travel Patterns, Pretravel Preparation, and Travel-Associated Morbidity in Travelers with Diabetes in Taiwan. *Travel Medicine and Infectious Disease*, *64*, 102828. https://doi.org/10.1016/j.tmaid.2025.102828

Lin, L., Brown, K. B., Hall, B. J., Yu, F., Yang, J., Wang, J., Schrock, J. M., Bodomo, A. B., Yang, L., Yang, B., Nehl, E. J., Tucker, J. D., & Wong, F. Y. (2016). Overcoming Barriers to Health-Care Access: A Qualitative Study among African Migrants in Guangzhou, China. *Global Public Health*, *11*(9), 1135-1147. https://doi.org/10.1080/17441692.2015.1076019

Long, I. J., & Flaherty, G. T. (2018). Traumatic Travels – A Review of Accidental Death and Injury in International Travellers. *International Journal of Travel Medicine and Global Health*, *6*(2), 48-53. https://doi.org/10.15171/ijtmgh.2018.10

Madden, H., Harris, J., Blickem, C., Harrison, R., & Timpson, H. (2017). "Always Paracetamol, They Give Them Paracetamol for Everything": A Qualitative Study Examining Eastern European Migrants' Experiences of the UK Health Service. *BMC Health Service Research*, *17*(1), 604. https://doi.org/10.1186/s12913-017-2526-3

Mahmud, M. S., Lima, R. P., Rahman, M. M., & Rahman, S. (2021). Does Healthcare Service Quality Affect Outbound Medical Tourists' Satisfaction and Loyalty? Experience from a Developing Country. *International Journal of Pharmaceutical and Healthcare Marketing*, *15*(3), 429-450. https://doi.org/10.1108/ijphm-04-2020-0028

Malterud, K., Siersma, V., Guassora, A. D., & Camic, P. M. (2021). Information Power: Sample Content and Size in Qualitative Studies. In (2nd ed., pp. 67-81). American Psychological Association. https://doi.org/10.1037/0000252-004

Mills, D., Ramsey, L., & Furuya-Kanamori, L. (2021). Pre- And post-Travel Medical Consultations. In J. Wilks, D. Pendergast, P. A. Leggat, & D. Morgan (Eds.), *Tourist Health, Safety and Wellbeing in the New Normal* (pp. 1-22). Springer.

Narasimhan, M., Allotey, P., & Hardon, A. (2019). Self Care Interventions to Advance Health and Wellbeing: A Conceptual Framework to Inform Normative Guidance. *British Medical Journal*, *365*, l688. https://doi.org/10.1136/bmj.l688

Nguyen Huu, T., Nguyen Ngoc, H., Nguyen Dai, L., Nguyen Thi Thu, D., Truc, L. N., & Nguyen Trong, L. (2024). Effect of Tourist Satisfaction on Revisit Intention in Can Tho City, Vietnam. *Cogent Business & Management*, *11*(1). https://doi.org/10.1080/23311975.2024.2322779

Oliver, R. L. (1993). Cognitive, Affective, and Attribute Bases of the Satisfaction Response. *Journal of Consumer Research*, *20*(3), 418-430. https://www.jstor.org/stable/2489356?seq=1

Oliver, R. L. (2014). *Satisfaction: A Behavioral Perspective on the Consumer: A Behavioral Perspective on the Consumer*. Routledge.
Ollivaud, P., & Haxton, P. (2019). Making the Most of Tourism in Indonesia to Promote Sustainable Regional Development. In. Paris Cedex.
Parent, A. A., Galindo, M. S., Lambert, Y., & Douine, M. (2022). Combatting Malaria Disease among Gold Miners: A Qualitative Research within the Malakit Project. *Health Promotion International*, *37*(4). https://doi.org/10.1093/heapro/daac058
Petrakaki, D., Hilberg, E., & Waring, J. (2018). Between Empowerment and Self-Discipline: Governing Patients' Conduct through Technological Self-Care. *Social Science & Medicine*, *213*, 146-153. https://doi.org/10.1016/j.socscimed.2018.07.043
Potin, M., Carron, P. N., & Genton, B. (2024). Injuries and Medical Emergencies among International Travellers. *Journal of Travel Medicine*, *31*(1). https://doi.org/10.1093/jtm/taad088
Ramadhani, D. P., Alamsyah, A., Nada, M. S., & Reditya Murti, Y. (2024). *Long-Term Comparative Analysis of Tourist Mobility Patterns in Southeast Asia* 2024 International Conference on Data Science and Its Applications (ICoDSA),
Robson, A., & Robinson, L. (2013). Building on Models of Information Behaviour: Linking Information Seeking and Communication. *Journal of Documentation*, *69*(2), 169-193. https://doi.org/10.1108/00220411311300039
Robson, A., & Robinson, L. (2015). The Information Seeking and Communication Model. *Journal of Documentation*, *71*(5), 1043-1069. https://doi.org/10.1108/jd-01-2015-0023
Tarlow, P. (2021). Tourism Security In a Post-COVID-19 World: Issues of Tourism Policing and Civil Unrest. In J. Wilks, D. Pendergast, P. A. Leggat, & D. Morgan (Eds.), *Tourist Health, Safety and Wellbeing in the New Normal* (pp. 1-22). Springer.
Thanh, N. C. (2015). The Differences between Spoken and Written Grammar in English, in Comparison with Vietnamese. *GIST–Education and Learning Research Journal*(11), 138-153.
The Pharmaceutical Journal. (2019). *Making Consultations in Community Pharmacy Matter*. Royal Pharmaceutical Society. https://pharmaceutical-journal.com/article/ld/making-consultations-in-community-pharmacy-matter
Tong, A., Sainsbury, P., & Craig, J. (2007). Consolidated Criteria for Reporting Qualitative Research (COREQ): A 32-Item Checklist for Interviews and Focus Groups. *International Journal for Quality in Health Care*, *19*(6), 349-357. https://doi.org/10.1093/intqhc/mzm042
Utzinger, K. S., Held, U., Hanscheid, T., Gultekin, N., Fehr, J., Grobusch, M. P., & Schlagenhauf, P. (2020). Self-Diagnosis and Self-Treatment of Plasmodium spp. Infection by Travellers (1989-2019): A Systematic Review and Meta-Analysis. *Travel Medicine and Infectious Disease*, *38*, 101902. https://doi.org/10.1016/j.tmaid.2020.101902
Vajta, B., Holberg, M., Mills, J., & McBride, W. J. (2015). Weighing up the Costs of Seeking Health Care for Dengue Symptoms: A Grounded Theory Study of Backpackers' Decision-Making Processes. *Australian Journal of Primary Health*, *21*(2), 245-248. https://doi.org/10.1071/py13107
Varotsis, N., & Mylonas, N. (2024). A Systematic Literature Review on Information Service Management and Information-Seeking Behavior in Tourism. *Cogent Business & Management*, *11*(1). https://doi.org/10.1080/23311975.2024.2385731
Wang, J., & Karl, M. (2021). Understanding How Tourists Perceive and Respond to Risk: A Focus on Health Risk. In J. Wilks, D. Pendergast, P. A. Leggat, & D. Morgan (Eds.), *Tourist Health, Safety and Wellbeing in the New Normal* (pp. 1-22). Springer.

Wang, J., Liu-Lastres, B., Ritchie, B. W., & Mills, D. J. (2019). Travellers' Self-Protections against Health Risks: An Application of the Full Protection Motivation Theory. *Annals of Tourism Research*, *78*. https://doi.org/10.1016/j.annals.2019.102743

Wendland, D., & Skinner, D. (2020). Key Influences on Self-Care Behavior. *SelfCare*.

Wilks, J., Pendergast, D., Leggat, P. A., & Morgan, D. (2021). *Tourist Health, Safety and Wellbeing in the New Normal*. Springer.

Wirawan, I. M. A., Putri, W., Kurniasari, N. M. D., Mulyawan, K. H., Hendrayana, M. A., & Suharlim, C. (2020). Geo-Mapping of Hazards, Risks, and Travel Health Services in Bali: Results from the First Stage of the Integrated Travel Health Surveillance and Information System at Destination (TravHeSID) Project. *Travel Medicine and Infectious Disease*, *37*, 101698. https://doi.org/10.1016/j.tmaid.2020.101698

World Health Organization, & Regional Office for South-East Asia. (2009). *Self-Care in the Context of Primary Health Care: Report of the Regional Consultation Bangkok, Thailand, 7–9 January 2009*. W. SEARO. https://iris.who.int/handle/10665/206352

Yan, S. D., Orkis, J., Khan Sohail, S., Wilson, S., Davis, T., & Storey, J. D. (2020). Digging for Care-Seeking Behaviour among Gold Miners in the Guyana Hinterland: A Qualitative Doer Non-Doer Analysis of Social and Behavioural Motivations for Malaria Testing and Treatment. *Malaria Journal*, *19*(1), 235. https://doi.org/10.1186/s12936-020-03289-3

Zeng, L., & Yi Man Li, R. (2021). Tourist Satisfaction, Willingness to Revisit and Recommend, and Mountain Kangyang Tourism Spots Sustainability: A Structural Equation Modelling Approach. *Sustainability*, *13*(19). https://doi.org/10.3390/su131910620

Zhang, D., Zhan, W., Zheng, C., Zhang, J., Huang, A., Hu, S., & Ba-Thein, W. (2021). Online Health Information-Seeking Behaviors and Skills of Chinese College Students. *BMC Public Health*, *21*(1), 736. https://doi.org/10.1186/s12889-021-10801-0

Chapter 5. Self-Care Priorities in Context: Exploring the Subjective Views of International Travellers Using Q-Methodology

Chapter 5 serves as the culmination of self-care needs assessment among international travellers. The aim of this study was to explore the subjective views of international travellers to Indonesia regarding their self-care priorities. Q-methodology was employed to reveal travellers' viewpoints using qualitative and quantitative approaches.

The candidate acknowledges the contributions of Dr Ardalan Mirzaei, Dr Jack Collins and Ms Veronika Seda to this Chapter. Dr Ardalan Mirzaei reviewed the Python codes prepared by the candidate for web scraping of publicly accessible online fora. Dr Jack Collins performed labelling of sampled data of the web scraping results and reviewed the initial Q-set statements. Ms Veronika Seda reviewed the list of statements that formed the initial Q-set before being reviewed by expert panel members.

5.1 Introduction

After pandemic-related travel restrictions were lifted, the world only needed a few years to see international travel gradually recover towards the pre-COVID-19 level (Anagnostopoulos & Fehr, 2024; Richter, 2023). Indonesia is among several Southeast Asia developing countries with a recovering tourism sector, with 10.3 million inbound arrivals between January and September 2024, remaining short of the 16.1 million record in 2019 (Guild, 2024; Kristianus, 2024; Statistics Indonesia, 2024a). The international travellers' median length of stay in 2023 was 10.4 days (IQR 8.6), remaining lower than in 2019 at 11.7 days (IQR 6.8) (Statistics Indonesia, 2024b).

As a multicultural, archipelagic, tropical country, Indonesia offers international visitors a richness in culture and nature. Bali remains the *prima donna* of Indonesian tourism, but to reduce the burden of over-tourism in Bali and to distribute economic growth, the government has invested and promoted other destinations named as the Five Super-Priority Destinations, including Labuan Bajo and Borobudur (Ollivaud & Haxton, 2019; Westoby et al., 2021). Labuan Bajo (West Manggarai Regency, East Nusa Tenggara Province) is promoted as a hub for spotting Komodo dragons, the world's largest lizard species. Borobudur Temple (Magelang Regency, Central Java Province) is promoted as the world's largest Buddhist temple and is located approximately 40 kilometres from Yogyakarta (Special Region of Yogyakarta Province), where travellers often stay (Kausar, 2012; Nagaoka, 2011). These government efforts have resulted in remarkable progress in the global ranking for travel and tourism, rising from 70th in 2013 to 22nd in 2024 (World Economic Forum, 2013, 2024). Despite this achievement, the global index of travel and tourism has continued to show low scores for health and hygiene aspects for Indonesia (World Economic Forum, 2013, 2024), suggesting the need for further research to strengthen this area.

Although international travel is generally safe, illness during travel is common, with estimated figures varying between studies. It was estimated that 45% of Europeans and North Americans visiting the tropics developed a health problem, mostly infectious diseases such as travellers' diarrhoea and malaria (Torresi et al., 2019). Vilkman's prospective study found that nearly 80% of travellers reported having an illness during travel or upon returning to their home country (Vilkman et al., 2016). A review revealed that the proportion of the illness ranged from 6-87% (Angelo et al., 2017). A recent study estimated that gastrointestinal symptoms (e.g. diarrhoea, stomach pain, nausea, constipation, and vomiting) remained at the highest incidence rate (IR 66 per 1000 completed surveys), followed by respiratory symptoms (e.g. runny nose, cough, sore throat) (IR 58) (Lovey et al., 2024), indicating self-manageable minor ailments. Certain destinations, including countries in South Asia, Southeast Asia, and Eastern Africa, were found as predisposing factors to health problems along with female gender, young age (18-35 years), and long travel duration (30-160 days) (Vilkman et al., 2016). As a response to having an illness, some travellers may self-treat, wait, or seek medical attention (Vajta et al., 2015). Only 8-10% of all travellers consulted a doctor abroad or back home, with travellers' diarrhoea the most common reason (Torresi et al., 2019; Vilkman et al., 2016). A more recent study found a low proportion of unplanned access to healthcare (~2%) across 131 destination countries based on the GeoSentinel surveillance network's data before the COVID-19 pandemic (Piyaphanee et al., 2023). This proportion, however, excluded self-treatment with non-prescription medicine (Piyaphanee et al., 2023), suggesting that many travellers manage health issues independently. Previous studies demonstrated self-treatment as common among travellers (Ahlm et al., 1994; Gravningen et al., 2020; Hill, 2000; Utzinger et al., 2020; Vajta et al., 2015).

Self-treatment is one of many components of self-care, defined as "the ability of individuals, families and communities to promote health, prevent disease, and maintain health and to cope with illness and disability with or without the support of a health-care provider" (Collins et al.,

2020; Narasimhan et al., 2019; WHO, 2021; WHO Regional Office for South-East Asia, 2009). Self-care is performed to promote and maintain health and well-being, and to also prevent disease and cope with illness (WHO, 2021; WHO Regional Office for South-East Asia, 2009). Numerous studies demonstrate that multiple factors influence self-care, including views on health, health literacy, self-agency, self-efficacy, behaviour, and cultural background or environment (El-Osta et al., 2019; Martinez et al., 2021; Narasimhan et al., 2019; Riegel et al., 2021). Individual variations in these factors contribute to the subjectivity of self-care itself.

International travellers are presented with a new environment that may differ from their home countries. Performing self-care in this new environment can be challenging, especially in low-resource settings with limited healthcare infrastructure, staff, and access to services, such as in Indonesia (Hermansyah et al., 2020). Awareness of this environmental difference is often a part of pre-travel advice for travellers in their countries of origin (Flaherty et al., 2017; Potin et al., 2024). After a pre-travel consultation, it is the responsibility of individual travellers to practice self-care during travel. Understanding travellers' prioritisation of self-care among all other activities during their travel can help identify their needs and guide healthcare providers at home and in host countries to further tailor measures catering to these needs. Since little is known about self-care prioritisation in travellers at the individual level, the aim of this study was to systematically explore the subjective views of international travellers visiting Indonesia regarding their self-care priorities.

5.2 Methods

5.2.1. Ethics Approval

The University of Sydney's Human Research Ethics Committee, Australia (2022/HE000938) and The Ethical Committee of Medical Research, Faculty of Dentistry, Universitas Jember,

Indonesia (No. 1959/UN25.8/KEPK/DL/2023) approved the study protocol. Informed consent was obtained from all participants prior to data collection. The consent process is described in detail in Section 5.2.5 (Participant Selection and Q-Sorting). Participation was entirely voluntary, and participants were informed of their right to decline participation or withdraw from the study at any time during data collection without penalty. Participant identifying information (including name, signature, and email address) was collected solely for consent and administrative purposes. All data were de-identified prior to analysis, and no personally identifiable information was included in transcripts, datasets, or publications. Participants were assigned unique study codes to ensure anonymity in reporting. All study data were stored digitally in password-protected, institutionally approved, secure systems accessible only to members of the research team. In accordance with institutional and ethical requirements, data will be retained for five years following completion of the study and then securely destroyed.

5.2.2. Q-Methodology

Q-methodology was selected to achieve the aim of this study because it provides a mixed-method framework to capture and compare subjective viewpoints (Churruca et al., 2021; Haua et al., 2022; Ramlo & Newman, 2011; Watts & Stenner, 2012). It is well-suited to prioritisation because it requires participants to rank items (i.e., statements) relative to one another, making explicit the trade-offs that determine what is considered most and least important from a subjective perspective (Churruca et al., 2021; Watts & Stenner, 2012). Q-methodology consists of several steps: concourse development, Q-set development and piloting, participant (P-set) selection and Q-sorting, by-person factor analysis, and qualitative interpretation and presentation (Churruca et al., 2021; Watts & Stenner, 2012). To aid readers, key terms in Q-methodology were summarised in Box 5.1.

Box 5.1. Key terms in Q-methodology (Churruca et al., 2021; Haua et al., 2022; Ramlo & Newman, 2011; Watts & Stenner, 2012)

Key term	Meaning
Concourse	the universe of discourse on a topic (statements, artworks) representing a population from which a sample is drawn
Q-set	the curated set of representative statements sampled from the concourse for sorting
Q-grid	the forced-distribution template (e.g., −5 to +5) onto which participants place statements by relative importance
P-set	participants of Q-methodology
Q-sort	an individual participant's final arrangement of Q-set statements on the grid (their expressed viewpoint)
By-person factor analysis	factor analysis of correlations among Q-sorts (persons), not items, to identify shared viewpoints
Characterising statements	statements ranked at the extremes (e.g., +5/+4, −5/−4) that define a viewpoint
Distinguishing statements	statements scored significantly differently on one factor compared with any other factor
Consensus statements	statements with statistically similar scores across all factors
Idealised Q-sort	the model Q-sort for a factor (hypothetical 100% loader) used to describe the viewpoint
Bipolarity	the presence of both positive and negative loaders on the same factor

5.2.3. Concourse Development

Q-methodology starts with a concourse, a collection of ideas, views, perspectives, or opinions on a particular topic (Brown, 1993; Watts & Stenner, 2012). A concourse can contain anything representing a subjective opinion, such as statements, photographs, pictures, songs, and other artworks (Watts & Stenner, 2012). Verbal statements were used for concourse development. Statements were collected using a three-pronged approach: a systematic review and meta-synthesis of qualitative and mixed-method studies, as they provide participant quotes; a web scraping of online travel forum discussions; and semi-structured interviews with international travellers and Indonesian community pharmacy staff (Appendix N.1). **The meta-synthesis** involved a systematic literature search across MEDLINE, Embase, International Pharmaceutical Abstracts, PsycINFO, and CINAHL databases on 5 October 2022. Search results were screened according to the Preferred Reporting Items for Systematic reviews and

Meta-Analyses (PRISMA) flowchart (Page et al., 2021) and assessed for quality using the CEBM Critical Appraisal of Qualitative Studies sheet (CEBM, 2019). **The web scraping** was conducted on four online forums on 14-18 December 2022: Tripadvisor (tripadvisor.com), Balipod (balipod.com), the Living in Indonesia Expat Forum (livinginindonesiaforum.org), and the Expat Indo Forum (expatindo.org). Deduplication was performed during the scraping of each forum before each post was stored. A random selection at the post level was applied to obtain a 1% sample of scraped posts, which were each labelled "yes" or "no" as relevant to a self-treatment topic by ANWP and JC. A random 1% sampling method was selected due to the large number of scraped posts (118,263 posts). **The interviews** were conducted face-to-face and online with 15 travellers and seven pharmacy staff in Badung (Bali Province), and two travellers and five pharmacy staff in Magelang (Central Java Province), between May and June 2023. Overall, 673 statements were obtained: 207 through meta-synthesis, 227 through web scraping, and 239 through interviews. All statements were either in English or Bahasa Indonesia. Bahasa Indonesia statements were translated by ANWP into English, with cross-validation by BM, who are proficient in both languages.

The 673 statements were reduced to a manageable number using sampling to develop the Q-set (McKeown & Thomas, 2013; Watts & Stenner, 2012). Q-methodologists dichotomise the sampling of items as inductive (unstructured) and deductive (structured) (Kenward, 2019; McKeown & Thomas, 2013; Paige & Morin, 2016; Watts & Stenner, 2012). In unstructured sampling, statement selection is based on identified themes when reviewing the concourse items in the absence of pre-existing theory (McKeown & Thomas, 2013; Paige & Morin, 2016; Watts & Stenner, 2012). In structured sampling, statements are selected based on theoretical considerations derived from a theory or framework (McKeown & Thomas, 2013; Paige & Morin, 2016; Watts & Stenner, 2012). In this study, the structured approach was chosen because

self-care frameworks are available, and the selection of items was systematic (Paige & Morin, 2016).

The Self-Care Matrix (SCM) (El-Osta et al., 2019) was used to aid in sampling due to its comprehensiveness, thereby ensuring that the sampled items represented the full scope of self-care. The SCM was constructed from 32 existing self-care theories, models, and frameworks and categorises them into four cardinal interlinked dimensions: Self-Care Activities, Behaviours, Context, and Environment (El-Osta et al., 2019). The concourse statements in this study were mapped to this framework by ANWP, with mapping decisions discussed with CS, BM, and RM in regular meetings. The mapping focuses on identifying similarities in a statement's meaning.

5.2.4. Q-Set Development and Piloting

The initial Q-set was developed by ANWP by selecting statements representing the SCM's dimensions, resulting in 96 statements. VS reviewed the statement list for duplicated ideas and clarity, resulting in 94 statements. RM, BM, and CS reviewed the wording for clarity and readability.

A panel of domain experts (three in pharmacy practice and one in travel medicine; one from Australia, two from Indonesia, and one from the UK) was consulted to narrow the number of statements to achieve a range of 40-80 statements (Watts & Stenner, 2012). Individuals were classified as experts based on the minimum criterion of holding a PhD degree. This step was conducted using REDCap electronic data capture tools hosted at The University of Sydney, Australia (Harris et al., 2019). Each statement was evaluated using a four-point response scale for heterogeneity and clarity (Table 5.1), following Paige & Morin's approach (Paige & Morin, 2016). At the end of the review, experts were asked if they had any suggested items missing from the list.

The Item-Content Validity Index (I-CVI, the proportion of experts rating an item as a 3 or 4 on a four-point scale), the Average-CVI (Ave-CVI, the sum of I-CVIs, which is divided by the number of items), and the modified Kappa score (k^*, an adjustment of each I-CVI value for chance of agreement) were calculated for each domain of clarity and heterogeneity to evaluate the statements (Almanasreh et al., 2019; Paige & Morin, 2016; Polit et al., 2007). Statements were retained when clarity and heterogeneity were excellent ($k^* \geq 0.75$) (Appendix O.1), resulting in 43 statements. One expert suggested two additional statements, totalling 45 in the final Q-set (Appendix O.2). All statements were numbered to maintain consistency across all steps.

Table 5.1 Questions for expert panel

Domain	Question	Response option
Clarity	Is the statement grammatically clear and unambiguous as would be read by an international traveller?	1 = not at all, 2 = somewhat, 3 = mostly, 4 = completely
Heterogeneity	Is the statement distinctly different from all other statements?	1 = not at all, 2 = somewhat, 3 = mostly, 4 = completely
Rewording	Does this statement require rewording to articulate international travellers' views about self-care during travel? If yes, please provide a suggestion.	Open-ended

A Q-grid of forced distribution resembling the normal probability distribution was developed for the 45-statement Q-set (Figure 5.1) in paper-based and digital versions. The digital version used EQ Web Sort version 6.0.0 (Banasick, 2024). An 11-point (-5 to +5) distribution was selected following the general guidelines in Q-methodology literature for a Q-set with 40-60 items (Brown, 1980; Watts & Stenner, 2012). A tighter distribution (e.g. -4 to +4) may make participants feel restricted, while a wider range (e.g. -6 to +6) may force participants to make unnecessary decision-making (Watts & Stenner, 2012).

The Q-set and Q-grid were piloted with three Australian pharmacy academics who had experience visiting developing countries, with two of them experts in self-care. The sorting took approximately 25 to 30 minutes. The sorting instruction for the paper-based Q-grid was simplified based on input from one pilot tester. Pilot data were excluded from the dataset prior to analysis.

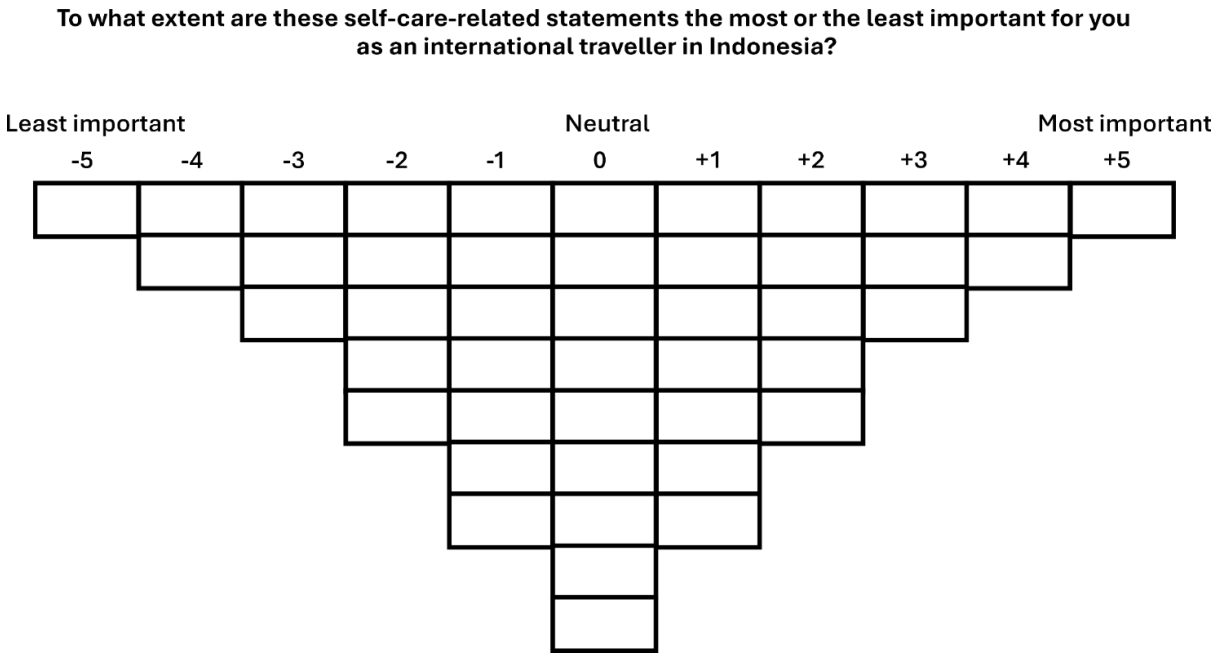


Figure 5.1 A Q-grid of 45 statements with the condition of sorting

5.2.5. Participant (P-Set) Selection and Q-Sorting

Participants were international travellers approached purposively in four of Indonesia's tourist destinations: Badung (Bali Province), Manggarai Barat (East Nusa Tenggara Province), Toraja Utara (South Sulawesi Province), and Yogyakarta (Special Region of Yogyakarta Province). A purposive maximum variation sampling approach was employed to recruit participants from different age groups (all 18 years or older) who were travelling solo, with family, or with friends. This fieldwork was conducted by ANWP. The study's purpose and the data collection process were explained to the eligible travellers using a Participant Information Statement sheet. Travellers who agreed to participate filled out a paper-based consent form.

All participants were asked to follow the four steps of the Q-sorting activity: preliminary sorting, sorting, post-sorting, and answering demographic questions (Banasick, 2024). During preliminary sorting, the participants were instructed to carefully read the 45 statements and place them in three piles: “unimportant”, “no strong feeling”, and “important”. Based on these preliminary piles, the participants arranged the statements onto the Q-grid, responding to the question, “To what extent are these self-care-related statements the most or the least important for you as an international traveller in Indonesia?” The participants were then asked if they were satisfied with the placement and given some time to re-check their arrangements. The participants were asked to provide an open-text response explaining why they placed the statements in the most and least important positions in their final arrangement (called a Q-sort). Subsequently, they were asked several demographic questions, including gender, age, country of origin, and travel companion (solo, with friends, or with family). Both participants’ explanations and demographic data were used to help interpret the quantitative analytical results. Only data from completed sorting were analysed.

5.2.6. By-Person Factor Analysis

Q-methodology uses factor analysis to analyse the Q-sorts. However, instead of analysing the correlations between items, Q-methodology analyses the correlations between participants’ viewpoints expressed as Q-sorts, which is called “by-person factor analysis” (Akhtar-Danesh, 2017; Ramlo, 2016; Watts & Stenner, 2012). This study chose the Principal Axis Factoring for factor extraction and the oblimin rotation. Principal Axis Factoring is considered the best method for exploring underlying by-person factors (Akhtar-Danesh, 2017; Pett et al., 2003). Oblimin rotation simplifies the data structure, making it more interpretable, and assumes that factors are allowed to be correlated, which was deemed appropriate for this study’s topic of self-care (Hackert et al., 2019; Pett et al., 2003). The number of factors was determined by the scree plot, Kaiser-Guttman criterion (eigenvalues > 1), at least two items (Q-sorts) significantly

loaded at $p \leq 0.05$ on one factor only, and interpretability (Hackert et al., 2019; Watts & Stenner, 2012; Zabala, 2014). The analysis also applied the principle of parsimony in that the final choice of factors should "explain as much study variance and as many Q-sorts as possible in the fewest number of factors" (Damio, 2018, p. 70).

Analyses were run in Stata 18 (StataCorp, 2023) with the *qfactor* module (Akhtar-Danesh, 2018) for two-, three-, four-, and five-factor solutions, as indicated by the scree plot's kink at two factors (Appendix N.2). Comparison between factor solutions was based on the total variance explained by unrotated factors (a sum of variance explaining all factors) and the number of defining Q-sorts (a count of Q-sorts specifically loaded to a factor), the number of distinguishing statements, and the number of consensus statements (Akhtar-Danesh, 2018; Akhtar-Danesh et al., 2008; Damio, 2018). A factor loading represents the correlation between a Q-sort and the factor being tested at $p < 0.05$ (Akhtar-Danesh, 2018). An idealised Q-sort (a hypothetical person with 100% loading on a factor) was computed for each factor solution (Hazen et al., 2016).

5.2.7. Interpretation and Presentation

Interpreting the results was based on holism (a comprehensive explanation of the whole viewpoint) rather than atomism (by variable or by item) (Watts & Stenner, 2012). Abductive reasoning (a logical inference to pursue a plausible explanation or new insights from a set of observations) was employed for factor interpretation by asking: why was an item ranked where it was?, what did it mean?, and what was it trying to tell us? (Watts & Stenner, 2012). Characterising statements were used to interpret the viewpoint from each factor, along with distinguishing and consensus statements (Hazen et al., 2016; Watts & Stenner, 2012). The pattern or configuration of items in a factor served as primary clues or signs (Watts & Stenner, 2012). Each statement was read and interpreted in relation to its position in a factor to provide the relevant viewpoint, indicated by important issues that were polarised (Watts & Stenner,

2012). Commentaries provided by participants after the Q-sorting activity, along with demographic data, served as additional clues to aid in the interpretation and to explain the reasons behind their viewpoints (Watts & Stenner, 2012). Each statement's position in a factor was also compared to its position in other factors, facilitated by a slope diagram (a chart to show the change between two points by connecting them with lines) in this study (Appendix N.3). This comparison indicated how distinct the polarisation of important issues was between factors. When a bipolar factor was apparent, both loadings were retained, and interpretations were made for both groups of loadings. Reversing the ranking for the negative loaders was selected for interpreting a bipolar factor (Dieteren et al., 2023; Watts & Stenner, 2012). The presentation of results followed the structure suggested by Dieteren et al. (2023) and the reporting style in existing literature (Hackert et al., 2019; Hazen et al., 2016; Watts & Stenner, 2012).

5.3 Results

5.3.1. Participants

Of 193 travellers approached, 53 participants from 20 nationalities joined the study, resulting in a response rate of 28%. The majority of participants were female (34, 64%) and from the 18-30 years old age group (28, 53%) (Table 5.2). Most participants were travelling with friends (20, 38%), recruited in the study in Bali (42, 79%), and were from Italy (10, 19%).

5.3.2. Factors' solution

A three-factor solution was selected based on the scree plot (Appendix N.2), content, and statistical characteristics (Table 5.3). The number of defining Q-sorts loaded on Factor 1, Factor 2, and Factor 3 was 37, 7, and 6, respectively, leaving only three Q-sorts unloaded (Table 5.4). All three factors had distinguishing statements on both positive and negative poles and had eigenvalues > 1. The total variance explained by all factors was 39.8%. Very weak correlations (0.03) were found between Factor 1 and Factors 2 and 3, but moderate correlations (0.4) were

found between Factors 2 and 3, indicating that each factor represents a distinct viewpoint. Factors 2 and 3 were bipolar, with three negative loadings on each (Appendix N.3).

Table 5.2 Sociodemographic characteristics of the participants

Characteristic	**Number (n = 53)**	**Percentage (%)**	**Characteristic**	**Number (n = 53)**	**Percentage (%)**
Sex			***Country of origin****		
Female	34	64	**Europe**	45	85
Male	19	35	Austria	1	2
Age range			France	4	8
18-30	28	53	Germany	4	8
31-40	19	36	Hungary	1	2
41-50	3	6	Italy	10	19
51-60	1	2	Netherlands	4	8
>60	2	4	Norway	2	4
Travel companion			Poland	1	2
solo travelling	18	34	Portugal	1	2
travelling with family	15	28	Romania	1	2
travelling with friends	20	38	Russia	2	4
Research site			Slovakia	1	2
Badung, Bali Province	42	79	Spain	5	9
West Manggarai, East Nusa Tenggara Province	4	8	Switzerland	2	4
North Toraja, South Sulawesi Province	2	4	United Kingdom	6	11
Yogyakarta, Special Region of Yogyakarta Province	5	9	**Oceania**	5	9
			Australia	3	6
			New Zealand	2	4
			Asia	2	4
			Japan	1	2
			Saudi Arabia	1	2
			Americas	1	2
			Canada	1	2

*Regional grouping was based on the United Nations Geoscheme

5.3.3. Participants' viewpoints on the importance of self-care

Participants shared viewpoints in Factors 1, 2, and 3 were correspondingly named "Unfacilitated self-care", "Point-of-origin facilitated self-care", and "Destination-facilitated

self-care". The next section (Characterising and distinguishing statements) presents a comprehensive narrative for each viewpoint, with the statement number in parentheses preceded by "s" corresponding to the item number in Table 5.5, followed by the statement's position on the idealised Q-grid (e.g. +5, -5) and the asterisk sign (*) denoting distinguishing statements. For instance, (s9, +3*) means that statement number 9 has a factor score of +3, and this score was significantly different from the score on any other factor. The participant's verbatim quotes were presented in quotation marks, followed by the participant ID number, research site, gender, country of origin, and travel companion in brackets.

Table 5.3 Characteristic of two-, three-, four-, and five-factor solution

Characteristic	**2-factor solution**	**3-factor solution**	**4-factor solution**	**5-factor solution**
Total number of defining Q-sorts	48	50	46	41
Total number of distinguishing statements	74	66	63	47
Total number of consensus statements	8	1	1	0
Total variance explained by unrotated factor (%)	33.3	39.8	45.5	50.8

Table 5.4 Factor characteristics of the chosen three-factor solution

Characteristic	**Factor 1**	**Factor 2**	**Factor 3**
Number of defining Q-sorts	37	7	6
Number of distinguishing statements	25	22	19
Eigenvalue	13.6	4.1	3.4
% variance explained by the unrotated factor	25.6	7.7	6.5
% cumulative variance explained by the unrotated factor		33.28	39.77
Correlation between factors			
Factor 1	0.99	0.03	0.03
Factor 2	-0.02	0.91	-0.41
Factor 3	-0.04	0.40	0.91

Table 5.5 Forty-five statements and idealised Q-sort for the three factors regarding self-care importance among international travellers visiting Indonesia

Statement ID	Statement	Factor 1 "Unfacilitated self-care"	Factor 2 "Point-of-origin facilitated self-care"	Factor 3 "Destination-facilitated self-care"
s45	Stay hydrated, especially in hot climates, by drinking plenty of water throughout the day.	5*	-2*	1*
s10	Make sure the sunscreen has a high SPF [sun protection factor] number.	4*	-5*	0*
s35	I have my travel insurance, which covers basically everything that I would need during my trip.	4*	1*	-2*
s13	Health professionals in Indonesia should be familiar with the symptoms of tropical diseases.	3*	2*	0*
s44	Always carry a basic first aid kit with essentials like bandages, antiseptics, and pain relievers.	3*	-3	-1
s9	Please take the medication in hand luggage; check-in baggage can and does get lost.	3*	-1	-1
s5	Insect repellents containing DEET [N,N-diethyl-meta-toluamide] or picaridin are what you need and apply on exposed areas of your body, following directions on the bottle/aerosol.	2*	1*	-4*
s32	The most frequent health problem is traveller's diarrhoea. Here, it's called Bali belly.	2	1	0
s14	Tourists should have some understanding of the medical system in the country they are visiting.†	2†	2†	2†
s37	If I get sick I would first try to find the pharmacy and do self-care the way I would know it.	2*	-1*	0*
s38	If I buy it from some old woman on the street who sells Xanax [alprazolam], the quality of the medicine may be unreliable, not like when I buy it from a pharmacy.	2	0*	3

Statement ID	Statement	Factor 1 "Unfacilitated self-care"	Factor 2 "Point-of-origin facilitated self-care"	Factor 3 "Destination-facilitated self-care"
s6	Get your doctor to print out a list of your medications and keep them in their packet stating what they are and with your name on the package. That way, you should have no problems.	1	4*	1
s43	If I get sick I have to warn my health insurance, and then I must say where I am, and then I go to the doctor here.	1*	-1	-1
s24	I visit a pharmacy to obtain something to prevent or treat insect bites.	1*	0	-1
s21	To understand a disease, it's more important to understand how a patient feels.	1	1	5*
s8	You could print these sentences out. They translate to I can't have nuts, have an allergy and might die.	1*	2*	-3*
s33	Some tourists need medicines for fever and flu, or runny nose and cough and cold.	1	-2*	2
s4	As my doctor says, the only way to be sure is not to get bitten by mosquitoes and that applies to animal bites as well of course.	1*	3*	-3*
s1	If you have any issues at airport customs you can always get a doctor to provide a letter with any prescribed and non prescribed items you need to take with you.	0	2*	0
s31	I prefer to self-treat my wounds from light road accidents, and go to a hospital for severe injuries by myself.	0	1	1

Statement ID	Statement	Factor 1 "Unfacilitated self-care"	Factor 2 "Point-of-origin facilitated self-care"	Factor 3 "Destination-facilitated self-care"
s11	Don't eat the salad. At least not from any cheap *warungs* [food stalls]. In the higher end restaurants, eat at your own risk. If it looks suspect, it probably is.	0	2*	0
s20	I have a positive attitude toward antibiotics because my close friends, relatives and myself have positive experiences.	0	0	4*
s23	When I am not feeling well, I will call my doctor in my home country. He will ask about my symptoms and tell me what medicine to get over the phone.	0	4*	-1
s30	I would like my credentials as a doctor in my home country to be acknowledged in my destination country to access prescription medicines, such as antibiotics.	0*	3	3
s2	What I find interesting is how little publicity or warnings there are about dengue in the media. It makes me wonder if the local government don't want to put tourists off, so they are trying to keep it fairly quiet.	0	3*	0
s7	I am in Indonesia and need paracetamol and medicine for an infection because I have cystitis [a urinary tract infection] from a swimming pool	0	-1	0
s17	You can eat as much as you like, and drink as much as you like. But you have to be self-controlled.	0*	1	1

Statement ID	Statement	Factor 1 "Unfacilitated self-care"	Factor 2 "Point-of-origin facilitated self-care"	Factor 3 "Destination-facilitated self-care"
s34	When I'm sick, I need medications at a fair price.	-1*	-4*	4*
s40	The pharmacy service was very good. They called me the next morning, whether my condition is better or worse. Maybe they want to know how it is, and it is very good.	-1*	-3*	-2*
s18	I would consider asking hotel/accommodation reception staff to be informed about health facilities.	-1	0	2*
s28	I would be willing to wait for a pharmacy to obtain an item if they don't have it in stock.	-1	-3	-1*
s22	Hospitals in the neighbouring country are way better than those in here because they treat you as a foreigner and are able to speak English and interact with you.	-1	0	0
s29	A tour guide will make pharmacy staff more confident because the pharmacy staff can understand what medicine I want to buy.	-1*	0	1
s36	I would use a chatbot large language model AI [Artificial Intelligence] like Bard [now Gemini] from Google. When I get a specific answer, I always verify it by researching again.	-1	-1	-2
s3	I take a probiotic at least 2 weeks before I go and take them with me.	-2*	5*	-5*
s12	In Kuta Beach, Bali area, large hotels fog the gardens against mosquitoes every day.	-2*	1	1

Statement ID	Statement	Factor 1 "Unfacilitated self-care"	Factor 2 "Point-of-origin facilitated self-care"	Factor 3 "Destination-facilitated self-care"
s15	The one that causes me more anxiety would be the atrial fibrillation because whenever the atrial fibrillation has happened, it happens unannounced.	-2	0*	-2
s26	Now there is a hotel that cooperates with a local pharmacy.	-2	-2	1*
s42	I've got my cholesterol tablet and I've also got Crohn's disease, so I bring out immunosuppressive drugs.	-2*	-4	-4
s27	I would like to consult with the pharmacy using electronic communication, such as WhatsApp.	-3*	0*	2*
s19	From time to time, when I take microscopy or rapid diagnostic tests for malaria, I determine the type based on how I feel and the specific symptoms.	-3	-1	-2
s25	I would ask the pharmacy staff to show the medicine price using a calculator.	-3*	-1*	3*
s16	You can't do tourist activities without a certain amount of walking.	-4*	-2	-3
s39	If I need help with my sickness, I have already friends from my home country who have lived here for about ten years.	-4*	-2	-1
s41	I try to avoid the local doctor because it's too expensive.	-5*	0*	2*

*: distinguishing statements; †: consensus statement

5.3.4. Consensus statements

Participants in all factors shared similar viewpoints (consensus) that understanding the medical system in the destination country is important (s14, +2, Table 5.5). One participant argued that this is particularly important "in case of a medical emergency and need assistance" (qsort13, Badung, female, UK, solo). Another participant expressed a more contextual reason: "We should be able as a traveller to be understanding with [sic] the people of the country we are visiting. We all have different cultures and methods, even if it can be hard sometimes." (qsort10, Badung, female, France, with friends)

5.3.5. Bipolarity

Bipolarities occurring in Factors 2 and 3 (Appendix O.3, columns 3 and 4) mean that the viewpoints of the negative loaders in Factor 2 were already represented by the positive loaders in Factor 3, and *vice versa.* This phenomenon can be demonstrated with a slope diagram (Appendix N.3). Statements deemed unimportant on Factor 2 were, in contrast, considered important on Factor 3, and *vice versa*.

5.3.6. Characterising and distinguishing statements

5.3.6.1. First viewpoint: Unfacilitated self-care travellers

Travellers with this viewpoint possessed high self-awareness and agency during travel. For them, preventive actions were a key priority. They performed self-care to prevent common health problems induced by the local climate. Prioritised self-care among this group included optimum hydration (s45, +5*) because "all organs need enough water to work correctly" (qsort51, Yogyakarta, female, Germany, solo) and "people are often not expecting how much water their body needs in hot climates" (qsort47, Toraja Utara, male, Poland, with family). Another traveller cited the challenge of unpotable tap water and that extra effort is needed to get drinking water, but "it [is] worth the time" (qsort08, Badung, female, Hungary, with family). These travellers rated protecting skin from intensive sun exposure (s10, +4*) as

important. The reasons given by a traveller were, “I have […] seen the effect of melanoma/metastasised cancers. I also have very fair skin, burn very easily, and have already had many bad sunburns in my life.” (qsort28, Badung, female, Australia, with family)

Travel preparations to anticipate unwanted events are essential for this group, such as having travel insurance (s35, +4*), bringing essential medicines and other aid kits (s44, +3*) and ensuring these supplies are not lost during the flight (s9, +3*). Regarding the importance of travel insurance, a traveller explained, “ […] because you never know what will happen and how much it will cost. I would like to have the opportunity to be taken care of no matter where I am geared.” (qsort38, Badung, male, Austria, with friends) When assistance from the destination’s health provider is needed, these travellers expect the health professionals to be capable of recognising symptoms of endemic diseases (s13, +3*) because “the doctor from your home country may not know about [the endemic diseases in the destination country] and isn't able to warn you since the disease isn't common [in your home country]”. (qsort23, Badung, female, Germany, with friends)

Physical activity, i.e. walking, was considered unimportant (s16, -4*) because “many activities provide transport around [the] facility, e.g. zoo botanical gardens” (qsort40, Badung, female, New Zealand, with family). When facing a health problem, relying on friends from the home country who have lived locally for a long time was unimportant (s39, -4*) because “in a country as big as Indonesia, it might be hard for your friends to help you.” (qsort47, Toraja Utara, male, Poland, with family) Avoidance of seeking medical attention from a local doctor due to cost was also unimportant for this group (s41, -5*). “The price shouldn't matter if your health is in danger. Better to be safe than to be sorry.” (qsort23, Badung, female, Germany, with friends)

5.3.6.2. Second viewpoint: Point-of-origin facilitated self-care travellers

Travellers who shared this viewpoint emphasised the importance of detailed preparation in the home country before travelling to anticipate unwanted medical and non-medical events.

Preventive measures taken in the home country, such as probiotics taken two weeks before departing, were rated the most important self-care among other statements (s3, +5*). These travellers typically paid attention to detailed pre-travel preparation, such as packing personal medications and obtaining a formal letter from their doctor before departure (s6, +4*). When sick, the first point of contact was a health professional from their home country (s23, +4*), indicating a greater reliance on professional services from the home country than from the destination country because "it gives me more confidence also because he/she knows me well than others." (qsort26, Badung, female, Italy, with friends).

Consistently, these travellers showed independence from the destination's health services. There was a lack of confidence in the local pharmacy services (s40, -3*), citing that the pharmacies "only care about selling [and] do not take any contact information". (qsort04, Badung, female, Saudi Arabia, with family) Moreover, they felt that a fair medication price was unimportant when they were sick (s34, -4*). Preventive self-care actions, such as selecting and applying sunscreen, were also considered unimportant (s10, -5*). One traveller explained that "sometimes you do not even stay [in] the sun, so […] other things like medical insurance […] are more important." (qsort26, Badung, female, Italy, with friends). However, these travellers still expected support and consideration from healthcare services from the destination country should they require them. They expected trusted information about health risks, e.g. dengue (s2, +3*), to "reassure" them about the real and current situation (qsort43, Manggarai Barat, male, Italy, with friends) because the information from social media makes them wonder "how true can they be?" (qsort43, Manggarai Barat, male, Italy, with friends) If they were a doctor in their home country, they expected their credentials to be accepted in the destination country to obtain prescription medicines (s30, +3).

5.3.6.3. Third viewpoint: Destination-facilitated self-care travellers

Travellers with this shared viewpoint prioritised facilitated self-care in the destination country when they were sick, with empathic and undistorted communication in healthcare service delivery as key priorities, as well as value-for-money quality products. When seeking facilitated self-care, they expected the doctor to understand how they feel (s21, +5*) and "to give an accurate diagnosis" (qsort01, Badung, male, UK, solo). They did not hesitate to use communication tools to avoid miscommunication, such as calculators when communicating about medication prices (s25, +3*). In contrast to the second viewpoint, travellers in this group expected a fair price (s34, +4) and good-quality products sold at the pharmacy (s38, +3).

These travellers were driven by personal experience when expressing their prioritisation of self-care. For example, pre-departure probiotic administration was considered unimportant (s3, -5*) because "I have taken some probiotics on earlier trips and haven't noticed any benefit from them. […] I have also heard from some other friends [who] have had the 'Bali belly' and said that probiotics have been of no help to them." (qsort37, Badung, male, Slovakia, with friends). Additionally, they did not recognise the importance of self-care needs for conditions they did not have. For example, they did not prioritise the risk of food allergy (s8, -3*) and bringing medicines for chronic diseases (s42, -4) because they "don't have these diseases" (qsort10, Badung, female, France, with friends). Moreover, personal choice over products was a key factor among them. For example, using a DEET-based insect repellent was considered unimportant (s5, -4*) for personal, non-medical reasons: "I don't use DEET products due to their effect on the environment. I use citronella instead as a natural insect repellent." (qsort01, Badung, male, UK, solo). The three viewpoints above can be illustrated on a self-care continuum spanning from the unfacilitated to the facilitated poles (Figure 5.2). The facilitated self-care branches into two, representing travellers who relied on their country of origin or the destination country.

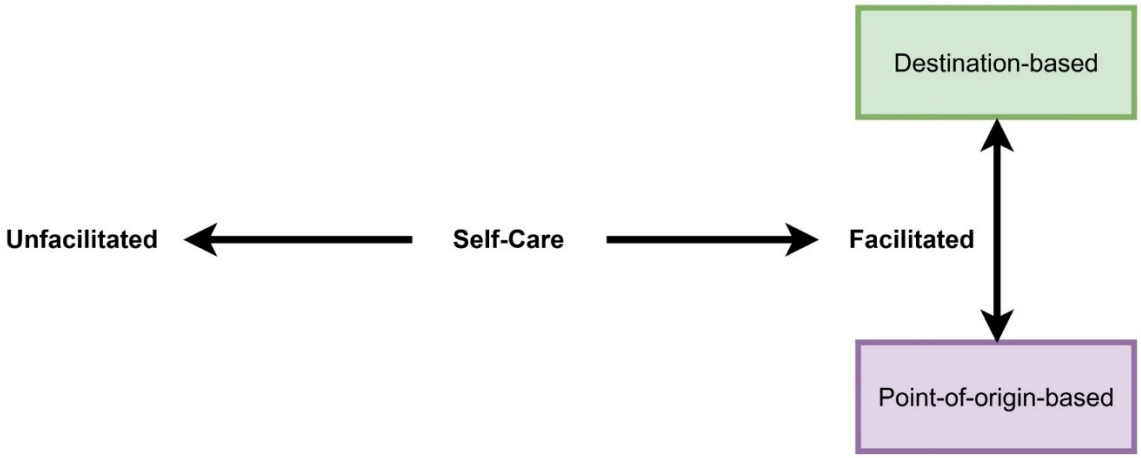


Figure 5.2 The conceptual diagram of the travellers' viewpoints on self-care priorities while travelling to Indonesia

5.4 Discussion

This study advances understanding of how international travellers prioritise self-care when visiting a developing country. This study has revealed three viewpoints identified through Q-methodology: "unfacilitated self-care", "point-of-origin facilitated self-care", and "destination-facilitated self-care", signalling that travellers have different needs for self-care. Recognising diverse viewpoints can inform health services in destination countries about the most suitable self-care interventions for meeting the needs of different types of traveller.

Unfacilitated self-care travellers substantially relied on themselves, with good self-awareness and agency as modalities. Driving factors for good self-awareness and agency may be multiple, such as frequent international travel experience, good knowledge and health literacy, or reasonable access to resources; however, these remain unexplored among international travellers and were out of scope of this study. There are some downsides to good self-awareness and agency. For example, travellers may have a lower perception of risk, which was found to be highly linked to low health-seeking behaviour and adherence to pre-travel advice (Kain et al., 2019). Relatively simple health promotion programs, such as placing warning signs in relevant and strategic locations, such as airport lounges, tourist spot entrances, or hotel lobbies and bathrooms about unpotable tap water or the need to apply insect repellent, may enhance

self-awareness among these travellers (Kurniasari et al., 2021). Purchasing travel insurance was also a form of self-awareness, but older age or chronic health conditions may limit access to this insurance (Liew & Flaherty, 2020). Individuals' agency can be supported by providing information and education that enhances a traveller's capacity to act intentionally and make informed choices to maintain or improve health outcomes. For example, information about vaccineefficacy, side effects, the probability of contracting the disease if unvaccinated, and treatment availability plays important roles in aiding travellers in their pre-travel decision-making (McGuinness et al., 2023). Moreover, supporting individuals' agency is also part of the WHO's self-care intervention agenda (WHO, 2021).

Point-of-origin facilitated self-care travellers emphasised the importance of detailed pre-travel preparation in their home country. In the event of an unwanted health issue during travel, their first contact preference was with a health professional from their home country, rather than with local providers, driven by confidence. This attitude was also found among temporary migrant populations from collective cultural backgrounds, although the drivers can be different, i.e. a lack of access to the destination country's health services (Arcury et al., 2006; Lin et al., 2016; Westerling et al., 2020; Yan et al., 2020). Although most participants in this study were from a non-collectivist cultural background, the similarity of preference for country of origin providers can be due to language barriers (Heywood & Zwar, 2018; Whitaker et al., 2021) and trust to familiar health professionals. Moreover, in the age of telehealth services, accessibility to healthcare assistance from the home country has become more feasible (Blandford et al., 2020), and therefore utilising this technology to facilitate consultation is suitable for travellers in this group.

Destination-facilitated self-care travellers emphasised the importance of empathetic and undistorted communication, as well as quality medicines at a fair price. Empathy, defined as "the ability to put yourself in somebody else's shoes" (Ratka, 2018), is a cornerstone of health

professional education and services, and higher levels of empathy are linked to improved clinical outcomes and patient care experiences (Chaieb et al., 2018; Nembhard et al., 2023; Ratka, 2018). For international travellers, accessing local health services often involves language barriers, cultural differences, and stressful circumstances (Potin et al., 2024). In this context, empathetic communication enables health professionals to better understand travellers' problems and needs. Research on empathetic communication in health education and practice in Indonesia (Pratiwi et al., 2023; Sianturi et al., 2022) as well as self-care facilitation by community pharmacies (Brata et al., 2021; Brata et al., 2015; Brata et al., 2019) is increasing, but remains limited in number and diversity of populations, and is yet to include the context of international travellers. For Indonesian community pharmacists, empathetic communication skills can be developed using continuing professional development, which is a frequent pharmacy educational activity in the country (Meilianti et al., 2021), with an explicitly interactive delivery likely being effective (Marjadi et al., 2022). Moreover, undistorted communication can be prevented by both travellers and local health professionals using several strategies, such as hiring a tour guide or interpreter, improving proficiency in English or Bahasa Indonesia, and utilising current technology (e.g. Large-Language Model-based artificial intelligence mobile apps or devices). The use of professional interpreters has a positive impact on patient satisfaction, particularly in situations involving language barriers, as it enhances the quality of communication (Kwan et al., 2023); however, such services are presently limited in Indonesia. Regarding the quality of medicines, counterfeit medicines remain a problem in Indonesia due to weak control, as exemplified by the 2016 counterfeit vaccine case (Arief et al., 2018; Khwaileh & Kazić, 2025; Pisani et al., 2019). Pharmacists suspect online platforms as the medium facilitating the spread and transaction of counterfeit products (Kristina et al., 2023). Therefore, international travellers should be advised to purchase medicines from a physical community pharmacy. Regarding the fair price of medicines, since 2012, the

Indonesian government has set a standard that the price of generic medicines sold at pharmacies, hospitals, and other healthcare facilities cannot surpass the highest retail price (*harga eceran tertinggi*, HET) (Andayani & Satibi, 2016). This HET is printed on the primary packaging of the products, but even for Indonesians the concept of HET may not be readily understood, let alone international travellers. It is important to provide information about HET to international travellers in pre-travel consultations or when they visit a community pharmacy.

All study participants agreed on the importance of understanding how the destination's health system works. Pre-travel health consultation by the home country's travel health practitioners may include information about the destination country's health system and services (Potin et al., 2024). Travellers can access online information from websites, such as the US Centers for Disease Control and Prevention's (CDC) Yellow Book (CDC, 2025) and Australia's Smartraveller (Smartraveller, 2025) . However, the conciseness of these resources may limit the level of detail they provide. For example, CDC website does not provide local emergency numbers (e.g. 119 for ambulance services). Neither website provides a list of hospital specialty services and their compatibility with foreign travel insurance. Stakeholders in destination areas, such as local government tourism information centres, local hospitals, or tourism providers, can fill this information gap by providing detailed and accurate information to help travellers navigate the health system. Research is recommended on the information needs of travellers to navigate health systems in Indonesia, as well as collaborative actions between stakeholders in meeting these needs.

This study enriches the current knowledge of self-care literature by situating self-care within unfamiliar environments. The findings from this study supplement the Self-Care Context dimension of the SCM framework (El-Osta et al., 2019), especially since the SCM was developed for self-care within a familiar environment. The current Self-Care Context dimension focuses on the individual's reliance "on external resources in the home, community,

assisted care or professional settings" (El-Osta et al., 2019). Findings from this study demonstrate that external resources the travellers rely on can be from the destinations or countries of origin. Incorporating this finding into the SCM will better inform providers, including community pharmacies, in choosing the most suitable self-care interventions for international travellers.

5.4.1. Limitations and strengths

This study has several limitations. Firstly, participants were mostly from Anglophone and European countries, with only two participants from Asia and the Middle East (Japan and Saudi Arabia). This country profile did not align with Indonesia's tourism statistics, which showed that four of the top five countries of tourist origin were Asian (Malaysia, Singapore, China, and Timor-Leste) (Statistics Indonesia, 2024a). During fieldwork, some Asian travellers were approached, but despite the best recruitment efforts most of them were not interested in participating in the study. This limitation may impede the transferability of the results to collectivist cultures, where health-seeking behaviours and self-care priorities may differ substantially. Future research should broaden to other demographics to explore cultural variations in self-care prioritisation. Secondly, the study participants were disproportionately distributed across study sites due to technical challenges and varying tourism seasons. Each tourist area was different in their offerings, which resulted in different challenges in recruiting participants. For instance, many travellers in Badung had more free time than those in Yogyakarta, who tended to be much more frequently on the go. Disseminating recruitment flyers in popular tourist spots was not successful in mitigating this challenge. The limited time and funding for this study hampered the effort to cover the widely varied high season for each target area. Lastly, technical difficulties occurred while retrieving the demographic data records from the local browser used to run the EQ Web Sort software. This demographic data should be automatically stored locally on the survey tablet. When this issue was first detected, email

communication was made with the software programmer, who did not identify any problem with the setup files for this study. Therefore, the demographic data presented here were derived from the fieldnotes, which did not consistently include the number of days the participants had spent in Indonesia or their ages. Although this issue is considered to have a relatively minor impact on the study findings, as the fieldnotes covered most of the demographic data, readers should interpret the findings with respect to age and travel duration with caution.

Despite these limitations, this study has several strengths. Firstly, the concourse was developed using three different approaches, affording a comprehensive consideration of self-care perspectives among international travellers. Secondly, the Q-set development was aided by the SCM, which was conceptualised from 32 theories, models, and frameworks in self-care (El-Osta et al., 2019), and included an expert panel review to ensure rigour. Thirdly, the participants were approached at four tourist sites on different islands in Indonesia, representing a diverse range of travel experiences in the country. Lastly, this study successfully achieved the required number of participants in a Q-methodology, which is between 40 and 60 (Watts & Stenner, 2012), despite the participants being hard-to-reach because they were vacationing.

5.5 Conclusion

The aim of the study was to systematically explore the subjective views of international travellers visiting Indonesia regarding self-care priorities. Q-methodology was used to explore the complexity of self-care practices among international travellers to Indonesia through the lens of subjective importance. The findings shed light on how travellers practice self-care in unfamiliar environments, particularly in low-resource settings, by identifying three viewpoints explaining self-care priorities for this population. These viewpoints are helpful for identifying travellers' self-care needs and tailoring measures by health care providers in destination countries to address these needs. For travellers prioritising **unfacilitated self-care**, health promotional programs tailored by the host and the home countries could empower this group.

Travel preparations and telehealth services are beneficial for travellers relying on **point-of-origin facilitated self-care**. For travellers who prefer **destination-facilitated self-care**, the host country's healthcare system should prioritise the delivery of services with empathetic communication and ensure value-for-money and quality medicines. A further research agenda includes investigating the readiness of the destination's healthcare services, including community pharmacies, to meet the self-care needs of international travellers.

5.6 References

Ahlm, C., Lundberg, S., Fessé, K., & Wiström, J. (1994). Health Problems and Self-Medication among Swedish Travellers. *Scandinavian Journal of Infectious Diseases*, *26*(6), 711-717. https://doi.org/10.3109/00365549409008640

Akhtar-Danesh, N. (2017). A Comparison between Major Factor Extraction and Factor Rotation Techniques in Q-Methodology. *Open Journal of Applied Sciences*, *07*(04), 147-156. https://doi.org/10.4236/ojapps.2017.74013

Akhtar-Danesh, N. (2018). qfactor: A Command for Q-Methodology Analysis. *The Stata Journal*, *18*(2), 432-446. https://doi.org/10.1177/1536867x1801800209

Akhtar-Danesh, N., Baumann, A., & Cordingley, L. (2008). Q-Methodology in Nursing Research:A Promising Method for the Study of Subjectivity. *Western Journal of Nursing Research*, *30*(6), 759-773. https://doi.org/10.1177/0193945907312979

Almanasreh, E., Moles, R., & Chen, T. F. (2019). Evaluation of Methods Used for Estimating Content Validity. *Research in Social and Administrative Pharmacy*, *15*(2), 214-221. https://doi.org/10.1016/j.sapharm.2018.03.066

Anagnostopoulos, A., & Fehr, J. (2024). Rebound and Steep Increase of International Travel after the COVID-19 Pandemic: Where Are We Going from Here? *Journal of Travel Medicine*, *31*(1). https://doi.org/10.1093/jtm/taad158

Andayani, T. M., & Satibi, S. (2016). Pharmacy Practice in Indonesia. In *Pharmacy Practice in Developing Countries* (pp. 41-56). Elsevier.

Angelo, K. M., Kozarsky, P. E., Ryan, E. T., Chen, L. H., & Sotir, M. J. (2017). What Proportion of International Travellers Acquire a Travel-Related Illness? A Review of the Literature. *Journal of Travel Medicine*, *24*(5). https://doi.org/10.1093/jtm/tax046

Arcury, T. A., Vallejos, Q. M., Feldman, S. R., & Quandt, S. A. (2006). Treating Skin Disease: Self-Management Behaviors of Latino Farmworkers. *Journal of Agromedicine*, *11*(2), 27-35. https://doi.org/10.1300/J096v11n02_06

Arief, N., Karlinah, S., Setianti, Y., & Susilawati, S. (2018). Counterfeit Vaccines in Indonesia: Managing the Issue through Media. *Journal of Communication Management*, *22*(4), 510-520. https://doi.org/10.1108/jcom-09-2018-0081

Banasick, S. (2024). *EQ Web Sort*. In (Version 7.0.0) Zenodo. https://doi.org/10.5281/zenodo.13684502

Blandford, A., Wesson, J., Amalberti, R., AlHazme, R., & Allwihan, R. (2020). Opportunities and Challenges for Telehealth within, and Beyond, a Pandemic. *Lancet Global Health*, *8*(11), e1364-e1365. https://doi.org/10.1016/S2214-109X(20)30362-4

Brata, C., Halim, S. V., Setiawan, E., Presley, B., Wibowo, Y. I., & Schneider, C. R. (2021). The Competency of Indonesian Pharmacy Students in Handling a Self-Medication

Request for a Cough: A Simulated Patient Study. *Pharmacy Practice*, *19*(2), 2269. https://doi.org/10.18549/PharmPract.2021.2.2269

Brata, C., Marjadi, B., Schneider, C. R., Murray, K., & Clifford, R. M. (2015). Information-Gathering for Self-Medication Via Eastern Indonesian Community Pharmacies: A Cross-Sectional Study. *BMC Health Service Research*, *15*, 8. https://doi.org/10.1186/s12913-014-0670-6

Brata, C., Schneider, C. R., Marjadi, B., & Clifford, R. M. (2019). The Provision of Advice by Pharmacy Staff in Eastern Indonesian Community Pharmacies. *Pharmacy Practice*, *17*(2), 1452. https://doi.org/10.18549/PharmPract.2019.2.1452

Brown, S. R. (1980). *Political Subjectivity: Application of Q Methodology in Political Science*. Yale University Press.

Brown, S. R. (1993). A primer on Q methodology. *Operant Subjectivity*, *16*, 91-138.

CDC. (2025). *Indonesia*. CDC. Retrieved 1 November from https://wwwnc.cdc.gov/travel/destinations/traveler/none/indonesia

CEBM. (2019). *Critical Appraisal of Qualitative Studies*. Retrieved 3 November from https://www.cebm.net/wp-content/uploads/2019/01/Qualitative-Studies.pdf

Chaieb, J., Phillips, B. B., Thiman, M., Fulford, M., Young, H. N., & Perri, M. (2018). Evaluation of Affective Domain Elements in a New Pharmacy Practice Course. *Currents in Pharmacy Teaching and Learning*, *10*(9), 1219-1227. https://doi.org/10.1016/j.cptl.2018.06.011

Churruca, K., Ludlow, K., Wu, W., Gibbons, K., Nguyen, H. M., Ellis, L. A., & Braithwaite, J. (2021). A Scoping Review of Q-Methodology in Healthcare Research. *BMC Medical Research Methodology*, *21*(1), 125. https://doi.org/10.1186/s12874-021-01309-7

Collins, J. C., Schneider, C. R., El-Den, S., & Moles, R. J. (2020). Self-Care-Seeking Behaviors in the Community Pharmacy: A Cross-Sectional Exit Survey of Australian Consumers. *Journal of the American Pharmacists Association*, *60*(6), 827-834. https://doi.org/10.1016/j.japh.2020.04.019

Damio, S. M. (2018). The Analytic Process of Q Methodology. *Asian Journal of University Education*, *14*(1), 16.

Dieteren, C. M., Patty, N. J. S., Reckers-Droog, V. T., & van Exel, J. (2023). Methodological Choices in Applications of Q Methodology: A Systematic Literature Review. *Social Sciences & Humanities Open*, *7*(1). https://doi.org/10.1016/j.ssaho.2023.100404

El-Osta, A., Webber, D., Gnani, S., Banarsee, R., Mummery, D., Majeed, A., & Smith, P. (2019). The Self-Care Matrix: A Unifying Framework for Self-Care. *SelfCare*, *10*(3), 38-56. https://selfcarejournal.com/article/the-self-care-matrix-a-unifying-framework-for-self-care/

Flaherty, G. T., Chen, B., & Avalos, G. (2017). Individual Traveller Health Priorities and the Pre-Travel Health Consultation. *Journal of Travel Medicine*, *24*(6), 1-4. https://doi.org/10.1093/jtm/tax059

Gravningen, K., Field, N., Blix, H. S., Asfeldt, A. M., & Smabrekke, L. (2020). Non-Prescription Purchase of Antibiotics During Travel Abroad among a General Adult Population in Norway: Findings from the Seventh Tromso Study. *PLoS One*, *15*(2), e0228792. https://doi.org/10.1371/journal.pone.0228792

Guild, J. (2024, 30 April 2024). Southeast Asian Tourism Slowly, but Steadily, Recovered in 2023. *The Diplomat*. https://thediplomat.com/2024/04/southeast-asian-tourism-slowly-but-steadily-recovered-in-2023

Hackert, M. Q. N., Brouwer, W. B. F., Hoefman, R. J., & van Exel, J. (2019). Views of Older People in the Netherlands on Wellbeing: A Q-Methodology Study. *Social Science & Medicine*, *240*, 112535. https://doi.org/10.1016/j.socscimed.2019.112535

Harris, P. A., Taylor, R., Minor, B. L., Elliott, V., Fernandez, M., O'Neal, L., McLeod, L., Delacqua, G., Delacqua, F., Kirby, J., & Duda, S. N. (2019). The REDCap Consortium: Building an International Community of Software Platform Partners. *Journal of Biomedical Informatics*, *95*, 103208. https://doi.org/10.1016/j.jbi.2019.103208

Haua, R., Wolf, A., Harrison, J., & Aspden, T. (2022). Q Methodology: An Underutilised Tool in Pharmacy Practice Research. *Research in Social and Administrative Pharmacy*, *18*(1), 2178-2183. https://doi.org/10.1016/j.sapharm.2021.04.008

Hazen, A. C., Wal, A. W., Sloeserwij, V. M., Zwart, D. L., Gier, J. J., Wit, N. J., Leendertse, A. J., Bouvy, M. L., & Bont, A. A. (2016). Controversy and Consensus on a Clinical Pharmacist in Primary Care in the Netherlands. *International Journal of Clinical Pharmacy*, *38*(5), 1250-1260. https://doi.org/10.1007/s11096-016-0360-z

Hermansyah, A., Wulandari, L., Kristina, S. A., & Meilianti, S. (2020). Primary Health Care Policy and Vision for Community Pharmacy and Pharmacists in Indonesia. *Pharmacy Practice*, *18*(3), 2085. https://doi.org/10.18549/PharmPract.2020.3.2085

Heywood, A. E., & Zwar, N. (2018). Improving Access and Provision of Pre-Travel Healthcare for Travellers Visiting Friends and Relatives: A Review of the Evidence. *Journal of Travel Medicine*, *25*(1). https://doi.org/10.1093/jtm/tay010

Hill, D. R. (2000). Occurrence and Self-Treatment of Diarrhea in a Large Cohort of Americans Traveling to Developing Countries. *American Journal of Tropical Medicine and Hygiene*, *62*(5), 585–589.

Kain, D., Findlater, A., Lightfoot, D., Maxim, T., Kraemer, M. U. G., Brady, O. J., Watts, A., Khan, K., & Bogoch, II. (2019). Factors Affecting Pre-Travel Health Seeking Behaviour and Adherence to Pre-Travel Health Advice: A Systematic Review. *Journal of Travel Medicine*, *26*(6). https://doi.org/10.1093/jtm/taz059

Kausar, D. R. (2012). Sustainability in the Management of World Cultural Heritage. *Vision for Global Tourism Industry-Creating and Sustaining Competitive Strategies, Chapter April*, 431-440.

Kenward, L. (2019). A Literature Review to Guide Novice Researchers Using Q Methodology in the Development of a Framework for Concourse Management. *Nurse Researcher*, *27*(1), 17-21. https://doi.org/10.7748/nr.2019.e1616

Khwaileh, K., & Kazić, E. (2025). Illicit Trade in Counterfeit Medicines: Challenges, Solutions, and a Case Study of Indonesia. *Solutions, and a Case Study of Indonesia (March 07, 2025)*.

Kristianus, A. (2024, 2 December 2024). BPS: Foreign Tourist Arrivals in Indonesia Surge by 20%, Led by Malaysians. *Jakarta Globe*. https://jakartaglobe.id/lifestyle/bps-foreign-tourist-arrivals-in-indonesia-surge-by-20-led-by-malaysians

Kristina, S. A., Kristina, S. A., Darmawan, K. H., Yuliani, R. P., Mu'in, F., Trung, V. Q., Hsu, M. H., Syahrom, A., Ismail, H., & Vo, T. Q. (2023). Community Pharmacist' Attitudes Towards Counterfeit Medicines in Yogyakarta, Indonesia. *BIO Web of Conferences*, *75*. https://doi.org/10.1051/bioconf/20237505006

Kurniasari, N. M. D., Widyanthini, D. N., Mulyawan, I. K. H., & Wirawan, I. M. A. (2021). Travel Health Knowledge and Perception of Foreign Backpackers Traveling in Bali. *Jurnal Ilmu Kesehatan Masyarakat*, *12*(2), 128-142. https://doi.org/10.26553/jikm.2021.12.2.128-142

Kwan, M., Jeemi, Z., Norman, R., & Dantas, J. A. R. (2023). Professional Interpreter Services and the Impact on Hospital Care Outcomes: An Integrative Review of Literature. *International Journal of Environmental Research and Public Health*, *20*(6). https://doi.org/10.3390/ijerph20065165

Liew, C. H., & Flaherty, G. T. (2020). Experiences and Attitudes of International Travelers with Cardiovascular Disease: A Qualitative Analysis. *American Journal of Tropical Medicine and Hygiene*, *102*(3), 689-697. https://doi.org/10.4269/ajtmh.19-0793

Lin, L., Brown, K. B., Hall, B. J., Yu, F., Yang, J., Wang, J., Schrock, J. M., Bodomo, A. B., Yang, L., Yang, B., Nehl, E. J., Tucker, J. D., & Wong, F. Y. (2016). Overcoming Barriers to Health-Care Access: A Qualitative Study among African Migrants in Guangzhou, China. *Global Public Health*, *11*(9), 1135-1147. https://doi.org/10.1080/17441692.2015.1076019

Lovey, T., Hedrich, N., Grobusch, M. P., Bernhard, J., Schlagenhauf, P., & Network, I. G. (2024). Surveillance of Global, Travel-Related Illness Using a Novel App: A Multivariable, Cross-Sectional Study. *BMJ Open*, *14*(7), e083065. https://doi.org/10.1136/bmjopen-2023-083065

Marjadi, B., Alfian, R., Susanto, Y., Tjandra, L., Pratama, A. N. W., & Schneider, C. (2022). Pharmacists' Continuing Professional Development for Non-Communicable Diseases Management: A Consensus Study. *Research in Social and Administrative Pharmacy*, *18*(11), 3964-3973. https://doi.org/10.1016/j.sapharm.2022.07.002

Martinez, N., Connelly, C. D., Perez, A., & Calero, P. (2021). Self-Care: A Concept Analysis. *International Journal of Nursing Sciences*, *8*(4), 418-425. https://doi.org/10.1016/j.ijnss.2021.08.007

McGuinness, S. L., Eades, O., Seale, H., Cheng, A. C., & Leder, K. (2023). Pre-Travel Vaccine Information Needs, Attitudes, Drivers of Uptake and the Role for Decision Aids in Travel Medicine. *Journal of Travel Medicine*, *30*(4). https://doi.org/10.1093/jtm/taad056

McKeown, B., & Thomas, D. B. (2013). *Q Methodology*. SAGE Publications, Inc. https://doi.org/10.4135/9781483384412

Meilianti, S., Smith, F., Ernawati, D. K., Pratita, R. N., & Bates, I. (2021). A Country-Level National Needs Assessment of the Indonesian Pharmacy Workforce. *Research in Social and Administrative Pharmacy*, *17*(11), 1989-1996. https://doi.org/10.1016/j.sapharm.2021.03.003

Nagaoka, M. (2011). Revitalization of Borobudur: Heritage Tourism Promotion and Local Community Empowerment in Cultural Industries. ICOMOS,

Narasimhan, M., Allotey, P., & Hardon, A. (2019). Self Care Interventions to Advance Health and Wellbeing: A Conceptual Framework to Inform Normative Guidance. *British Medical Journal*, *365*, l688. https://doi.org/10.1136/bmj.l688

Nembhard, I. M., David, G., Ezzeddine, I., Betts, D., & Radin, J. (2023). A Systematic Review of Research on Empathy in Health Care. *Health Services Research*, *58*(2), 250-263. https://doi.org/10.1111/1475-6773.14016

Ollivaud, P., & Haxton, P. (2019). *Making the Most of Tourism in Indonesia to Promote Sustainable Regional Development*. https://www.oecd-ilibrary.org/content/paper/c73325d9-en

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., Shamseer, L., Tetzlaff, J. M., Akl, E. A., Brennan, S. E., Chou, R., Glanville, J., Grimshaw, J. M., Hrobjartsson, A., Lalu, M. M., Li, T., Loder, E. W., Mayo-Wilson, E., McDonald, S., . . . Moher, D. (2021). The PRISMA 2020 Statement: An Updated Guideline for Reporting Systematic Reviews. *Systematic Reviews*, *10*(1), 89. https://doi.org/10.1186/s13643-021-01626-4

Paige, J. B., & Morin, K. H. (2016). Q-Sample Construction. *Western Journal of Nursing Research*, *38*(1), 96-110. https://doi.org/10.1177/0193945914545177

Pett, M., Lackey, N., & Sullivan, J. (2003). *Making Sense of Factor Analysis*. SAGE Publications, Inc. https://doi.org/10.4135/9781412984898

Pisani, E., Nistor, A. L., Hasnida, A., Parmaksiz, K., Xu, J., & Kok, M. O. (2019). Identifying Market Risk for Substandard and Falsified Medicines: An Analytic Framework Based on Qualitative Research in China, Indonesia, Turkey and Romania. *Wellcome Open Research*, *4*, 70. https://doi.org/10.12688/wellcomeopenres.15236.1

Piyaphanee, W., Stoney, R. J., Asgeirsson, H., Appiah, G. D., Diaz-Menendez, M., Barnett, E. D., Gautret, P., Libman, M., Schlagenhauf, P., Leder, K., Plewes, K., Grobusch, M. P., Huits, R., Mavunda, K., Hamer, D. H., & Chen, L. H. (2023). Healthcare Seeking During Travel: An Analysis by the GeoSentinel Surveillance Network of Travel Medicine Providers. *Journal of Travel Medicine*, *30*(3). https://doi.org/10.1093/jtm/taad002

Polit, D. F., Beck, C. T., & Owen, S. V. (2007). Is the CVI an Acceptable Indicator of Content Validity? Appraisal and Recommendations. *Research in Nursing & Health*, *30*(4), 459-467. https://doi.org/10.1002/nur.20199

Potin, M., Carron, P. N., & Genton, B. (2024). Injuries and Medical Emergencies among International Travellers. *Journal of Travel Medicine*, *31*(1). https://doi.org/10.1093/jtm/taad088

Pratiwi, H., Ari Kristina, S., Wahyuni Widayanti, A., & Suryo Prabandari, Y. (2023). Pharmacy Students' Empathy and Its Determinants: A Systematic Review. *F1000Research*, *12*, 18. https://doi.org/10.12688/f1000research.127017.1

Ramlo, S. (2016). Mixed Method Lessons Learned from 80 Years of Q Methodology. *Journal of Mixed Methods Research*, *10*(1), 28-45. https://doi.org/10.1177/1558689815610998

Ramlo, S. E., & Newman, I. (2011). Q Methodology and Its Position in the Mixed-Methods Continuum. *Operant Subjectivity*, *34*(3), 172-191. https://doi.org/doi:10.15133/j.os.2010.009

Ratka, A. (2018). Empathy and the Development of Affective Skills. *Am J Pharm Educ*, *82*(10), 7192. https://doi.org/10.5688/ajpe7192

Richter, F. (2023). *Charted: How International Travel Bounced Back Strongly in 2022*. World Economic Forum. Retrieved 1 December from https://www.weforum.org/stories/2023/03/international-travel-bounced-back-strongly-in-2022/

Riegel, B., Dunbar, S. B., Fitzsimons, D., Freedland, K. E., Lee, C. S., Middleton, S., Stromberg, A., Vellone, E., Webber, D. E., & Jaarsma, T. (2021). Self-Care Research: Where Are We Now? Where Are We Going? *International Journal of Nursing Studies*, *116*, 103402. https://doi.org/10.1016/j.ijnurstu.2019.103402

Sianturi, E. I., Latifah, E., Pane, M., Perwitasari, D. A., Satibi, Kristina, S. A., Hastuti, E. B., Pavlovich, J., & Taxis, K. (2022). Knowledge, Empathy, and Willingness to Counsel Patients with HIV among Indonesian Pharmacists: A National Survey of Stigma. *AIDS Care*, *34*(1), 21-28. https://doi.org/10.1080/09540121.2021.1883506

Smartraveller. (2025). *Indonesia*. Smartraveller. Retrieved 1 November from https://www.smartraveller.gov.au/destinations/asia/indonesia

StataCorp. (2023). *Stata Statistical Software: Release 18*. In StataCorp LLC.

Statistics Indonesia. (2024a). *Jumlah Kunjungan Wisatawan Mancanegara Per Bulan Menurut Kebangsaan*. Statistics Indonesia. Retrieved 25 Oct from https://www.bps.go.id/id/statistics-table/2/MTQ3MCMy/jumlah-kunjungan-wisatawan-mancanegara-per-bulan-menurut-kebangsaan--kunjungan-.html

Statistics Indonesia. (2024b). *Rata-Rata Lama Tinggal Wisatawan Mancanegara Menurut Negara Tempat Tinggal*. Statistics Indonesia. Retrieved 25 Oct from https://www.bps.go.id/id/statistics-table/2/MzU2IzI=/rata-rata-lama-tinggal-wisatawan-mancanegara-menurut-negara-tempat-tinggal.html

Torresi, J., McGuinness, S., Leder, K., O'Brien, D., Ruff, T., Starr, M., & Gibney, K. (2019). Health Issues in Returned Travellers. In J. Torresi, S. L. McGuinness, K. S. Leder, D. O'Brien, T. Ruff, M. Starr, & K. B. Gibney (Eds.), *Manual of Travel Medicine: A Pre-travel Guide for Health Care Practitioners* (4th ed.). Springer.

Utzinger, K. S., Held, U., Hanscheid, T., Gultekin, N., Fehr, J., Grobusch, M. P., & Schlagenhauf, P. (2020). Self-Diagnosis and Self-Treatment of Plasmodium spp. Infection by Travellers (1989-2019): A Systematic Review and Meta-Analysis. *Travel Medicine and Infectious Disease*, *38*, 101902. https://doi.org/10.1016/j.tmaid.2020.101902

Vajta, B., Holberg, M., Mills, J., & McBride, W. J. (2015). Weighing up the Costs of Seeking Health Care for Dengue Symptoms: A Grounded Theory Study of Backpackers' Decision-Making Processes. *Australian Journal of Primary Health*, *21*(2), 245-248. https://doi.org/10.1071/py13107

Vilkman, K., Pakkanen, S. H., Laaveri, T., Siikamaki, H., & Kantele, A. (2016). Travelers' Health Problems and Behavior: Prospective Study with Post-Travel Follow-Up. *BMC Infectious Disease*, *16*, 328. https://doi.org/10.1186/s12879-016-1682-0

Watts, S., & Stenner, P. (2012). *Doing Q Methodological Research: Theory, Method and Interpretation*. SAGE Publications Ltd. https://doi.org/10.4135/9781446251911

Westerling, R., Daryani, A., Gershuni, O., Czabanowska, K., Brand, H., Erdsiek, F., Aksakal, T., Uner, S., Karadag Caman, O., Ozcebe, H., & Brzoska, P. (2020). Promoting Rational Antibiotic Use in Turkey and among Turkish Migrants in Europe - Implications of a Qualitative Study in Four Countries. *Global Health*, *16*(1), 108. https://doi.org/10.1186/s12992-020-00637-5

Westoby, R., Gardiner, S., Carter, R. W., & Scott, N. (2021). Sustainable Livelihoods from Tourism in the "10 New Balis" in Indonesia. *Asia Pacific Journal of Tourism Research*, *26*(6), 702-716. https://doi.org/10.1080/10941665.2021.1908386

Whitaker, K. L., Krystallidou, D., Williams, E. D., Black, G., Vindrola-Padros, C., Braun, S., & Gill, P. (2021). Addressing Language as a Barrier to Healthcare Access and Quality. *The British Journal of General Practice*, *72*(714), 4.

WHO. (2021). *WHO Guideline on Self-Care Interventions for Health and Well-Being*. World Health Organization. https://app.magicapp.org/#/guideline/Lr21gL

WHO Regional Office for South-East Asia. (2009). *Self-Care in the Context of Primary Health Care: Report of the Regional Consultation*. https://iris.who.int/handle/10665/206352

World Economic Forum. (2013). *The Travel & Tourism Competitiveness Report 2013 Reducing Barriers to Economic Growth and Job Creation*. http://www3.weforum.org/docs/WEF_TT_Competitiveness_Report_2013.pdf

World Economic Forum. (2024). *The Travel & Tourism Development Index 2024*.

Yan, S. D., Orkis, J., Khan Sohail, S., Wilson, S., Davis, T., & Storey, J. D. (2020). Digging for Care-Seeking Behaviour among Gold Miners in the Guyana Hinterland: A Qualitative Doer Non-Doer Analysis of Social and Behavioural Motivations for Malaria Testing and Treatment. *Malaria Journal*, *19*(1), 235. https://doi.org/10.1186/s12936-020-03289-3

Zabala, A. (2014). qmethod: A Package to Explore Human Perspectives Using Q Methodology. *The R Journal*, *6*(2), 11. https://rjournal.github.io/

Chapter 6. Indonesian community pharmacies' readiness to facilitate international travellers' self-care requirements: A qualitative needs assessment

As findings in Chapter 5 indicated differing self-care needs between travellers' archetypes, the aim of Chapter 6 was to determine the readiness requirements of Indonesian community pharmacies in meeting these needs. A gap analysis compared the desired versus current community pharmacy performance in facilitating traveller self-care.

6.1 Introduction

Community pharmacies play a vital role in supporting the health and well-being of society. The role of community pharmacy is evolving from its traditional focus on providing prescriptions and non-prescription medications to a broader role in public health (Akers et al., 2024; International Pharmaceutical Federation (FIP), 2025; Mumbi et al., 2024; Shirdel et al., 2021). This shift reflects the profession's ongoing transition, from a product-centred to a people-centred and public-health-oriented role (International Pharmaceutical Federation (FIP), 2025). In this context, community pharmacies occupy a unique position to support self-care, despite lacking formal recognition in self-care policies and strategies across many countries (Amador-Fernandez et al., 2024; Westerlund & Soderlund, 2023). Self-care is "the ability of individuals, families and communities to promote health, prevent disease, and maintain health and to cope with illness and disability with or without the support of a health-care provider" (WHO Regional Office for South-East Asia, 2009). A common form of self-care is self-medication, with community pharmacies able to facilitate the selection of non-prescription medicines (Collins et al., 2018; Rutter, 2015; WHO Regional Office for South-East Asia, 2009). In recent years, pharmacy practice research in the community pharmacies' role has evolved, shifting the scope from self-medication facilitation (Collins et al., 2018; Rutter, 2015) towards a broader role of self-care facilitation in high-income countries, like the UK, Australia, and New Zealand (Abdul Aziz & Heydon, 2023; Amador-Fernandez et al., 2024; Dineen-Griffin & Benrimoj, 2024; Rutter & Barnes, 2024). It is advocated that self-care facilitation by community pharmacies should go beyond supplying non-prescription medicines (Amador-Fernandez et al., 2024; Rutter & Barnes, 2024). However, research remains primarily focused on the domestic population, rather than being inclusive of international travellers.

Community pharmacy services are available to anyone, including local residents and transient populations such as international travellers. For the latter, community pharmacies are often the

first points of contact with the local healthcare system (Houle, 2017). Community pharmacies are considered a trusted healthcare provider by society (Gregory & Austin, 2021) and are easily accessible due to their proximity (Akers et al., 2024; Houle, 2017; Mumbi et al., 2024; Rutter & Barnes, 2024; Shirdel et al., 2021), especially in urban areas. Free consultations, triage services, and assistance with navigating the local health system also attract travellers to community pharmacies in travel resorts as their first destination for information or help-seeking (Vajta et al., 2015). Up to 87% international travellers reported health issues during or post-travel, suggesting that falling ill is common when travelling (Angelo et al., 2017). Traveller's diarrhoea and gastrointestinal symptoms were the most frequent complaints among travellers, ahead of dermatological, respiratory, and febrile conditions (Angelo et al., 2017; Lovey et al., 2024). Considering their role in public health, community pharmacies are strategically positioned to deliver self-care facilitation for the prevention, treatment, and management of common illnesses among travellers.

For international travellers, being in an unfamiliar environment poses challenges due to their proneness to language, communication, and cultural barriers, which may hinder interactions with the local healthcare system (Liew & Flaherty, 2020; Vajta et al., 2015), including community pharmacies. Moreover, between-country variations in the classification and regulation of medications hinder their availability and accessibility. The risks of fragmented care may be particularly significant for international travellers with chronic diseases (Liew & Flaherty, 2020). However, there is a paucity of literature in this area, with attention primarily focused on the barriers and challenges to healthcare access faced by vulnerable populations, such as immigrants, refugees, and asylum seekers (Asif & Kienzler, 2022; El-Gamal & Hanefeld, 2020; Tomkow et al., 2020).

Community pharmacies, as part of the health system, could contribute to the development of tourism by supporting the self-care needs of international travellers. Indonesian community pharmacies are also in the process of development as healthcare providers, supported by practice research, regulations, and professional organisations (Hermansyah et al., 2020; Meilianti et al., 2025). To determine what community pharmacies can do to improve their service provision in the area of travel and tourism, a needs assessment can be performed. Identifying practice gaps through a needs assessment can help orient the pharmacy service in the tourism sector, as well as enhance international travellers' experience and safety in Indonesia. The aim of this study was to assess the readiness requirements of Indonesian community pharmacies to facilitate self-care for international travellers.

6.2 Methods

6.2.1. Ethics approval

The University of Sydney's Human Research Ethics Committee (HREC), Australia (2022/HE000938) and The Ethical Committee of Medical Research, Faculty of Dentistry, Universitas Jember, Indonesia (No. 1959/UN25.8/KEPK/DL/2023) approved the study protocol. A subsequent amendment was submitted to The University of Sydney's HREC to incorporate additional data collection instruments, specifically the revised interview guide and persona/vignette materials. This amendment was approved on 24 January 2025.

6.2.2. Study design

This study employed a qualitative needs assessment using a gap analysis (Christensen, 2018; Watkins & Kavale, 2014; Watkins et al., 2012). Following Kaufman's definition of needs, which is the gaps between the current results ('*what is*') and the desired results ('*what should be*'), Watkins et al. (2012) outlined three steps of a needs assessment: pre-assessment, assessment, and post-assessment. The gap analysis allows the use of qualitative techniques

(Watkins, 2012). In this study, the gaps were referred to as 'readiness requirements', defined as identified gaps that result from comparing the desired and current performance of Indonesian community pharmacies when facilitating self-care for international travellers. This study was part of a larger investigation assessing the needs for self-care among international travellers to Indonesia and the readiness requirements of Indonesian community pharmacies to facilitate self-care. There are three scopes of needs assessment: strategic, tactical and operational (Watkins et al., 2012). The strategic needs assessment focuses on the needs of beneficiaries of organisational services (Watkins et al., 2012). The tactical needs assessment emphasises the service performance delivered by the organisation to the community, while the operational needs assessment focuses on the results achieved by the individual or team members for the organisation (Watkins et al., 2012). In this study, the exploration was on operational and tactical needs, with a stronger emphasis on the latter.

6.2.3. Data collection

Data were collected through two waves of individual online interviews to explore operational and tactical needs. The first data collection (May-June 2023) was referred to as 'Initial Interviews' to explore the operational needs, while the second (March-June 2025) as 'Readiness Interviews' to explore the tactical needs. Online interviews were selected because they allowed for recruiting participants from a wide range of geographical areas in Indonesia, provided flexible scheduling, and reduced costs (e.g. travel and accommodation). A purposive sampling method for maximum variation was used to recruit participants. Participants' sociodemographic data, including professional roles, gender, and origins, were recorded. Information power was used to determine the sufficiency of the sample (Malterud et al., 2021). By dividing the interviews into two waves, the topics were narrowed. The quality of dialogue was strong, as there were no language barriers. The sample was specific to professional roles related to either pharmacy services or tourism. These considerations allowed for a small sample

size. Non-participation occurred when a participant did not attend the scheduled interview or did not respond after being contacted twice.

6.2.3.1. Initial Interviews for exploring operational needs

Participants of the Initial Interviews were Indonesian community pharmacy staff (pharmacists and non-pharmacist staff) from Bali, which is Indonesia's established tourist destination, and Borobudur, which is a developing destination (Ollivaud & Haxton, 2019). Researcher ANWP approached community pharmacy staff using several strategies. First, a digital invitation flyer was disseminated through the local pharmacists' social media groups. Second, printed invitation flyers were distributed to community pharmacies around Magelang's major tourist attraction, the Borobudur Temple. Third, a passive snowballing was employed. The interview guide for the Initial Interviews consisted of fourteen questions (Appendix A).

6.2.3.2. Readiness Interviews for exploring tactical needs

Participants in the Readiness Interviews included community pharmacists from outside Bali and Borobudur, as well as stakeholders such as pharmacy academics, board members of pharmacy professional organisations, travel health practitioners, policymakers, and tourism operators. Participants were selected from the research team's personal contacts. An invitation was sent *via* email and/or personal message using a *pro forma* script. The interview guide for the Readiness Interviews consisted of nine questions (Appendix B), accompanied by six clinical vignettes (Table 6.1) derived from three archetypes of travellers from a previous Q-methodology study (Chapter 5). In the Q-study conducted in August 2024, international travellers were approached in four tourist destinations: Bali, Labuan Bajo, Toraja, and Yogyakarta. They were asked to rank self-care-related statements according to their priorities. The Q-study revealed three traveller viewpoints: "Unfacilitated Self-Care", "Point-of-Origin Facilitated Self-Care", and "Destination-Facilitated Self-Care", referred to as archetypes. The "Unfacilitated Self-Care" archetype is self-reliant, prioritises self-care activities, and does not

consider price as an impediment to accessing care. The Point-of-Origin Facilitated Self-Care traveller archetype prioritises detailed pre-travel preparations, with the home country's health professionals the first point of contact when falling ill. The Destination-Facilitated Self-Care traveller archetype relies on self-care facilitation by health professionals in the destination country, prioritising empathetic and undistorted communication, as well as value-for-money products and services. Two personas (artificial characters with hypothetical archetypes of actual people (Cooper, 2004)) were developed for each archetype (Table 6.1). Selected health problems representing self-manageable illnesses relevant to travel health found in the literature (traveller's diarrhoea, chlamydia, ear pain after diving, acute gout, fever, malaria chemoprophylaxis), travel destinations representing the research locations in Q-Study (Bali, Labuan Bajo, Toraja Utara, Borobudur, and Yogyakarta), countries of origin representing the most frequent inbound travellers to Indonesia and participants in Q-Study (Malaysia, China, India, Australia, Italy, and Switzerland), age group, and gender were taken into consideration when developing the vignettes. All guides were first developed in English and then translated into Bahasa Indonesia by a professional translator, with double-checking by Researcher BM.

6.2.3.3. Interview

A participant information statement was sent to the participants prior to the interview, and oral consent was obtained upon the commencement of the meeting. Note-taking was also conducted during audio-recorded interviews with the participants. Participants were informed of a minimum duration of 40 minutes. Participants were eligible for an electronic voucher of IDR 100,000 upon completing the interview.

Table 6.1 Summary of personas used in the Readiness Interviews

Characteristics	**Persona**					
	1	**2**	**3**	**4**	**5**	**6**
Archetype	Unfacilitated self-care	Unfacilitated self-care	Point-of-origin facilitated self-care	Point-of-origin facilitated self-care	Destination-facilitated self-care	Destination-facilitated self-care
Demographic information						
Age	61 yo	30 yo	26 yo	45 yo	35 yo	42 yo
Gender	Female	Male	Male	Female	Female	Male
Occupation	Retiree	Travel vlogger	University student	Social worker	Photographer	Businessman
Initial	Sally	Mahendra	Liam	Fatima	Valerie	Ming
Health background						
Past medical history	controlled hypertension and dyslipidemia	Chlamydia. Occurred about a year ago in his home country. Cured with antibiotics. He can recall the antibiotic was azithromycin.	Mild persistent asthma (controlled)	Gout/Hyperuricaemia	No known chronic conditions	No known chronic conditions

Characteristics	**Persona**					
	1	**2**	**3**	**4**	**5**	**6**
Medication use	rosuvastatin 20 mg daily, losartan 100 mg daily	Occasionally use painkillers, common cold medications, or other OTC medications. He brings amoxicillin and levofloxacin during this trip.	Salbutamol (Ventolin), budesonide (Pulmicort Flexhaler)	allopurinol 300 mg daily, celecoxib 200 mg BD if necessary, colchicine 0.6 mg if having flares (finished). She brings a doctor's prescription	Occasional use of painkillers for minor aches, contraceptive pills	Occasional use of painkillers and other OTC products
Presenting complaints						
Symptoms	diarrhea, abdominal pain/cramps, nausea, weakness	burning sensation when urinating, milky discharge from the penis, pain, and swollen testicles. He recalls that these symptoms are similar to his chlamydia history.	ear pain, redness of the ear	Gout flares	undiagnosed fever, headache, chills	Want to find antimalarial prevention before travelling to eastern Indonesia with his family of 3

Characteristics	**Persona**					
	1	**2**	**3**	**4**	**5**	**6**
Onset	two days	2 days	two days	one day	one day	none
Known activity(ies) before the symptoms appear	attending a beach wedding party with grilled fish and other local foods involved	had unprotected sex with the sex worker 5 days ago	snorkeling	uncontrolled diet and stress due to being stranded	staying in Borobudur Temple area for 3 days, trekking	staying in Yogyakarta
Contextual factors						
Travel history to Indonesia	multiple times	first visit	first visit, had stayed in Bali for two weeks before coming to Labuan Bajo	several times, now being stranded for a week because of volcano-related flight cancelation	the third visit to Indonesia	first visit to Indonesia
Language proficiency	basic understanding of Bahasa Indonesia; fluent in English	basic understanding of Bahasa Indonesia; fluent in English	no basic understanding of Bahasa Indonesia but is fluent in English	fluent in Melayu, understand English	basic understanding of Bahasa Indonesia; fluent in English	Doesn't understand Bahasa Indonesia and English
Patient concerns	ensuring at what stage she needs to go to a doctor/hospital	ensuring his standby antibiotics can be used to treat his conditions or he can buy antibiotics for his problem	Consulted a doctor back home who recommended OTC ear drops containing isopropyl alcohol and	Consulted a doctor friend back home who recommended colchicine 1.2 mg immediately, followed by 0.6 mg six hours later and then 0.6 mg once or twice daily for two to three days.	ensuring it is not a serious condition and seeking quick relief	Ensuring enough preventions for malaria

Characteristics	Persona					
	1	2	3	4	5	6
		without a prescription	glycerin for self-treatment			
Patient expectations	purchasing azithromycin without a prescription and loperamide	He is reluctant to go to a doctor and expects the pharmacy staff could solve his problem.	accessible over-the-counter medication for symptom relief	her gout flares can be treated properly	accessible over-the-counter medication for symptom relief	if there are OTC medications available, otherwise he plans to go to a doctor for a consultation
Travel companion	solo	solo	traveling with friends	traveling with friends	travelling with family	travelling with family
Country of origin	Australia	India	Italy	Malaysia	Switzerland	China
Current destination	Bali	Bali	Labuan Bajo	Toraja	Yogyakarta	Yogyakarta

6.2.4. Data analysis

6.2.4.1. Needs assessment

The audio recordings were transcribed verbatim by ANWP. Participants from the Initial Interviews were coded as 'G1', and from the Readiness Interviews as 'G4'. Participants were coded according to their primary professional role; PH (community pharmacist), PT (community pharmacy technician), HP (hospital pharmacist), PO (board member of professional organisation), AC (academic), TC (travel health clinician), PM (policymaker), and TO (tourism operator). Researchers ANWP and BM independently coded three transcripts before discussing the code clustering, which was used for further analysis of the remaining transcripts. Both waves of interviews were triangulated for synthesis in the gap analysis. The coding clusters were used to generate themes and classify a dyad's "what should be" and "what is", which informed the synthesis of gaps, equating to the readiness requirements. A "what should be" item was an ideal condition that enables community pharmacies to provide an optimum self-care facilitation to address travellers' health needs. A "what is" item was the current practices, opportunities, and challenges in Indonesian community pharmacy settings. Triangulation treated both waves as equally valuable and complementary, as the Initial Interviews captured operational needs, and the Readiness Interviews captured tactical needs. Integration occurred theme-by-theme, and the final readiness requirements represent a synthesis that accounts for both practice-level delivery conditions and system-level service expectations. Researcher ANWP conducted the gap analysis, with close consultations with Researchers BM and CS. The final version of the triad, comprising "what should be", "what is", and "gap", was tabulated along with direct quote examples and participant IDs. Data analyses were conducted using NVivo version R1 (QSR International, lumivero.com, Melbourne, Australia) and Microsoft 365 Excel version 2511 (Microsoft Corporation, microsoft.com, Washington, United States).

6.2.4.2. Mapping the gaps

Two gap mappings were conducted to characterise the archetypes and to understand the relative position of each gap in the self-care concept. First, the gaps were mapped to archetypes based on relative relevance, with +, ++, and +++ denoting weak, medium, and strong relevance, respectively. Second, the gaps were mapped to the Self-Care Matrix (SCM) (El-Osta et al., 2019), which was selected for its comprehensive explanation of the self-care concept. The SCM is a unifying framework consisting of four cardinal dimensions of self-care: Activities (person-centred activities, capacities, and capabilities; self-care at micro level), Behaviour (actions and programs supporting an individual or a group towards positive health behaviours and lifestyle; at meso level), Context (patient-centred, reliance on and utilisation of health system resources; at meso level), and Environment (fiscal and policy environment, prevailing culture and attitudes; at macro level) (El-Osta et al., 2019). The second mapping was based on the relative position of the gap in the self-care dimensions. Researcher ANWP conducted the mappings, with close consultations with Researchers BM, CS, and RM through a series of regular meetings. Because qualitative mapping involves analytical judgement, minor disagreements arose and were resolved through consensus. The final version of the maps was visualised and tabulated.

6.2.5. Research team and reflexivity

The research team consisted of academics and health professionals from pharmacy, medicine, nursing, and public health. One researcher is female. One researcher was a PhD student at the time the study was conducted. All members were experienced in conducting qualitative and/or mixed-methods studies, with a collective experience of 72 years. Most team members travelled well globally. One and four participants were known to the Researcher ANWP prior to the commencement of the Initial and Readiness Interviews, respectively.

6.2.6. Reporting standard

The study followed the Consolidated Criteria for Reporting Qualitative Research (COREQ) reporting standard (Tong et al., 2012).

6.3 Results

6.3.1. Study participants

Twenty-six individuals agreed to participate in this study, with twelve (7 females, 58%) participating in Initial Interviews and fourteen (7 females, 50%) in Readiness Interviews (Table 6.2). Most participants were from Bali (n = 10, 38%), Magelang (n=5, 19%), and Yogyakarta (n=4, 15%). Nine participants had more than one professional role (Figure 6.1). One participant was a retired hospital pharmacist and tourism operator; however, their perspectives and experiences remained relevant, as the tourism landscape in their location had remained unchanged. Four non-participations occurred, with two in Initial Interviews due to a sudden new commitment and two in Readiness Interviews due to sudden sickness and absence of response.

Table 6.2 Participants' characteristics

Characteristic	**Initial Interviews, n (%)**	**Readiness Interviews, n (%)**	**Total, n (%)**
Sex			
Females	7 (58)	7 (50)	14 (54)
Males	5 (42)	7 (50)	12 (46)
Origin			
Bali	7 (58)	3 (21)	10 (38)
Jakarta		1 (7)	1 (4)
Kotabaru		1 (7)	1 (4)
Labuan Bajo		2 (14)	2 (8)
Magelang	5 (42)		5 (19)
Surabaya		1 (7)	1 (4)
Tana Toraja		1 (7)	1 (4)
Toraja Utara		1 (7)	1 (4)
Yogyakarta		4 (29)	4 (15)
Primary professional role			
Academic		2 (14)	2 (8)

Characteristic	Initial Interviews, n (%)	Readiness Interviews, n (%)	Total, n (%)
Community pharmacist	7 (58)	3 (21)	10 (38)
Community pharmacy technician	5 (42)		5 (19)
Policy maker		1 (7)	1 (4)
Professional organisation board member		2 (14)	2 (8)
Tourism operator		4 (29)	4 (15)
Travel health clinician		2 (14)	2 (8)

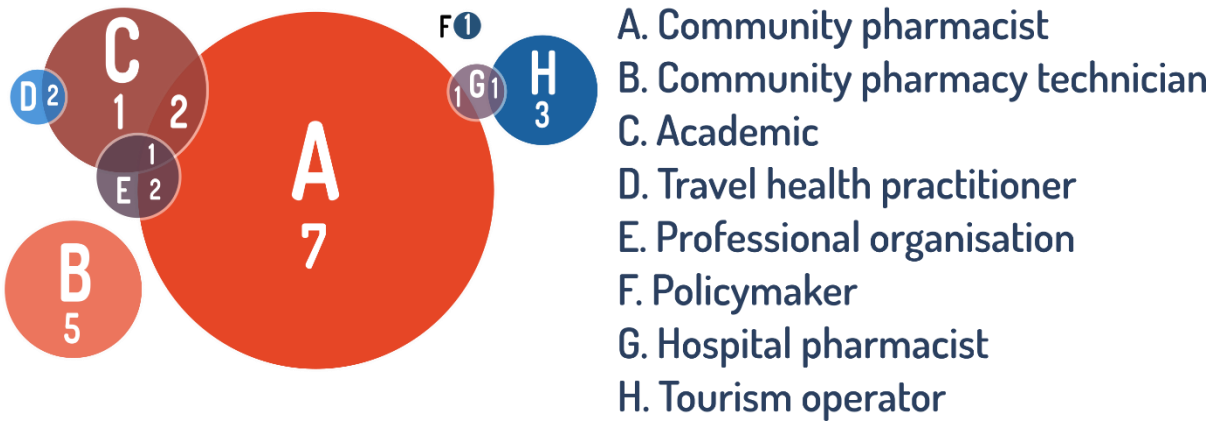


Figure 6.1 A Venn diagram of the intersecting participants' professional roles

Twenty-two gaps across 12 generated themes (Appendix P) were identified and have been provided below. Each theme is presented in the format of "what should be," "what is," and the identified "gap".

6.3.2. Theme 1: Pharmacy-based travel health service

Without being prompted, two pharmacist participants with knowledge of travel medicine linked self-care facilitation with the field of travel medicine. Participants expected community pharmacies with travel health services to be distinguishable from those with regular services. The distinction was perceived as beneficial for inbound international travellers as they could understand where to go for dedicated support. Moreover, the distinction may support referral communication between the community pharmacies in Indonesia and abroad.

"[For] general pharmacies, I think they need a lot of preparation, as well as communication with referral places. Hopefully, [community pharmacies committed to travel medicine service] can work together with those abroad […]. If [the travellers] come to this place in Indonesia, you can get in touch with the pharmacy here." (G4-04-AC)

However, besides travel-specific medicines supply, travel health pharmacy services were barely known in Indonesia. In fact, one academic participant mentioned the subject as "pharmacy tourism" (G4-02-AC).

"[As a board member] of the professional organisation, I agree [...] there should be this 'pharmacy tourism' program. [However], I don't know the big picture [yet]." (G4-02-AC)

Therefore, the identified gap was a lack of recognition of for travel health pharmacy services in the country.

6.3.3. Theme 2: Pharmacist recognisability

Ideally, international travellers should be able to distinguish pharmacists from other staff members. The largest pharmacist organisation in Indonesia, the Indonesian Pharmacist Association (IAI), has established a standard for a pharmacist's uniform and recommended that its members install a pharmacist's plate, featuring the pharmacist's name, registration number, and practice hours. Recognition can lead to "increasing customer trust" (G4-05-PO) and "branding of the role of pharmacists" (G4-12-PH).

"IAI [Indonesian Pharmacist Association] itself also requires [their members] to wear a uniform or pharmacist's suit when practising to distinguish and increase customer trust." (G4-05-PO)

However, it was reported that international travellers misidentify community pharmacists as another staff member due to a lack of a uniform or badge. Other travellers misidentified the pharmacist as a doctor.

"Usually, [travellers] think it's a doctor's plate. If the traveller does not bring a tour guide, or [a local family member], [they will] see the plate as a doctor's plate." (G4-12-PH)

Inconsistent identifying features of community pharmacists was identified as a gap.

6.3.4. Theme 3: Pharmacist accessibility

Participants were aware that accessibility to a community pharmacist can lead to successful treatment.

"Of course, when the pharmacist always stands by, they will certainly support the success of the therapy." (G4-12-PH)

However, accessibility was interpreted differently in real-world practice. Participants stated that some pharmacists were present in the pharmacy during their practice hours, but not during the entire business hours. Meanwhile, other pharmacists were accessible only through a contact number. "Holding two jobs" (G4-10-PH), which was associated with "low wage" in the retail sector (G4-13-TO), was a reason for inaccessibility. However, participants also felt proud that pharmacists in their area adhered to a slogan of "no pharmacist, no service" (G4-12-PH), implying high availability and hence accessibility.

"Frankly, in Indonesia, we are still struggling. There are still many pharmacies where pharmacists are only available at certain hours, not continuously during opening hours. So, there are some [community pharmacists] that [stand by], but there are still many that have not." (G4-03-PO)

Inconsistent accessibility to pharmacists during pharmacy business hours between regions was identified as a gap.

6.3.5. Theme 4: Community pharmacy facilities, layout, and display

Participants noted the need for community pharmacies in tourist destinations to enhance their displays and facilities, including a waiting room and a private consultation space. Participants envisioned that community pharmacies should be navigable, with bilingual signage suggested.

"[This pharmacy] will definitely have signage in two languages. […] There may be signs indicating the locations for placing prescriptions, dispensing medicines, and providing drug information services, available in two languages." (G1-03-PH)

The current practice, however, was not aligned with those expectations due to variability. Bilingual signage was rarely spotted. The waiting room was barely available. The display system was not "eye-catching" (G4-05-PO). Consultations were sometimes conducted in non-private areas.

"There is a [consultation place]. But indeed it is not very private. Near the counter, near the cashier." (G4-10-PH)

Four gaps were identified: unclear signage, a lack of a private and dedicated consultation space, an inadequate waiting area, and a lack of awareness about the importance of product display.

6.3.6. Theme 5: Suboptimal services

Participants expected that service provisions should be comprehensive, beyond just medication supply, with an emphasis on a solution-oriented service. In doing so, finding and recommending substitutes for medications should be an integral part of the service, especially for those only available in the traveller's home country. Community pharmacy staff participants focused more on substitution topics, reflecting the operational needs. In addition, community pharmacists should be able to communicate with health professionals from travellers' countries of origin to accommodate their opinions when deciding on suitable substitutes, if it was desired by the travellers.

"If he got a recommendation from his doctor, we can help him take a photo of the medicine first. If indeed what we say to him is insufficient, because he is a very careful person, he can consult with his doctor [abroad], while we wait […]. If allowed, [we could] communicate with the doctor through his cell phone[…], like chatting." (G4-12-PH)

However, external stakeholders doubted that community pharmacies are providing services beyond medication supply, such as education and counselling. Clinical interactions between travellers and staff were perceived as limited, with some only showing "a calculator to communicate the price" (G1-01-PT). Participants stated that travellers relied more on product-based requests rather than symptom-based requested. Approaches to finding substitutes varied among staff members.

"The role of pharmacies is primarily still focused on providing medicines; as such, it has not yet extended to educating tourists. So it only provides the medicine that tourists want." (G4-13-TO)

"Most [travellers] who come to my pharmacy already know what medicine they want to buy." (G4-10-PH)

Three gaps were identified: a reduced number of available services for international travellers, a perceived lack of competence in handling symptom-based requests, and a lack of effective strategies for finding substitute medicines.

6.3.7. Theme 6: Trust in products provided by community pharmacies

Undeniably, community pharmacies must ensure all pharmaceutical products stocked and dispensed are safe and of quality for their customers.

"[Pharmacies must] ensure that the drugs given are safe, appropriate and not expired." (G4-09-TC)

However, participants reported that international travellers may doubt the quality of products sold in Indonesian pharmacies due to concerns about counterfeit medication in Southeast Asian countries. Consistently, international travellers were perceived to trust international brands more than Indonesian brands.

"How trusted are our medicines for travellers? There are some travellers I talked to, who suspect that many drugs, especially in Southeast Asia, not only in Indonesia, are counterfeit, fake." (G4-07-TC)

The gap identified was a lack of trust in domestic (Indonesian) pharmaceutical products among international travellers.

6.3.8. Theme 7: Prescription dispensing

Regarding the dispensing of prescription medicines, community pharmacies are required to comply with the relevant regulations. On the other hand, international travellers are expected to bring a prescription when requesting prescription medications. Travellers can bring in doctors' prescriptions from their home countries.

"By regulation, […] for personal use, a reasonable [amount of medicines] is allowed at the time of entering the airport. [...] It can be brought by the patient by bringing written evidence [, such as] a prescription. […] If their [medicines] are unavailable in Indonesia, they can bring a prescription […] [as] evidence of health problems [that require] the medicines." (G4-11-PM)

However, participants reported that compliance with regulations on the dispensing of prescription medicines varied between pharmacies and between regions. They further report that international travellers perceived that medicines that are subject to misuse and abuse, such as psychotropics, are able to be obtained without a prescription in Indonesia.

"[Travellers] are quite often asking for drugs, such as tramadol or alprazolam. Sometimes, they might think it is possible to buy [them] without a prescription or maybe in other cities, there are pharmacies that dispense them [without a prescription]." (G1-06-PH)

Two identified gaps were inconsistent compliance with regulations among community pharmacies and inadequate pre-travel preparation among international travellers regarding sufficient medicine supply and standby prescriptions.

6.3.9. Theme 8: Service outreach

International travellers should have facilitated access to services from community pharmacies in travel destinations. Digital access through teleconsultations or e-marketplaces should be utilised to expand service delivery.

"To overcome various problems, teleconsultation and telemedicine could be utilised, maybe. [It could be] with the head office or with a larger pharmacy service, for example, if there are difficulties. It could be one of the options, in my opinion." (G4-07-TC)

However, despite the availability of e-commerce regulations, some pharmacies have yet to avail themselves of this opportunity. Similarly, some community pharmacies also did not utilise currently available pharmacy-linked telemedicine services.

"So, [the patients] consult a doctor, who then issues a prescription. For example, Halodoc [a telemedicine app] is linked to cooperating pharmacies. So, if pharmacies do not cooperate [with the telemedicine provider], they cannot serve." (G4-05-PO)

The identified gap was a lack of utilisation of existing digital technologies to enhance service outreach.

6.3.10. Theme 9: Language and communication

Language and communication became a major theme discussed by participants. Expectations were aimed at both community pharmacy staff and international travellers. Participants expected that pharmacy staff should possess some proficiency in a foreign language. The staff should be confident in communicating in a foreign language and be able to overcome language barriers. Participants also expected travellers to have some proficiency in Bahasa Indonesia and be aware of the benefits of hiring a tour guide, especially when visiting less-established travel destinations, such as those outside Bali. The presence of tour guides was reported to enhance the confidence of pharmacy staff.

"The most important thing is to have a language [proficiency]. [It is] because the last time I was in contact with a pharmacy [...], when my client needed a certain medication, [the pharmacy staff member] was confused to figure out what medication [my client] was looking for. So, at that time, we had to find a larger pharmacy to understand what the tourist was looking for." (G4-08-TO)

"If there is a guide, [we are] more confident because they understand better what the traveller wants to buy. […] So, [we are] more confident when dispensing the medicine." (G1-04-PT)

"It means that [the travellers] don't have to be skilful. They must at least know a bit of Bahasa Indonesia because when they go to Indonesia, [where] very few people know English." (G4-01-PH)

In practice, community pharmacies in travel destinations were reported to often lack a staff member with foreign language proficiency. Community pharmacies were reported to vary in their approach to making foreign language proficiency a job requirement and in supporting their staff with foreign language courses. Confidence in foreign language communication and approaches to overcome the barriers varied between staff members. Moreover, international

travellers often lacked proficiency in Bahasa Indonesia, and many underutilised tour guides, driven by the motorbike rental business and gadget usage, even when visiting less-developed destinations.

"Many tourists now, even in Toraja, rent their own motorbikes and travel on their own so the need for a guide has actually decreased, except if they want to do trekking. Usually, trekking cannot be done without a guide." (G4-13-TO)

Seven gaps were identified. Gaps among the staff included a lack of access to staff with foreign language proficiency, a shortage of managerial support for improving foreign language proficiency, a deficit of confidence in communication, inconsistencies in recruitment standards, and a lack of strategies to overcome language barriers. Gaps among international travellers included a lack of awareness of the need for some proficiency in Bahasa Indonesia and the importance of hiring a tour guide.

6.3.11. Theme 10: Professional development

Participants asserted that staff members should have current knowledge, including on travel medicine. The staff should proactively self-study for continuing professional development (CPD). Pharmacies should have staff with cultural competence and effective communication skills.

"There should be training on travel medicine, so that [pharmacy staff] are more aware, better prepared to provide optimal services. […] Many aspects [in travel medicine] that require attention." (G4-04-AC)

However, participants felt that although CPD was common, it rarely covered the topic of travel medicine, which explains low awareness among community pharmacists. Not all community pharmacies routinely provide product knowledge updates for their staff. Some staff members undertook self-study and learned about cultural differences from their interactions with

travellers. Some participants disagreed that cultural taboos influenced the consultation about sexually transmitted infections. However, prompting was needed to start the discussion during the interviews, despite the presence of a clinical vignette of a persona with symptoms suggestive of chlamydia. Communication skills and confidence were lacking among some staff members, which may lead to a dismissal of requests by travellers.

"[Professional development activities] are proliferating, like workshops and online seminars. It revolves only around antihypertensives, antidiabetics, and tuberculosis. No one is interested in discussing travel medicine." (G4-13-TO)

Three gaps identified were deficiencies in currency of knowledge, a lack of cultural competence, and a lack of communication skills among pharmacy staff.

6.3.12. Theme 11: Health promotion programs

Participants expressed that travellers should have access to health promotion programs relevant to the country, such as common health problems, to make them "feel comfortable in this tropical environment" (G4-04-AC). Revealed topics included information on local cuisine and its ingredients to prevent allergic reactions, rabies risks associated with stray animals, and the variety of service provision by health facilities. The risk of encountering counterfeit medicines on online platforms was also proposed for a health promotion topic. Health promotion should be delivered effectively through strategic channels, including "social media" (G4-12-AC) and tourism operators, as they are often in direct contact with travellers. Multi-sectoral collaboration between government agencies should be built to support effective delivery.

"If [travellers] ask what they need to prepare, I [inform them] to bring their own medical kit. Bring your own equipments, such as clothes, glasses, hats, sun cream and lotion to prevent sunburn. […] Wear shoes. Bring slippers to change at the accommodation." (G4-14-TO)

However, participants acknowledged that health promotion programs targeting international travellers were lacking, with some citing that existing programs only catered to domestic needs. Existing programs, such as the pharmacist-led "DAGUSIBU" program (G4-05-PO), which delivers good practices for obtaining, using, storing, and disposing of medicines, were potentially extended to reach international travellers. Regarding health promotion delivery, existing tourist information centres were often underutilised, and activities were limited to tourism events, lacking the incorporation of health promotional information.

"The [Indonesian] pharmacists have not finished yet with their welfare, with their interests. So, I think they have no idea [about any programs for international travellers]." (G4-02-AC)

Four gaps were identified: a lack of health promotion programs tailored to international travellers, a paucity of recognition of tourism operators' strategic roles in delivering health promotion, a scarcity of digital media utilisation for integrated tourism and health promotion, and a lack of collaboration among government agencies.

6.3.13. Theme 12: Medication accessibility and availability

Participants acknowledged community pharmacies as "the first choice" (G4-02-AC) and "one of the important health resources" (G4-09-PO) for international travellers. Consistently, travellers should have access to the medication they need. This access should be supported by the availability of medicines via community pharmacies, which involves planning inventory based on consumption patterns and epidemiological data. A well-organised supply chain was considered essential, especially in reaching the archipelagic destinations away from major cities, which are increasingly popular.

"The distribution chain must be [equal between regions], especially in the archipelagic [area]. International tourists are more likely to go to areas like this, which are remote, far from the

city. Our hopes are very high there. So, [if] the distribution is good, the inventory planning is convenient." (G4-01-PH)

However, despite accessibility to most products being perceived as sufficient among some participants, others acknowledged that obtaining prophylactic medications, such as antimalarials, for travel from non-endemic to endemic areas remained challenging. While pharmacies in endemic areas commonly stocked the medicines, their counterparts in non-endemic areas did not. Access was limited at the "*Puskesmas*" (G4-12-PH) – Community Health Centre, with a curative rather than a preventive orientation. A participant reported travellers' difficulty in accessing products not yet registered for the Indonesian market, such as atovaquone-proguanil antimalarial (Malarone®), and auto-injectable adrenaline (epinephrine) drug "EpiPen®" (G4-07-TC). While the Indonesian government has a "Special Access Scheme" (G4-11-PM) for accessing unregistered products, the scheme is only eligible for doctors in vertical hospitals (government-funded hospitals under direct management of the Ministry of Health). This scheme was unpopular among health professionals, and the number of vertical hospitals is limited, often located far from tourist destinations. Moreover, epidemiological data relevant to travel health were underused among community pharmacies, as they relied more on consumption patterns. Regarding the supply system, some participants asserted that it was sufficient, with one citing effective vaccine distribution during the COVID-19 pandemic as evidence. Meanwhile, other participants felt that the supply chain was inadequate to support community pharmacies in archipelagic areas, particularly those located away from major cities.

"The [anti]malaria drugs in [Yogyakarta], at my own [pharmacy], are unavailable because malaria [medicine] is usually obtained from the Puskesmas [Community Health Centre]." (G4-12-PH)

Four gaps identified were a lack of a consistent pathway to access prophylaxis medications, a lack of familiarity with the Special Access Scheme, insufficient access to epidemiological data for inventory planning, and an unequal supply chain system that supports archipelagic areas away from major cities.

6.3.14. Gap mapping to archetypes and the Self-Care Matrix

The identified gaps were associated with each archetype in varying degrees of relevance (Figure 6.2, Appendix Q). Several gaps had consistent weak relevance to all archetypes (e.g. support to improve language proficiency and supply chain management), while others had a consistent strong relevance (e.g. Bahasa Indonesia proficiency and tour guide utilisation). Most gaps were strongly relevant to Destination-Facilitated Self-Care travellers because of their preference to rely on destination health services. For example, a strong relevance was observed between this archetype and gaps in travel health recognition, pharmacist attributes, and pharmacist accessibility. Measures dedicated to closing these gaps will likely impact these travellers. Point-of-Origin Facilitated Self-Care travellers had a stronger relevance to gaps in symptom-based request handling and digital technology utilisation than other archetypes. The reasoning was that this archetype was more reliant on their country of origin and had lower expectations of the destination's health services. Only a few gaps had a strong relevance to Unfacilitated Self-Care travellers, which primarily focused on health promotion.

Eighteen gaps were associated with the SCM's Self-Care Context dimension, indicating that most gaps lie within the internal community pharmacy sector and the pharmacy profession. Seven gaps were associated with the Self-Care Environment, indicating that efforts to address these gaps require support from both the government and the private sector. For example, the gap in equal supply chain management cannot be addressed solely by the government, but also by private businesses.

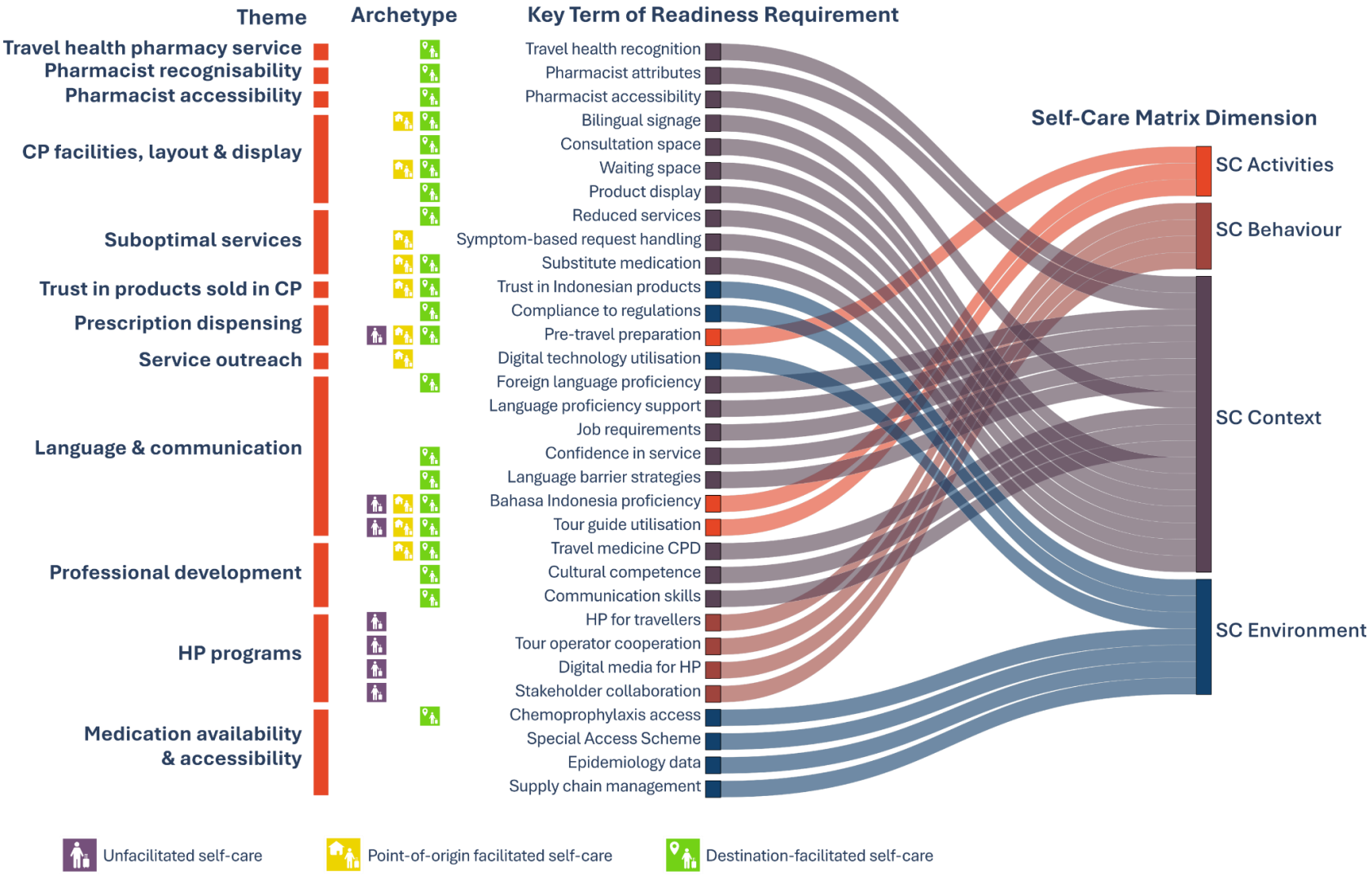


Figure 6.2 Readiness requirements mapped to travellers' archetypes and El-Osta's Self-Care Matrix

6.4 Discussion

The aim of this study assess the readiness requirements for Indonesian community pharmacies to facilitate self-care for international travellers. The thirty-two gaps identified in this study provide an overview of factors that require attention to develop the readiness of the sector. The results of gap mapping to traveller archetypes indicate that the pharmacy sector has differing degrees of readiness according to traveller needs, while the mapping to the Self-Care Matrix shows that the contextual dimension requires the most attention.

Self-care facilitation for international travellers was perceived to be associated with travel medicine or travel health pharmacy services. Bhuvan et al. (2023) listed the services, including vaccinations; pre-travel risk assessment; travel-related medications; prevention and precautions of malaria, traveller's diarrhoea, altitude sickness, sunburn, sexually transmitted diseases, and other vector- and food-borne diseases; education on access to medical advice abroad. These travel health pharmacy services constitute a form of self-care facilitation because they entail similar activities, such as health promotion, disease prevention, maintenance, and treatment (WHO Regional Office for South-East Asia, 2009). Current travel health pharmacy services, however, primarily target outbound international travellers as part of the pre-travel planning process (Hurley-Kim et al., 2018). Findings from this study demonstrate that pharmacy-based travel health services are also necessary for inbound international travellers, in line with a study from Malaysia (Bhuvan et al., 2020).

Distinguishing community pharmacies that offer travel health services from those that do not benefits travellers in a way they would know where should go and receive effective self-care facilitation. In the paucity of data, a US-based study reveals that pharmacists with appropriate travel health training and credentials provided more consistent clinical recommendations and improved patient compliance compared to primary care providers without travel health training (Durham et al., 2011). These benefits would be of particular importance for Destination-

Facilitated Self-Care travellers, as they are more reliant on the destination's health professionals. Point-of-Origin Facilitated Self-Care travellers would also benefit if channels for international communication between service providers are developed.

The gaps identified in this study suggest that a substantial amount of work needs to be addressed to support self-care facilitation. Persistent practice challenges, such as pharmacist accessibility and recognisability, pharmacy facilities, professional development, and the dispensing of prescription medicines, have been intensively discussed in previous research (Hermansyah et al., 2020; Meilianti et al., 2025; Mizranita et al., 2024). However, other gaps found in this study are worth exploring, such as trust in local (Indonesian) pharmaceutical products, telepharmacy and e-commerce, supply chain management with equal outreach, substitution, language proficiency, communication and cultural competence, pharmacy layout and navigability, and health promotion programs.

Some gaps were interconnected. For example, trust in Indonesian pharmaceutical products among international travellers is eroded due to weak control on the circulation of counterfeit and substandard medications (Khwaileh & Kazić, 2025; Pisani et al., 2019). This has resulted in incidents such as counterfeit vaccines in 2016 (Arief, 2018) and syrup contamination in 2022-2023 (Fikri & Firmansyah, 2023). Community pharmacists verify counterfeit products using physical appearance, cost, supplier reputation, and packaging (Kristina et al., 2023); however, the reliability and consistency of these verification processes remain unknown. Online platforms are suspected as the primary medium for transactions of counterfeit products (Kristina et al., 2023), implying that products sold at physical pharmacies are more trustworthy. Since 2018, the Indonesian Ministry of Health has regulated the registration of online platforms for selling pharmaceutical products and providing telepharmacy services, with the list of registered platforms at psef.kemkes.go.id (Indonesian Ministry of Health, 2018, 2024). Community pharmacies can register individually or cooperate with registered platforms, and

almost all pharmaceutical products, except for narcotics, psychotropics, non-insulin injections, and contraceptive implants, are sellable (Indonesian Ministry of Health, 2024). In other words, the government has facilitated a safer environment; however, some pharmacies have not taken advantage of this opportunity, as this study revealed. Moreover, information on these legal online platforms can be incorporated into health promotion programs targeting international travellers, for example, by expanding the content of the existing DAGUSIBU program (Kristina et al., 2019). Unfacilitated Self-Care travellers can benefit from such programs. Given that tourism operators (e.g., accommodation providers and tour organisers) are closer to travellers than healthcare providers, health promotion programs should involve them for more effective delivery (Bellis, 2002; Wirawan et al., 2020); however, research in this area remains limited.

There are implications for international travellers and health professionals from the country of origin. Given that many gaps need to be addressed in Indonesia, international travellers should undertake pre-travel preparation, with pre-travel consultations 4-6 weeks before departure strongly recommended when accessible, as this consultation also covers vaccination (Abdul Kadir et al., 2023; Kain et al., 2019; Mills et al., 2021). An extra supply of standby medicines should be prepared, especially for malaria chemoprophylaxis, medications with device combinations, and other products that are likely to be unavailable in Indonesia. Medication reconciliation is critical for travellers on long-term therapy, e.g., chronic conditions, who seek care while abroad, because destination clinicians often lack access to an accurate, current medication list and related clinical information (Sorensen, 2022). However, empirical studies that explicitly explore this practice in travel health and travel health pharmacy remain limited, despite travel medicine literature signalling the patient safety risks created by incomplete cross-border health information (Liew & Flaherty, 2020; Sorensen, 2022). International travellers should exercise caution when purchasing medicines online, except from legal and reputable

platforms, and a direct visit to a community pharmacy is preferable. As revealed in this study, clinical interactions are limited by language, communication, and cultural barriers. However, these barriers are increasingly being overcome via digital means, such as Google Translate and generative Artificial Intelligence. International travellers should have strategies to overcome communication and language barriers, with basic skills in Bahasa Indonesia recommended, and be open to medicine substitute recommendations. Cultural and social taboos, such as topics on sexual health (Susanto et al., 2016; Titisari et al., 2024), can limit the conversations and potential services, such as consultations about morning-after pills and self-test kits for sexually transmitted infections (e.g. HIV, chlamydia). Educational support for cultural awareness and competence remains a relatively new area of focus in pharmacy practice research (Alzayer et al., 2021; Filmer et al., 2023; Mohammad et al., 2021; Suzuki et al., 2025), demanding more studies. Unfacilitated Self-Care travellers should consider the benefits of hiring local guides when visiting less developed tourist destinations. Travel health professionals from the country of origin can also include a discussion on medicine substitution in the pre-travel consultation. They should also be prepared to help travellers in the destinations when they inquire about a suitable substitute medication, especially for Point-of-Origin Facilitated Self-Care travellers.

6.4.1. Limitations

Participants' years of practice experience were not considered as an inclusion criterion, which may affect the depth and richness of the information gathered. However, this limitation can be offset by the diverse backgrounds of participants. Recruitment from existing contacts may also limit generalisability, as participants may represent those with a greater interest in engaging with research or a higher level of professional development or patient care with travellers than the general population of pharmacy professionals. Moreover, clinical aspects were rarely revealed by community pharmacist participants without prompting, despite the use of persona and vignette presentations in the readiness interviews. However, it is because each participant

might have a different emphasis in the discussion. For example, one participant emphasised the general situations in the Indonesian community pharmacy, while another highlighted language barriers, shortages, and supply chain management. Furthermore, a passive snowball technique was employed to complement purposive sampling, particularly in the Initial Interviews, which may limit the diversity of participants. However, this approach was considered a feasible option because a previous study on research readiness found that Indonesian community pharmacies had less favourable attitudes towards research compared to hospital pharmacists (Halim et al., 2021). Additionally, the Initial Interviews explored operational needs that were deemed less important for this study than those addressed in the Readiness Interviews.

6.5 Conclusion

In conclusion, 32 gaps were identified to support the readiness of the Indonesian community pharmacy for self-care facilitation among international travellers, highlighting a broad range of readiness requirements for the sector. The introduction and recognition of travel health pharmacy services, identified as a form of self-care facilitation, was perceived to be beneficial for travellers. Destination-Facilitated Self-Care travellers were identified as being associated with the most gaps. Readiness requirements were most frequently mapped to Self-Care Context, necessitating practice-level policy support for Indonesian community pharmacies.

6.6 References

Abdul Aziz, Y. H., & Heydon, S. J. (2023). Self-Care in New Zealand: The Role of the Community Pharmacy. *Exploratory Research in Clinical and Social Pharmacy*, *12*, 100374. https://doi.org/10.1016/j.rcsop.2023.100374

Abdul Kadir, N., Wahab, M. S. A., Mohd Suhaimi, A., & Othman, N. (2023). Practices, Barriers and Facilitators to the Delivery of Pretravel Health Services by Community Pharmacists: A Scoping Review Using the Theoretical Domains Framework. *Research in Social and Administrative Pharmacy*, *19*(11), 1412-1423. https://doi.org/10.1016/j.sapharm.2023.08.004

Akers, J. M., Miller, J. C., Seignemartin, B., MacLean, L. G., Mandal, B., & Kogan, C. (2024). Expanding Access to Patient Care in Community Pharmacies for Minor Illnesses in Washington State. *ClinicoEconomics and Outcomes Research*, *16*, 233-246. https://doi.org/10.2147/CEOR.S452743

Alzayer, R., Svedin, E., Rizvi, S. A., Basheti, I., Chaar, B., & Saini, B. (2021). Pharmacists' Experience of Asthma Management in Culturally and Linguistically Diverse (CALD) Patients. *Research in Social and Administrative Pharmacy*, *17*(2), 315-325. https://doi.org/10.1016/j.sapharm.2020.04.009

Amador-Fernandez, N., Desselle, S., Garcia-Cardenas, V., Dineen-Griffin, S., & Benrimoj, S. I. (2024). Community Pharmacy and Selfcare Provision: An International Perspective. *Exploratory Research in Clinical and Social Pharmacy*, *16*, 100466. https://doi.org/10.1016/j.rcsop.2024.100466

Angelo, K. M., Kozarsky, P. E., Ryan, E. T., Chen, L. H., & Sotir, M. J. (2017). What Proportion of International Travellers Acquire a Travel-Related Illness? A Review of the Literature. *Journal of Travel Medicine*, *24*(5). https://doi.org/10.1093/jtm/tax046

Asif, Z., & Kienzler, H. (2022). Structural Barriers to Refugee, Asylum Seeker and Undocumented Migrant Healthcare Access. Perceptions of Doctors of the World Caseworkers in the UK. *SSM - Mental Health*, *2*. https://doi.org/10.1016/j.ssmmh.2022.100088

Bhuvan, K. C., Alrasheedy, A. A., Leggat, P. A., Mohamed Ibrahim, M. I., Christopher, C. M., Sapkota, B., & Shrestha, S. (2023). Types and Outcomes of Pharmacist-Managed Travel Health Services: A Systematic Review. *Travel Medicine and Infectious Disease*, *51*, 102494. https://doi.org/10.1016/j.tmaid.2022.102494

Bhuvan, K. C., Khan, T. M., Xuan, W. Y., Alrasheedy, A. A., Mohamed Ibrahim, M. I., & Leggat, P. A. (2020). Travel Health-Related Activities and Services Provided by Community Pharmacies in Selangor, Malaysia: A Cross-Sectional Analysis. *Travel Medicine and Infectious Disease*, *33*, 101463. https://doi.org/10.1016/j.tmaid.2019.07.019

Christensen, B. D. (2018). From Needs Assessment to Needs Analysis. *Performance Improvement*, *57*(7), 36-44. https://doi.org/10.1002/pfi.21785

Collins, J. C., Schneider, C. R., Wilson, F., de Almeida Neto, A. C., & Moles, R. J. (2018). Community Pharmacy Modifications to Non-Prescription Medication Requests: A Simulated Patient Study. *Research in Social and Administrative Pharmacy*, *14*(5), 427-433. https://doi.org/10.1016/j.sapharm.2017.05.007

Cooper, A. (2004). *Why High-Tech Products Drive Us Crazy and How to Restore the Sanity*. Sams Publishing. https://books.google.com.au/books?id=04cFCVXC_AUC

Dineen-Griffin, S., & Benrimoj, S. I. (2024). The Landscape of Self-Care in Australia: A Pharmacy Perspective. *Exploratory Research in Clinical and Social Pharmacy*, *13*, 100396. https://doi.org/10.1016/j.rcsop.2023.100396

Durham, M. J., Goad, J. A., Neinstein, L. S., & Lou, M. (2011). A Comparison of Pharmacist Travel-Health Specialists' Versus Primary Care Providers' Recommendations for Travel-Related Medications, Vaccinations, and Patient Compliance in a College Health Setting. *Journal of Travel Medicine*, *18*(1), 20-25. https://doi.org/10.1111/j.1708-8305.2010.00470.x

El-Gamal, S., & Hanefeld, J. (2020). Access to Health-Care Policies for Refugees and Asylum-Seekers. *International Journal of Migration, Health and Social Care*, *16*(1), 22-45. https://doi.org/10.1108/ijmhsc-07-2018-0045

El-Osta, A., Webber, D., Gnani, S., Banarsee, R., Mummery, D., Majeed, A., & Smith, P. (2019). The Self-Care Matrix: A Unifying Framework for Self-Care. *SelfCare*, *10*(3), 38-56.

Fikri, E., & Firmansyah, Y. W. (2023). A Case Report of Contamination and Toxicity of Ethylene Glycol and Diethylene Glycol on Drugs in Indonesia. *Environment and Ecology Research 11*(2), 7. https://doi.org/10.13189/eer.2023.110211

Filmer, T. R., Ray, R. A., & Glass, B. D. (2023). How Can We Help You? A Qualitative Study of the Provision of Care to Culturally and Linguistically Diverse Clients in Community Pharmacy. *International Journal of Pharmacy Practice*, *31*(6), 601-607. https://doi.org/10.1093/ijpp/riad064

Gregory, P. A., & Austin, Z. (2021). How Do Patients Develop Trust in Community Pharmacists? *Research in Social and Administrative Pharmacy*, *17*(5), 911-920. https://doi.org/10.1016/j.sapharm.2020.07.023

Halim, S. V., Wibowo, Y. I., Uyanto, R. P., Setiadi, A. P., Setiawan, E., & Sunderland, B. (2021). Assessing Readiness for Research: A Pilot Study of Indonesian Pharmacists. *Journal of Pharmaceutical Health Services Research*, *12*(4), 559-565. https://doi.org/10.1093/jphsr/rmab044

Hermansyah, A., Wulandari, L., Kristina, S. A., & Meilianti, S. (2020). Primary Health Care Policy and Vision for Community Pharmacy and Pharmacists in Indonesia. *Pharmacy Practice*, *18*(3), 2085. https://doi.org/10.18549/PharmPract.2020.3.2085

Houle, S. K. (2017). Pharmacy Travel Health Services: Current Perspectives and Future Prospects. *Integrated Pharmacy Research and Practice*, *7*, 13-20. https://doi.org/10.2147/IPRP.S142982

Hurley-Kim, K., Goad, J., Seed, S., & Hess, K. M. (2018). Pharmacy-Based Travel Health Services in the United States. *Pharmacy (Basel)*, *7*(1). https://doi.org/10.3390/pharmacy7010005

Indonesian Ministry of Health. (2018). *[The Services on Registration of Electronically Integrated Business in the Health Sector]*. Jakarta: Ministry of Health

Indonesian Ministry of Health. (2024). *[The Standards for Business Activities and Products in the Implementation of Risk-Based Business Licensing in the Health Sector]* Jakarta: Ministry of Health

International Pharmaceutical Federation (FIP). (2025). *Global Situation Report on Pharmacy 2025: Workforce, Practice and Policy*.

Kain, D., Findlater, A., Lightfoot, D., Maxim, T., Kraemer, M. U. G., Brady, O. J., Watts, A., Khan, K., & Bogoch, I. I. (2019). Factors Affecting Pre-Travel Health Seeking Behaviour and Adherence to Pre-Travel Health Advice: A Systematic Review. *Journal of Travel Medicine*, *26*(6). https://doi.org/10.1093/jtm/taz059

Khwaileh, K., & Kazić, E. (2025). Illicit Trade in Counterfeit Medicines: Challenges, Solutions, and a Case Study of Indonesia. *Solutions, and a Case Study of Indonesia (March 07, 2025)*.

Kristina, S. A., Ekasari, M. P., Nurmasfufatun, & Rizky, A. (2019). Pharmacists' Knowledge, Self-Efficacy, and Provision of Health Promotion Practices in Yogyakarta, Indonesia. *International Research Journal Of Pharmacy*, *10*(1), 65-68. https://doi.org/10.7897/2230-8407.100112

Kristina, S. A., Kristina, S. A., Darmawan, K. H., Yuliani, R. P., Mu'in, F., Trung, V. Q., Hsu, M. H., Syahrom, A., Ismail, H., & Vo, T. Q. (2023). Community Pharmacist' Attitudes Towards Counterfeit Medicines in Yogyakarta, Indonesia. *BIO Web of Conferences*, *75*. https://doi.org/10.1051/bioconf/20237505006

Liew, C. H., & Flaherty, G. T. (2020). Experiences and Attitudes of International Travelers with Cardiovascular Disease: A Qualitative Analysis. *American Journal of Tropical Medicine and Hygiene*, *102*(3), 689-697. https://doi.org/https://dx.doi.org/10.4269/ajtmh.19-0793

Lovey, T., Hedrich, N., Grobusch, M. P., Bernhard, J., Schlagenhauf, P., & Network, I. G. (2024). Surveillance of Global, Travel-Related Illness Using a Novel App: A Multivariable, Cross-Sectional Study. *BMJ Open*, *14*(7), e083065. https://doi.org/10.1136/bmjopen-2023-083065

Malterud, K., Siersma, V., Guassora, A. D., & Camic, P. M. (2021). Information Power: Sample Content and Size in Qualitative Studies. In (2nd ed., pp. 67-81). American Psychological Association. https://doi.org/10.1037/0000252-004

Meilianti, S., Smith, F., Fauziyyah, A. N., Masyitah, N., Kristianto, F., Ernawati, D. K., Naya, R., & Bates, I. (2025). A Narrative Review of Pharmacy Workforce Challenges in Indonesia. *Human Resources for Health*, *23*(1), 10. https://doi.org/10.1186/s12960-024-00967-0

Mills, D., Ramsey, L., & Furuya-Kanamori, L. (2021). Pre- And post-Travel Medical Consultations. In J. Wilks, D. Pendergast, P. A. Leggat, & D. Morgan (Eds.), *Tourist Health, Safety and Wellbeing in the New Normal* (pp. 1-22). Springer.

Mizranita, V., Ponto, T., & Sipana, B. (2024). Overview of Indonesian Community Pharmacy: Understanding Practice Changes. *JPSCR: Journal of Pharmaceutical Science and Clinical Research*, *9*(1). https://doi.org/10.20961/jpscr.v9i1.80498

Mohammad, A., Saini, B., & Chaar, B. B. (2021). Pharmacists' Experiences Serving Culturally and Linguistically Diverse Patients in the Australian Community Pharmacy Setting. *International Journal of Clinical Pharmacy*, *43*(6), 1563-1573. https://doi.org/10.1007/s11096-021-01284-5

Mumbi, A., Mugo, P., Barasa, E., Abiiro, G. A., & Nzinga, J. (2024). Factors Influencing the Uptake of Public Health Interventions Delivery by Community Pharmacists: A Systematic Review of Global Evidence. *PLoS One*, *19*(8), e0298713. https://doi.org/10.1371/journal.pone.0298713

Ollivaud, P., & Haxton, P. (2019). *Making the Most of Tourism in Indonesia to Promote Sustainable Regional Development* (OECD Economics Department Working Papers, Issue 1535). OECD Publishing. www.oecd.org/eco/workingpapers

Pisani, E., Nistor, A. L., Hasnida, A., Parmaksiz, K., Xu, J., & Kok, M. O. (2019). Identifying Market Risk for Substandard and Falsified Medicines: An Analytic Framework Based on Qualitative Research in China, Indonesia, Turkey and Romania. *Wellcome Open Research*, *4*, 70. https://doi.org/10.12688/wellcomeopenres.15236.1

Rutter, P. (2015). Role of Community Pharmacists in Patients' Self-Care and Self-Medication. *Integrated Pharmacy Research and Practice*, 57-65.

Rutter, P., & Barnes, N. (2024). Facilitating Self-Care through Community Pharmacy in England. *Exploratory Research in Clinical and Social Pharmacy*, *13*, 100404. https://doi.org/10.1016/j.rcsop.2023.100404

Shirdel, A., Pourreza, A., Daemi, A., & Ahmadi, B. (2021). Health-Promoting Services Provided in Pharmacies: A Systematic Review. *Journal of Education and Health Promotion*, *10*, 234. https://doi.org/10.4103/jehp.jehp_1374_20

Sorensen, H. T. (2022). Patients with Chronic Diseases Who Travel: Need for Global Access to Timely Health Care Data. *Clinical Epidemiology*, *14*, 513-519. https://doi.org/10.2147/CLEP.S360699

Susanto, T., Rahmawati, I., Wuryaningsih, E. W., Saito, R., Syahrul, S., Kimura, R., Tsuda, A., Tabuchi, N., & Sugama, J. (2016). Prevalence of Factors Related to Active Reproductive Health Behavior: A Cross-Sectional Study Indonesian Adolescent. *Epidemiology and Health*, *38*, e2016041. https://doi.org/10.4178/epih.e2016041

Suzuki, S., Nishikawa, Y., Nakayama, T., & Okada, H. (2025). Pharmacist Accessibility for Non-Native Japanese Speakers: A Cross-Sectional Study in Japan. *Canadian Pharmacists Journal*, *158*(3), 140-147. https://doi.org/10.1177/17151635241305375

Titisari, A. S., Mesman, J., & Dewi, K. H. (2024). Cultural Norms and Adolescents' Sexual and Reproductive Health in Bali, Indonesia: A Narrative Review. *Journal of Applied Youth Studies*, *8*(1), 37-62. https://doi.org/10.1007/s43151-024-00145-y

Tomkow, L. J., Kang, C. P., Farrington, R. L., Wiggans, R. E., Wilson, R. J., Pushkar, P., Tickell-Painter, M. C., Lee, A. R., Whitehouse, E. R., Mahmood, N. G., Lawton, K. M., & Lee, E. C. (2020). Healthcare Access for Asylum Seekers and Refugees in England: A Mixed Methods Study Exploring Service Users' and Health Care Professionals' Awareness. *The European Journal of Public Health*, *30*(3), 556-561. https://doi.org/10.1093/eurpub/ckz193

Tong, A., Flemming, K., McInnes, E., Oliver, S., & Craig, J. (2012). Enhancing Transparency in Reporting the Synthesis of Qualitative Research: ENTREQ. *BMC Medical Research Methodology*, *12*, 181. https://doi.org/10.1186/1471-2288-12-181

Vajta, B., Holberg, M., Mills, J., & McBride, W. J. H. (2015). Weighing up the Costs of Seeking Health Care for Dengue Symptoms: A Grounded Theory Study of Backpackers' Decision-Making Processes. *Australian Journal of Primary Health*, *21*(2), 245-248. https://doi.org/https://dx.doi.org/10.1071/PY13107

Watkins, R., & Kavale, J. (2014). Needs: Defining What You Are Assessing. *New Directions for Evaluation*, *2014*(144), 19-31. https://doi.org/10.1002/ev.20100

Watkins, R., Meiers, M. W., & Visser, Y. (2012). *A Guide to Assessing Needs: Essential Tools for Collecting Information, Making Decisions, and Achieving Development Results*. World Bank Publications.

Westerlund, T., & Soderlund, L. A. (2023). Role of Community Pharmacy and Pharmacists in Self Care in Sweden. *Exploratory Research in Clinical and Social Pharmacy*, *12*, 100362. https://doi.org/10.1016/j.rcsop.2023.100362

WHO Regional Office for South-East Asia. (2009). *Self-Care in the Context of Primary Health Care: Report of the Regional Consultation*. https://iris.who.int/handle/10665/206352

Chapter 7. Discussion

The overarching aims of this thesis were to assess the self-care needs of international travellers and to determine the readiness requirements of community pharmacies in Indonesia to meet the self-care needs of international travellers. Studies conducted for this thesis were exploratory, developed and informed by preceding studies, representing a clear progression of ideas. This chapter integrates findings across the meta-synthesis (Chapter 3), traveller interviews (Chapter 4), the Q-study (Chapter 5), and readiness interviews with mapping (Chapter 6) to explain how archetype-specific self-care priorities shape practical, contextual readiness requirements for Indonesian community pharmacies (Figure 7.1). This chapter also provides theoretical and methodological considerations, presents the overall thesis conclusions and proposes further areas for research.

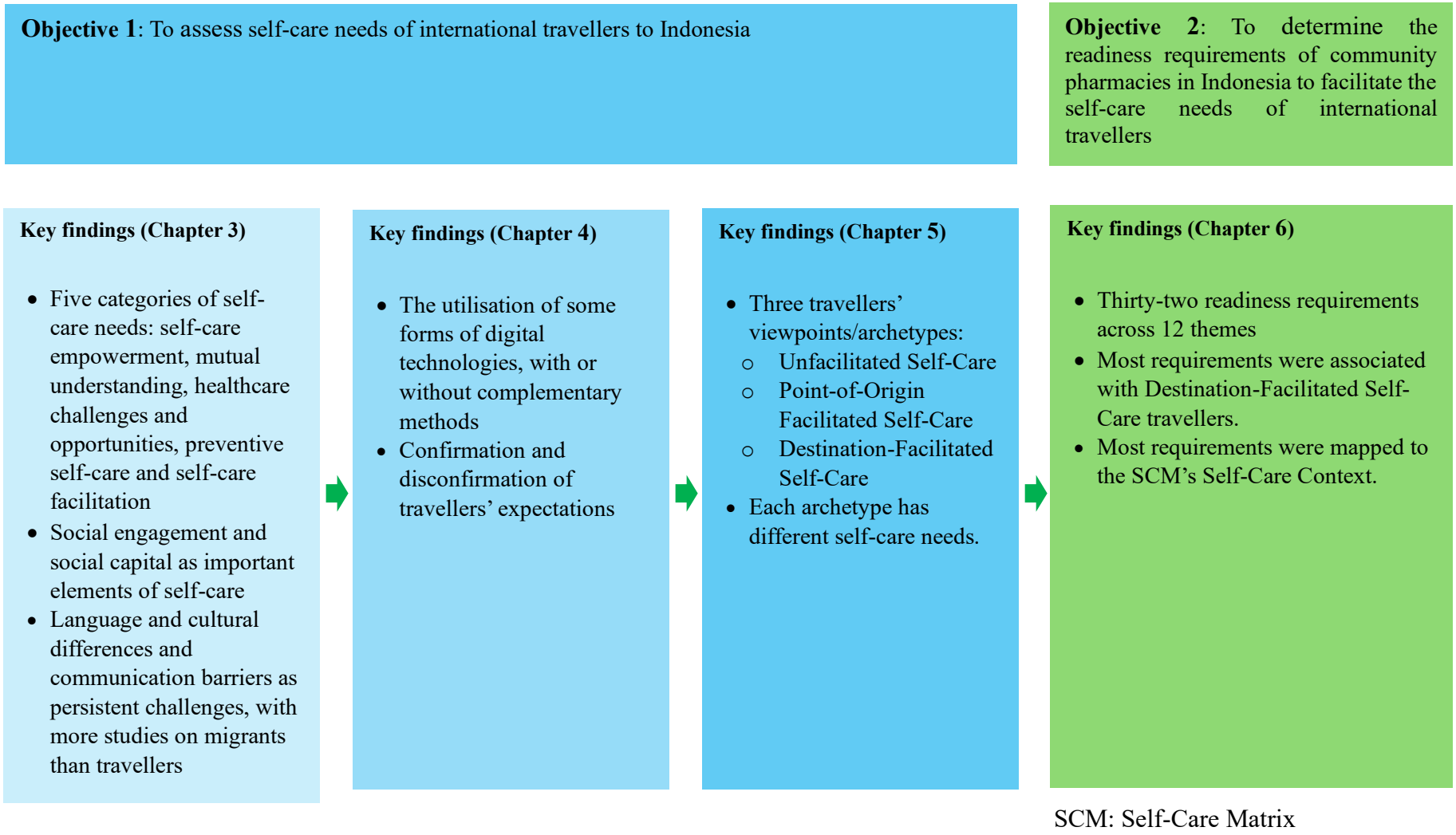


Figure 7.1 Summary of key findings

7.1 Summary of Key Findings

7.1.1. Assessment of the Self-Care Needs of International Travellers to Indonesia

The first objective of this thesis was to assess the self-care needs of international travellers to Indonesia. Three studies were conducted to achieve this aim (Chapters 3-5). The first study examined the self-care needs of international, voluntary, and temporary migrants and travellers through a systematic review and meta-synthesis, using El-Osta's Self-Care Matrix (SCM) (El-Osta et al., 2019) as a sensitising concept (Chapter 3). Although the meta-synthesis was not restricted to travellers to Indonesia and included studies on international migrants, it served as a deliberately broad scoping foundation for this thesis. The main reason is that the evidence on travellers' self-care in specific destination contexts remains comparatively limited, while research on migrants provides rich insight into self-care when individuals are in unfamiliar health and social environments, particularly in the early period of adaptation, when language barriers, cultural differences, reduced social support, and navigation of an unfamiliar health system can shape self-care practices. These mechanisms are relevant to international travellers, albeit typically over a shorter timeframe. In addition to five categories of self-care needs, the findings in this meta-synthesis elucidated that social engagement was important for international travellers to practice self-care. Travellers' social engagement with the locals and/or traveller communities benefits them in maintaining preventive self-care and adjusting to the local culture and customs. Language and cultural differences and communication barriers were also identified as persistent challenges among international travellers and migrants, with research focusing more on the latter (Kashiwagi et al., 2023). The findings from this study directly contributed to the development of the concourse in Chapter 5 and indirectly contributed to the development of the interview guides for Chapters 4 and 5 in this thesis.

In the second study, qualitative interviews were conducted with international travellers approached purposively in tourist destinations in Bali and Borobudur (Chapter 4). A deductive

framework analysis using Robson and Robinson's Information-Seeking and Communication Model (ISCM) (Robson & Robinson, 2015) resulted in findings of information behaviour contextual to international travellers. A key finding was the importance of digital technologies, with or without complementary methods such as gestures and the use of local words, for communication with local laypeople and health professionals in the context of self-care. This finding is supported by a recent Q-methodology study (Lee & Lee, 2024) that shows travellers view an Artificial Intelligence (AI)-based language translator as beneficial for international travel, despite their differing emphasis on its value. An additional novel finding was that travellers had their self-care expectations confirmed or disconfirmed, as they compared their preliminary perceptions before their trip to Indonesia with the experiences they had during their stay.

In the third study, a Q-study was employed to characterise travellers based on their prioritisation of self-care during their stay in Indonesia (Chapter 5). The results demonstrated three distinct travellers' viewpoints: "Unfacilitated Self-Care", "Point-of-Origin Facilitated Self-Care" and "Destination-Facilitated Self-Care", which were referred to as traveller archetypes, following Leonhardt et al. (2022). These results indicated that travellers differed in their self-care needs depending on their self-care priorities. The findings of this study enabled the development of personae to explore how Indonesian community pharmacies should be supported to facilitate self-care for different types of travellers in Chapter 6.

7.1.2. Determination of Readiness Requirements of Indonesian Community Pharmacies to Facilitate International Travellers' Self-Care Needs

The second objective of this thesis was to determine the readiness requirements of community pharmacies in Indonesia to facilitate the self-care needs of international travellers. A needs assessment via gap analysis was employed to achieve this objective (Chapter 6). A two-wave online interview data collection method was conducted in pursuit of operational needs with

pharmacists and non-pharmacist staff of community pharmacies and tactical needs with stakeholders, including pharmacy academics, travel health practitioners, board members of professional organisations, policymakers and tourism operators. The second wave of interviews incorporated six vignettes of clinical cases relevant to travel-related health with personas derived from the travellers' archetypes identified in Chapter 5. A readiness assessment was conducted by matching the desired and current perceived status of Indonesian community pharmacy services to identify gaps. The gaps were subsequently mapped to the SCM (El-Osta et al., 2019) and the travellers' archetypes to provide an initial prioritisation of the gaps. The results described 32 gaps across 12 themes, including language and communication, travel health recognition, pharmacist recognisability and accessibility, professional development, health promotion programs and medication availability and accessibility. The majority of identified gaps were relevant to address the needs of Destination-Facilitated Self-Care travellers, indicating that introducing travel health pharmacy services to Indonesian community pharmacies will primarily benefit this particular traveller archetype. Further, the majority of identified gaps were mapped to the SCM's Self-Care Context, identifying the importance of practice-level policy support for Indonesian community pharmacies.

7.2 Theoretical Considerations

Understanding why international travellers possess different self-care needs during travel to Indonesia requires the application of relevant theory. Pierre Bourdieu, a French sociologist, offers two theories that can explain this phenomenon: Social Capital Theory (Bourdieu, 1986) and Hysteresis (Bourdieu & Wacquant, 1992, p. 127). Another theory, Oliver's Expectancy Disconfirmation Theory (Oliver, 1993, 2014), can be used to explain different expectations among international travellers.

7.2.1. Social Capital Theory

Bourdieu conceptualised social capital as part of his broader idea of capital (alongside economic, cultural, and symbolic capital), which explains how different forms of capital influence the formation and reproduction of social structure (Bourdieu, 1986). Bourdieu defined it as "the aggregate of the actual and potential resources which are linked to possession or a durable network of more or less institutionalised relationships of mutual acquaintance and recognition" (Bourdieu, 1986). A social network serves as an accessible resource for individuals, a key element in Bourdieu's concept of social capital. The findings in this thesis suggest that international travel may reduce social capital (Figure 7.2). For Bourdieu, social capital operates at an individual level and can be acquired from the conversion of other forms of capital by mobilising resources available through networks of membership for personal benefit (Bourdieu, 1986). For example, an international traveller can hire a tour guide to facilitate a visit to a semi-remote village (Chapter 6). Through this kind of facilitated interaction, the traveller can build relationships with the hosts, thereby converting economic capital (i.e. hiring a guide) into social capital, such as gaining access to hospitality, cultural insight, or health emergency support. Another example is that international travellers with Indonesian ancestry find it easier than those without to build rapport with Indonesians, as they are familiar with some local words (Chapter 4). Here, cultural capital (i.e. language, customs) facilitates the development of trust-based relationships that may offer support and access to local health services. The meta-synthesis (Chapter 3) also demonstrated that social engagement by travellers was an important action that facilitated the development of social capital, which in turn supports self-care practices.

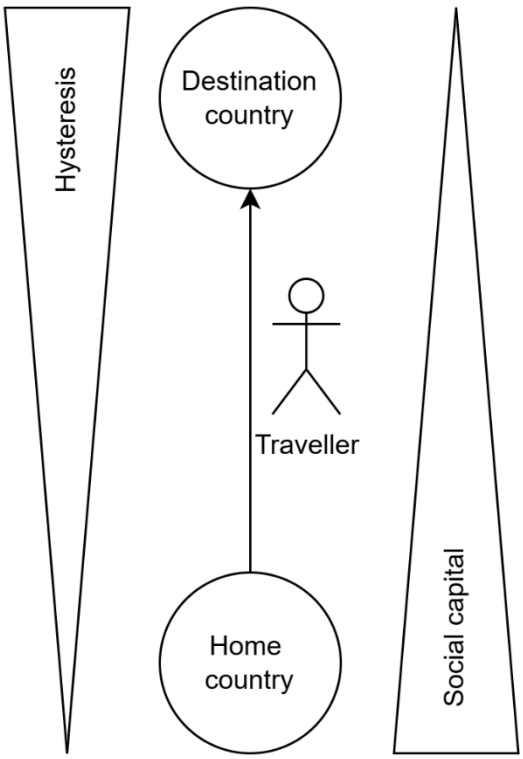
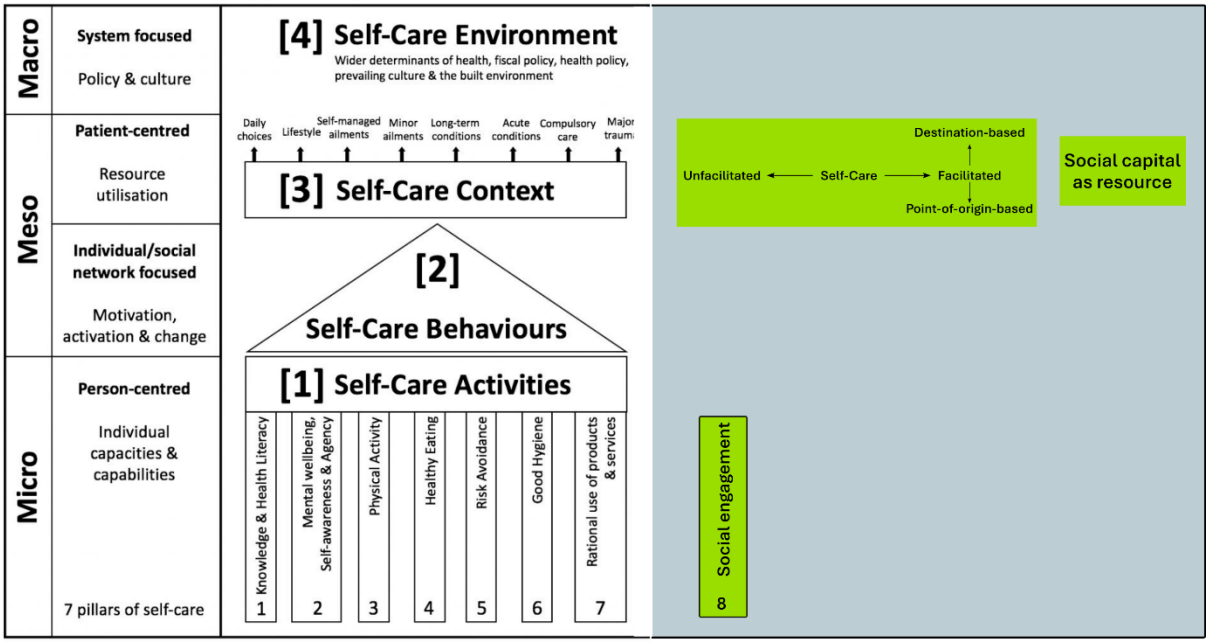


Figure 7.2 Reduced social capital and increased hysteresis when abroad

All of this evidence suggests that the SCM should be updated, particularly in the Self-Care Activities and Context dimensions. Currently, the Self-Care Activities dimension is predominantly informed by the Seven Pillars of Self-Care (El-Osta et al., 2019; International Self Care Foundation, 2018). While this framework outlines individual-level self-care actions (International Self Care Foundation, 2018), it overlooks the individual's capacity to engage with the social environment as an important consideration for effective self-care. Similarly, the Self-Care Context dimension is largely represented by the Self-Care Continuum model, which illustrates a spectrum of care, ranging from pure self-care to pure medical care, marked by increasing professional assistance towards the medical care (El-Osta et al., 2019; Self Care Forum, 2020). This Self-Care Continuum model overlooks the role of social capital, which can be a useful resource for self-care. Social capital explains why the travellers exhibit three different archetypes in this thesis (Chapter 5). There are travellers who do or do not require facilitation of self-care (Facilitated vs Unfacilitated Self-Care). Among travellers requiring

self-care facilitation, resources may come from either the destination (Destination-Facilitated Self-Care) or the country of origin (Point-of-Origin Facilitated Self-Care). Accordingly, these findings suggested that the Self-Care Continuum model (Bell et al., 2016; Self Care Forum, 2020) should be modified in the context of international travel by incorporating a branch that indicates self-care can be facilitated in either the destination or country of origin (Chapter 5, Figure 2). The proposed revised SCM, incorporating findings from this thesis, is illustrated in Figure 7.3.



A. The original Self-Care Matrix (El-Osta et al., 2019)

B. The proposed incorporation of social engagement, social capital and traveller archetypes

Figure 7.3 The original (A) Self-Care Matrix (El-Osta et al., 2019) and the proposed update (B)

7.2.2. Hysteresis

Hysteresis is a consequence of Bourdieu's concepts of habitus and field. ***Habitus*** is understood as a system of dispositions shaped by past and present circumstances (e.g. family upbringing and educational knowledge) to inform present and future practice (Bourdieu, 1977; Bourdieu & Wacquant, 1992; Maton, 2014). Habitus is a "structure" structured by a system of dispositions or tendencies that are durable (last over time) and transposable (capable of being

activated in various social actions) (Bourdieu & Wacquant, 1992; Maton, 2014). Health literature suggests that habitus influences an individual's decision-making ability and choice regarding accessing care or adopting a healthy lifestyle (Collyer et al., 2015; Madeira et al., 2018; Ndu, 2022). Drawing upon this concept, the self-care practised by an international traveller, such as assessing travel risks, preventing risks, and preparing mitigation strategies in a travel destination, is a manifestation of habitus. Thus, habitus can explain the differences between traveller archetypes. For example, some travellers may distance themselves from healthcare services (Unfacilitated Self-Care archetypes) because their habitus drives them to have good pre-travel preparation, purchase travel insurance, conduct a risk assessment, and feel confident in their ability to prevent potential health risks, such as regularly applying sunscreen and avoiding dehydration (Chapter 5).

Habitus is situated in social space, which is referred to as a ***field*** (Akram, 2023). As Bourdieu wrote, "a field may be defined as a network, or configuration, of objective relations between positions" (Bourdieu & Wacquant, 1992, p. 97), and it is "a structured space of social forces and struggles" (Bourdieu & Wacquant, 1992, p. 243). Collyer et al. (2015) exemplified healthcare as a field where contests occur between dominant actors (e.g. medicine, capitalist corporations, and the capitalist state), that promote their definition of health and provide political influence on health, and subordinate actors (e.g. patients, public health advocates, complementary and alternative medicine practitioners), that offer alternative perspectives of health. In this sense, community pharmacy practice and self-care are each a field shaped by their own rules, contestations, capital, and habitus.

When habitus is in a stable field, Bourdieu metaphorically described it as "a fish in water … it takes the world about itself for granted" (Bourdieu & Wacquant, 1992, p. 127). However, the field structures may change, and this change affects habitus. Bourdieu explained this condition, where a disruption or lag occurs affecting habitus and field, as ***hysteresis***, borrowing the

concept from physics (Hardy, 2014; Roenn-Smidt et al., 2020). Accordingly, international travel creates a disruptive self-care circumstance for travellers' habitus (Figure 7.2). For example, travellers from non-tropical countries visiting tropical countries like Indonesia need to be aware of mosquitoes and apply mosquito repellent frequently (Chapter 5). Another example is that travellers may experience cultural, language, and communication barriers when accessing local community pharmacies (Chapter 4). By application of the concept of hysteresis to the traveller archetypes identified in Chapter 5, one can hypothesise differing responses; the Unfacilitated Self-Care archetype will default to robust personal self-care strategies, the Point-Of-Origin Self-Care archetype will rely on home-based support, ideally supported by contemporaneous communication, while the Destination-Facilitated Self-Care archetype will have the greatest reliance on local healthcare services, as identified in Chapter 6.

7.2.3. Adaptive Self-Care

Hysteresis leads international travellers to exhibit ***adaptive self-care*** to meet their self-care needs. Previous research has employed the term adaptive self-care to describe a coping strategy for managing new encounters with existing or exacerbating health problems, such as declining physical ability due to physical disability (Winick, 2024) and chronic diseases (Apps et al., 2014; Jiang & Li, 2025). These studies describe adaptive self-care as a response to permanent or newly acquired chronic conditions, but not to temporary situations, which are common among international travellers. Those studies have neither provided an explicit definition nor studied international travellers. Based on the findings in this thesis and Bourdieu's concept of hysteresis, adaptive self-care can be defined as self-care activities and behaviours that are adjusted to the conditions and situations in a new, unfamiliar environment (i.e., Bourdieu's field). In other words, adaptive self-care is a response to hysteresis. This provides a novel theoretical contribution to the concept of self-care.

The findings in this thesis demonstrate several characteristics of adaptive self-care. Finding alternatives or learning new actional or behavioural self-care is part of this adaptive self-care. For example, travellers had to compromise on self-care product substitutes when the products they were familiar with and used in their home countries were not available in the destination (Chapter 6). Adaptive self-care is formed through an iterative process in response to new information, situations, and conditions. For example, travellers needed to filter and triangulate information on specific health issues from different sources to inform their subsequent decisions about self-care or seeking medical care (Chapter 4). The three archetypes of travellers are also a manifestation of adaptive self-care (Chapter 5). Therefore, health service providers should offer customised approaches or services to meet the diverse self-care needs (Chapter 6), meeting their adaptive self-care. In other words, adaptive self-care should be tailored to different archetypes of travellers. Adaptive self-care is optimised when hysteresis is minimised. The adaptive self-care may be temporary. When travellers return to or become familiar with the self-care environment (i.e. returning to their countries of origin), this adaptive self-care becomes their usual self-care. Further exploration of adaptive self-care as a response mechanism to hysteresis can be a future study, with a systematic review as an approach.

7.2.4. Expectancy Disconfirmation Theory

The findings of qualitative interviews with international travellers (Chapter 4) indicated that the travellers experienced both confirmation and disconfirmation of expectations. Expectancy Disconfirmation Theory (Oliver, 1993, 2014), a concept derived from consumer behaviour studies, can explain this phenomenon. Oliver contended that consumer satisfaction is an outcome of the disconfirmation of performance (Oliver, 2014). Satisfaction is not absolute, but rather a product of consumers' comparisons between product or service performance and their expectations (Oliver, 2014). Accordingly, the scales of disconfirmation are dichotomous, allowing positive, negative, or neutral outcomes (Oliver, 2014). Positive disconfirmation

results when performance exceeds expectations, whereas negative disconfirmation occurs when performance falls short of expectations (Oliver, 2014). Zero disconfirmation occurs when performance aligns with expectations or predictions (Oliver, 2014).

Expectancy Disconfirmation Theory has previously been applied in pharmacy practice research (Aldaiji et al., 2022; Kucukarslan & Nadkarni, 2008; Lustig et al., 2005). However, these studies only focused on the local population. While the work in this present thesis focused on international travellers, it did not specifically employ the theory as a driver to understand their satisfaction with the destination's pharmacy services. Studying the satisfaction of international travellers, guided by this theory, is an opportunity for further research, as they may have different expectations from the local population. Travellers from an advanced healthcare system may have lower expectations of the products and services provided by healthcare providers in a destination with a less advanced healthcare system, thereby increasing the likelihood of positive disconfirmation (Chapter 4). The Point-of-Origin Facilitated Self-Care archetype may experience positive disconfirmation when discovering that local community pharmacy services are better than expected, as they value these services more highly in their home countries. The Destination-Facilitated Self-Care archetype may exhibit zero or negative disconfirmation when the destination pharmacy services are the same or worse than expected, as they rely more on the destination care.

Despite knowing that disconfirmation of expectations occurs among international travellers, this thesis did not explore which archetypes experience the disconfirmation, what their expectations were and how destination community pharmacies meet them. To understand these questions, the next step would be to develop a measure. The tool should be able to assess the expectation scales and performance ratings in community pharmacy encounters, and index positive or negative disconfirmation by travellers' archetypes. Existing tools, such as the

Perceived Service Quality Scale (pSQS) developed and validated in community pharmacy settings (Carter et al., 2022), can be adapted for this purpose.

7.3 Methodological Considerations

7.3.1. Q-Study for Needs Assessment

This thesis was composed of a series of four studies, representing the journey of ideas (Figure 7.1). A major element of this thesis was the use of Q-study for assessing the self-care needs of international travellers (Chapter 5). The literature demonstrates that the Q-study has been applied to needs assessment (Chinnis et al., 2001; Erb, 1987; Hollingsworth, 2013; Ramlo, 2015; Tate, 1982), with the majority of studies coming from the field of education. The limited number of publications highlights the limited application of this method and the unrealised potential as a useful tool for needs assessment (Gaebler-Uhing, 2003; Ramlo, 2015). Watkins' approach for needs assessment did not list Q-study as a data collection and decision-making tool (Watkins et al., 2012). However, this thesis has demonstrated that the method can be used to identify needs and provide initial prioritisation of needs (Chapter 5), resembling the needs identification and analysis steps in Watkins' approach (Watkins et al., 2012). Specifically, the development of the concourse and the Q-set can be used for needs identification. Additionally, Q-sorting activities, by-person factor analysis and qualitative interpretation serve for needs analysis and initial prioritisation. The limitations of Q-study are the time-consuming nature of developing a comprehensive concourse and a representative Q-set, as well as the length of individual Q-sorting activities (20-45 minutes) (Gaebler-Uhing, 2003). Another limitation is that the generalisability of Q-study, which follows substantive inference, rather than statistical inference (Ramlo, 2015; Thomas & Baas, 1992). Substantive inference from Q-study provides a generalisation *about* the phenomenon of interest, in contrast to a generalisation *to* a larger population via statistical inference (Ramlo, 2015; Thomas, 1992). The primary strength of the Q-study is that it recognises the varying views the participants have on a subjective

phenomenon, which is influenced by the intertwining of complex factors (Gaebler-Uhing, 2003), such as life experiences, cultural perspectives and environmental factors. Consequently, the needs assessment using a Q-study provides a comprehensive, bottom-up perspective of needs, indicating that all subjects of interest (e.g. international travellers) require customised approaches to meet their varying issues and concerns. This enabled the novel finding in this thesis that international travellers have differing self-care needs. Specifically, they have three distinct archetypes of Unfacilitated Self-Care, Point-of-Origin Facilitated Self-Care and Destination-Facilitated Self-Care.

7.3.2. Web Scraping for Concourse Development

A typical Q-study uses a combination of literature reviews and individual interviews to collect items when developing a concourse. The work in this thesis introduced the novel utilisation of manually coded web scraping from online fora, which is beneficial for collecting authentic (Kirschbaum et al., 2019) and naturalistic (Smedley & Coulson, 2018) statements. This approach has previously not been used in Q-study literature, thereby demonstrating a novelty offered by this thesis. However, this manually coded web scraping approach to developing concourse items is rapidly outdated by the proliferation of AI-powered tools. Accordingly, AI-powered tools can make the typically time-consuming process of concourse and Q-set development more efficient. Recent research on AI and Q-study has largely focused on the utilisation of AI-powered tools in education (Chaaban et al., 2025; Dobečková et al., 2025; Ko & Song, 2024; Yılmaz Virlan & Tomak, 2025) and communication (Lee & Lee, 2024) rather than the methodological development of Q-study. Accordingly, this niche can be a future research avenue for Q-study.

7.3.3. Hard-to-Reach Participants and Q-Study

The fieldwork in this thesis highlighted the need to reconsider the scope of hard-to-reach groups and suggested that Q-study is a suitable approach for use in these groups. Groups or populations that are hard to engage in research are often referred to as hard-to-reach populations (Corrales, 2023). Corrales (2023) identified two factors that characterise them: institutional gatekeeping and individual characteristics, both of which are based on perceived risks and vulnerabilities of a particular population. Children under 18 years old, people who are pregnant and people experiencing homelessness or living with disability are examples of these hard-to-reach populations (Corrales, 2023). Using this scope alone, international travellers are not a hard-to-reach population. However, if engagement is an important factor to consider, international travellers are a hard-to-reach population. The two fieldworks conducted in this study consistently demonstrated that approaching international travellers who were travelling to engage in research was challenging. For example, in the second fieldwork, only 53 out of 193 approached travellers agreed to participate in the Q-study (Chapter 5). Three factors were identified influencing travellers' unwillingness to engage in research. First, travellers to Indonesia are often vacationing, with a preference for spending time on leisure activities rather than participating in research. Second, the characteristics of travel destinations make them mobile, as their stay is limited and there are many attractions to explore. Third, travellers' language and communication barriers can lead to perceived technical difficulties they would face during participation. In relation to Q-study, the methodology allows the use of a smaller number of participants. Although 40-60 participants are typically suggested in the literature, a single participant is also possible (Watts & Stenner, 2012). Some researchers suggest using a 3:1 statement-to-participant ratio (Webler et al., 2009). A review shows that some studies were conducted in <10 participants (Dieteren et al., 2023). Therefore, a Q-study is suitable for studying hard-to-reach participants. Linked to Malterud's concept of information power

(Malterud et al., 2021; Malterud et al., 2016), the aim of the Q-study is narrow, and the participants are specifically selected. Therefore, the information power is high, and consequently, a smaller number of participants is required. In this thesis, 53 out of 193 participants provide an ample sample based on a 3:1 ratio, considering the Q-set contained 45 statements. Furthermore, the sample was considered fit-for-purpose, considering the Q-methodology's inferential stance of substantive inference (Ramlo, 2015; Thomas & Baas, 1992) and the interpretability of archetypes.

7.4 Initial Solutions for Practice, Professional and Policy Areas

The findings in Chapter 6 suggest initial solutions at the community pharmacy practice level, as well as professional development and policy responses to address international self-care needs (Figure 7.4). Solutions are particularly intended for, but not limited to, community pharmacies in travel destinations, as well as for the Destination-Facilitated Self-Care archetype. In the practice area, community pharmacies should consider improving standards for pharmacist recognisability and accessibility. The current Community Pharmacy Decree, which requires the installation of a pharmacist's nameplate (Indonesian Ministry of Health, 2017), and the IAI's introduction of a pharmacist's practice uniform (Indonesian Pharmacist Association, 2022) are good starting points; however, a bilingual nameplate that is installed in an easily visible area is also suggested. Inaccessibility to community pharmacists suggests an inconsistency in policy implementation and a need for strengthened regulatory enforcement (Meilianti et al., 2025). Bilingual navigability and consultation privacy are important aspects to consider. Symptom-based minor-ailment facilitation protocols should be developed based on past Indonesian studies on the information-gathering process and service provisions for minor ailments (Brata et al., 2015; Mizranita et al., 2021; Suryaputra et al., 2021). Medication substitution for products unavailable in Indonesia should be supported by a protocol with local and national policies; however, research outside the area of generic substitution (Hermansyah

et al., 2013) has been limited. As a common first point of contact for international travellers who require self-care facilitation, clear signposting or referral to services is expected, with pharmacist involvement being preferable.

For the professional development area, community pharmacy staff should be provided with effective microcredentials/CPD in travel health, cultural awareness and language or communication strategies, aligned with previous recommendations (Meilianti et al., 2025). Persona and vignette-based tied to travellers' archetypes can be used for practice simulations (Nkhoma et al., 2023; Walshe et al., 2022). Reflective practice and local epidemiology updates are required to update individual knowledge and professional competencies (Hokanson et al., 2022; Strand et al., 2020). Peer-support networks across travel destinations should be developed to establish a reliable system that can meet the self-care needs of international travellers (Cooper et al., 2024; Ozucelik et al., 2025).

For the policy area, regulated telepharmacy or e-commerce should be of quality and safeguarded. The current regulations for telepharmacy or e-commerce (Indonesian Ministry of Health, 2018, 2024) provide a good starting point, but encouragement for community pharmacies to adopt these technologies remains necessary. Law enforcement should be strengthened to eradicate counterfeit and substandard medications (Khwaileh & Kazić, 2025; Pisani et al., 2019). Regulatory authorities should promote pathways to access non-registered medicines, enabling community pharmacies to effectively refer patients to these services. Local epidemiological data should be made accessible to support community pharmacies' inventory planning. The pharmaceutical supply chain system should also be improved to prevent shortages in the archipelagic areas. The government should also recognise pharmacist specialisation in travel health services. Some pharmacy tertiary education programs in Indonesia may incorporate travel medicine into their Bachelor of Pharmacy curricula as an elective unit, such as at Universitas Surabaya (University of Surabaya, 2024); however, at the

national level, the number of pharmacy schools teaching this subject remains unknown. Further research is suggested to continue the needs assessment process (Watkins et al., 2012) by prioritising practice gaps and translating them into policies and feasible practices, with stakeholder involvement necessary. A co-design Nominal Group Technique can be a feasible approach for prioritising the gaps (Watkins et al., 2012).

Practice Area

(facility and service design)

- Strengthen pharmacist recognisability and accessibility standards
- Ensure bilingual navigability and consultation privacy
- Develop symptom-based minor-ailment protocols
- Implement structured substitution decision aids
- Provide clear signposting of services and expected pharmacist involvement

Professional Development Area

(capacity and competency)

- Implement micro-credentials/CPD in travel health, cultural awareness/competence, and language/communication strategies
- Use persona and vignette-based simulations tied to travellers' archetypes
- Embed reflective practice and local epidemiology updates
- Strengthen peer support networks across destinations

Policy Area

(system and governance)

- Enable regulated telepharmacy/e-commerce participation with quality and privacy safeguards
- Strengthen law enforcement on counterfeit and substandard medications
- Promote pathway awareness for access to non-registered medicines (e.g., special access mechanisms where applicable);
- Support epidemiology-informed inventory planning
- Improve the pharmaceutical supply chain system to prevent shortages in archipelagic areas away from major cities
- Align professional recognition and scope for pharmacy-led travel health

Figure 7.4 Initial solutions for practice, professional development and policy areas

7.5 Conclusions

The main findings of this thesis are summarised as follows:

- International travellers rely on multiple modalities to become well-informed before deciding to select self-care or medical care at the destination.
- Social engagement is an important element of self-care for international travellers during travel because they often experience a reduction of social capital when abroad.
- Three distinct travellers' archetypes: Unfacilitated Self-Care, Point-of-Origin Facilitated Self-Care and Destination-Facilitated Self-Care highlight the heterogeneity of self-care priorities and the need for tailored interventions.
- Community pharmacies in Indonesian destinations face significant readiness gaps, particularly in language/communication, pharmacist recognisability, health promotion, and medication accessibility. Readiness requirements for Indonesian community pharmacies are mostly associated with Destination-Facilitated Self-Care travellers and align with the Self-Care Context dimension of the SCM, indicating a need for systemic and practice-level policy support.
- Practical implications include initial solutions spanning practice (bilingual signage, substitution protocols), professional development (CPD in travel health and cultural competence) and policy (telepharmacy regulation, pharmacist specialisation).
- Methodological contributions include demonstrating Q-study as a robust tool for needs assessment and introducing web scraping for concourse development.

7.6 Directions for Future Research

This thesis has significantly contributed to the current knowledge of self-care needs among international travellers and the readiness of destination community pharmacies, and has

generated new research questions that are worthy of exploration in the future. Specific areas for further research are as follows:

- How does adaptive self-care manifest as a response to hysteresis in temporary contexts such as international travel?
- How can tools be developed to measure expectation-performance gaps in the destination's community pharmacy encounters and index positive and negative disconfirmation by travellers' archetypes?
- How can readiness gaps be prioritised and translated into feasible policies and practices using participatory methods, such as the Nominal Group Technique, with the stakeholders?
- How can AI-powered tools, such as language translators and telepharmacy platforms, enhance self-care facilitation for international travellers?
- What health promotion programs can be developed to support international travellers' self-care?
- How feasible is the introduction of travel health pharmacy specialisation in Indonesia?

7.7 References

Akram, S. (2023). Field: Bourdieu and Beyond. In *Bourdieu, Habitus and Field: A Critical Realist Approach* (pp. 107-138). Springer.

Aldaiji, L., Al-Jedai, A., Alamri, A., Alshehri, A. M., Alqazlan, N., & Almogbel, Y. (2022). Effect of Occupational Stress on Pharmacists' Job Satisfaction in Saudi Arabia. *Healthcare (Basel)*, *10*(8). https://doi.org/10.3390/healthcare10081441

Apps, L. D., Harrison, S. L., Williams, J. E., Hudson, N., Steiner, M., Morgan, M. D., & Singh, S. J. (2014). How Do Informal Self-Care Strategies Evolve among Patients with Chronic Obstructive Pulmonary Disease Managed in Primary Care? A Qualitative Study. *International Journal of Chronic Obstructive Pulmonary Disease*, *9*, 257-263. https://doi.org/10.2147/COPD.S52691

Bell, J., Dziekan, G., Pollack, C., & Mahachai, V. (2016). Self-Care in the Twenty First Century: A Vital Role for the Pharmacist. *Advances in Therapy*, *33*(10), 1691-1703. https://doi.org/10.1007/s12325-016-0395-5

Bourdieu, P. (1977). *Outline of a Theory of Practice*. Cambridge University Press.

Bourdieu, P. (1986). The Forms of Capital. In J. Richardson (Ed.), *Handbook of Theory and Research for The Sociology of Education* (pp. 19). CT.

Bourdieu, P., & Wacquant, L. J. (1992). *An Invitation to Reflexive Sociology*. University of Chicago Press.

Brata, C., Marjadi, B., Schneider, C. R., Murray, K., & Clifford, R. M. (2015). Information-Gathering for Self-Medication Via Eastern Indonesian Community Pharmacies: A Cross-Sectional Study. *BMC Health Service Research*, *15*, 8. https://doi.org/10.1186/s12913-014-0670-6

Carter, S. R., Ng, R., El-Den, S., & Schneider, C. R. (2022). A Patient-Reported Experience Measure for Community Pharmacy Including Development of a Short-Form: The Perceived Service Quality Scale. *Research in Social and Administrative Pharmacy*, *18*(8), 3369-3378. https://doi.org/10.1016/j.sapharm.2021.11.011

Chaaban, Y., Jung, S.-G., Medina, J., Azem, J. Y., Salminen, J., & Jansen, B. J. (2025). Examining Student Teachers' Agency in an AI-Supported Learning Environment: Q Methodology Research. *International Journal of Artificial Intelligence in Education*, *35*(6), 4083-4107. https://doi.org/10.1007/s40593-025-00529-y

Chinnis, A. S., Paulson, D. J., & Davis, S. M. (2001). Using Q Methodology to Assess the Needs of Emergency Medicine Support Staff Employees. *The Journal of Emergency Medicine*, *20*(2), 197-203.

Collyer, F. M., Willis, K. F., Franklin, M., Harley, K., & Short, S. D. (2015). Healthcare Choice: Bourdieu's Capital, Habitus and Field. *Current Sociology*, *63*(5), 685-699. https://doi.org/10.1177/0011392115590082

Cooper, M. B., McMillan, S., Dunkley, K., Kelly, F., McDermott, B., Hotham, E., & Suppiah, V. (2024). Peer Support as a Potential Tool to Promote Pharmacists' Wellbeing. *Journal of the American Pharmacists Association*, *64*(4). https://doi.org/10.1016/j.japh.2024.102122

Corrales, T. (2023). Ethical Considerations in Conducting Research with Hard-to-Reach Populations. In D. Ayton, T. Tsindos, & D. Berkovic (Eds.), *Qualitative Research–a practical guide for health and social care researchers and practitioners*. Monash University Library. http://nla.gov.au/nla.obj-3513983736

Dieteren, C. M., Patty, N. J. S., Reckers-Droog, V. T., & van Exel, J. (2023). Methodological Choices in Applications of Q Methodology: A Systematic Literature Review. *Social Sciences & Humanities Open*, *7*(1). https://doi.org/10.1016/j.ssaho.2023.100404

Dobečková, M., Simon, L., Boldišová, L., & Jenisová, Z. (2025). AI and Q Methodology in the Context of Using Online Escape Games in Chemistry Classes. *Education Sciences*, *15*(8). https://doi.org/10.3390/educsci15080962

El-Osta, A., Webber, D., Gnani, S., Banarsee, R., Mummery, D., Majeed, A., & Smith, P. (2019). The Self-Care Matrix: A Unifying Framework for Self-Care. *SelfCare*, *10*(3), 38-56.

Erb, M. (1987). *Identification of Training Needs: A Focus Group Interview/Q-Sort Methodology* Western Kentucky University]. Bowling Green.

Gaebler-Uhing, C. (2003). Q-Methodology: A Systematic Approach to Assessing Learners in Palliative Care Education. *Journal of palliative medicine*, *6*(3), 438-442.

Hardy, C. (2014). Hysteresis. In M. Grenfell (Ed.), *Pierre Bourdieu: Key Concepts* (2nd ed.). Routledge.

Hokanson, K., Breault, R. R., Lucas, C., Charrois, T. L., & Schindel, T. J. (2022). Reflective Practice: Co-Creating Reflective Activities for Pharmacy Students. *Pharmacy (Basel)*, *10*(1). https://doi.org/10.3390/pharmacy10010028

Hollingsworth, A. B. (2013). *Q Methodology as a Needs Assessment Tool for Biology Graduate Teaching Assistants Participating in an Instructional Training Program* The University of Akron].

Indonesian Ministry of Health. (2018). *[the Services on Registration of Electronically Integrated Business in the Health Sector]*. Jakarta: Ministry of Health

Indonesian Ministry of Health. (2024). *[the Standards for Business Activities and Products in the Implementation of Risk-Based Business Licensing in the Health Sector]* Jakarta: Ministry of Health

Indonesian Pharmacist Association. (2022). *[the Statutes of the Indonesian Pharmacist Association of 2022]*. Bandar Lampung: Indonesian Pharmacist Association,

International Self Care Foundation. (2018). *The Seven Pillars of Self-Care Framework*. https://isfglobal.org/practise-self-care/the-seven-pillars-of-self-care/

Jiang, W., & Li, Y. (2025). Body Image, Coping Styles, and Self-Care Capacity among Breast Cancer Patients with Lymphedema: A Moderating Model Analysis. *Western Journal of Nursing Research*, *47*(12), 1193-1202. https://doi.org/10.1177/01939459251377901

Kashiwagi, S., Nagai, H., & Furutani, T. (2023). Understanding Challenges Faced by VFR Hosts: A Study of Japanese Migrant Hosts in Australia. *Journal of Hospitality and Tourism Management*, *54*, 306-315. https://doi.org/10.1016/j.jhtm.2023.01.004

Khwaileh, K., & Kazić, E. (2025). Illicit Trade in Counterfeit Medicines: Challenges, Solutions, and a Case Study of Indonesia. *Journal of Indonesian Legal Studies*, *10*(1), 165-210.

Kirschbaum, M., Barnett, T., & Cross, M. (2019). Q Sample Construction: A Novel Approach Incorporating a Delphi Technique to Explore Opinions About Codeine Dependence. *BMC Medical Research Methodology*, *19*(1). https://doi.org/10.1186/s12874-019-0741-9

Ko, J., & Song, A. (2024). Youth Perceptions of AI Ethics: A Q Methodology Approach. *Ethics & Behavior*, *35*(6), 474-491. https://doi.org/10.1080/10508422.2024.2396582

Kucukarslan, S. N., & Nadkarni, A. (2008). Evaluating Medication-Related Services in a Hospital Setting Using the Disconfirmation of Expectations Model of Satisfaction. *Research in Social and Administrative Pharmacy*, *4*(1), 12-22. https://doi.org/10.1016/j.sapharm.2007.01.001

Lee, N., & Lee, K. (2024). Travelers' Viewpoints on Machine Translation Using Q Methodology: A Perspective of Consumption Value Theory. *Information Technology & Tourism*, *26*(4), 611-632. https://doi.org/10.1007/s40558-024-00296-x

Leonhardt, H., Braito, M., & Uehleke, R. (2022). Combining the Best of Two Methodological Worlds? Integrating Q Methodology-Based Farmer Archetypes in a Quantitative Model of Agri-Environmental Scheme Uptake. *Agriculture and Human Values*, *39*(1), 217-232. https://doi.org/10.1007/s10460-021-10242-w

Lustig, A., Sokol, R., Peled, R., & David, T. (2005). Nurses' Evaluation of Pharmacists' Services–a Hospital Survey. *Pharmacy World and Science*, *27*(4), 290-295.

Madeira, F. B., Filgueira, D. A., Bosi, M. L. M., & Nogueira, J. A. D. (2018). Lifestyle, Habitus, and Health Promotion: Some Approaches. *Saúde e Sociedade*, *27*(1), 106-115. https://doi.org/10.1590/s0104-12902018170520

Malterud, K., Siersma, V., Guassora, A. D., & Camic, P. M. (2021). Information Power: Sample Content and Size in Qualitative Studies. In (2nd ed., pp. 67-81). American Psychological Association. https://doi.org/10.1037/0000252-004

Malterud, K., Siersma, V. D., & Guassora, A. D. (2016). Sample Size in Qualitative Interview Studies: Guided by Information Power. *Qualitative Health Research*, *26*(13), 1753-1760. https://doi.org/10.1177/1049732315617444

Maton, K. (2014). Habitus. In M. Grenfell (Ed.), *Pierre Bourdieu: Key Concepts* (2nd ed.). Routledge.

Meilianti, S., Smith, F., Fauziyyah, A. N., Masyitah, N., Kristianto, F., Ernawati, D. K., Naya, R., & Bates, I. (2025). A Narrative Review of Pharmacy Workforce Challenges in

Indonesia. *Human Resources for Health*, *23*(1), 10. https://doi.org/10.1186/s12960-024-00967-0

Mizranita, V., Sim, T. F., Sunderland, B., Parsons, R., & Hughes, J. D. (2021). Pharmacists' and Pharmacy Technicians' Scopes of Practice in the Management of Minor Ailments at Community Pharmacies in Indonesia: A Cross-Sectional Study. *Pharmacy Practice*, *19*(2), 2295. https://doi.org/10.18549/PharmPract.2021.2.2295

Ndu, M. (2022). Examining Bourdieu's Concepts of Capital, Habitus, and Field in Women's Health Research in Nigeria: A Feminist Perspective. *International Journal of Qualitative Methods*, *21*. https://doi.org/10.1177/16094069221136765

Nkhoma, G., Lim, C. X., Kennedy, G. A., & Stupans, I. (2023). Teaching Cultural Competence to Undergraduate Pharmacy Students Using Vignettes (Case Scenarios) as an Innovative Teaching Intervention. *International Journal of Pharmacy Practice*, *31*(2), 225-229. https://doi.org/10.1093/ijpp/riac106

Oliver, R. L. (1993). Cognitive, Affective, and Attribute Bases of the Satisfaction Response. *Journal of Consumer Research*, *20*(3), 418-430.

Oliver, R. L. (2014). *Satisfaction: A Behavioral Perspective on the Consumer: A Behavioral Perspective on the Consumer*. Routledge.

Ozucelik, Y., Collins, J. C., & Pace, J. (2025). Identifying the educational needs of pharmacists engaging in professional development: A global systematic review. *Journal of the American Pharmacists Association*, *65*(5). https://doi.org/10.1016/j.japh.2025.102418

Pisani, E., Nistor, A. L., Hasnida, A., Parmaksiz, K., Xu, J., & Kok, M. O. (2019). Identifying Market Risk for Substandard and Falsified Medicines: An Analytic Framework Based on Qualitative Research in China, Indonesia, Turkey and Romania. *Wellcome Open Research*, *4*, 70. https://doi.org/10.12688/wellcomeopenres.15236.1

Ramlo, S. E. (2015). Q Methodology as a Tool for Program Assessment. *Mid-Western Educational Researcher*, *27*(3), 3.

Robson, A., & Robinson, L. (2015). The Information Seeking and Communication Model. *Journal of Documentation*, *71*(5), 1043-1069. https://doi.org/10.1108/jd-01-2015-0023

Roenn-Smidt, H., Shim, J. K., Larsen, K., & Hindhede, A. L. (2020). Hysteresis - or the Mismatch of Expectations and Possibilities among Relatives in a Transforming Health Care System. *Health Sociology Review*, *29*(1), 31-44. https://doi.org/10.1080/14461242.2019.1704425

Self Care Forum. (2020). *What Do We Mean by Self Care and Why Is It Good for People?* Retrieved 1 December from http://www.selfcareforum.org/about-us/what-do-we-mean-by-self-care-and-why-is-good-for-people/

Smedley, R. M., & Coulson, N. S. (2018). A Practical Guide to Analysing Online Support Forums. *Qualitative Research in Psychology*, *18*(1), 76-103. https://doi.org/10.1080/14780887.2018.1475532

Strand, M. A., Bratberg, J., Eukel, H., Hardy, M., & Williams, C. (2020). Community Pharmacists' Contributions to Disease Management During the Covid-19 Pandemic. *Preventing Chronic Disease*, *17*, E69. https://doi.org/10.5888/pcd17.200317

Suryaputra, G., Setiadi, A. P., Wibowo, Y. I., Setiawan, E., & Sunderland, B. (2021). Counselling Practices in an East Javan District, Indonesia: What Information Is Commonly Gathered by Pharmacy Staff? *Journal of Pharmaceutical Health Services Research*, *12*(2), 254-261. https://doi.org/10.1093/jphsr/rmab001

Tate, S. (1982). Q-Sort as a Needs Assessment Technique. *Technical Notes*, *23*.

Thomas, D. B., & Baas, L. R. (1992). The Issue of Generalization in Q Methodology: "Reliable Schematics" Revisited. *Operant SubJectivity*, *16*(112), 19.

University of Surabaya. (2024). *Pharmacy*. Retrieved 1 October from https://profil.ubaya.ac.id/index.php?page=html/programStudi_detail&prodi=-s1-farmasi&lang=en

Walshe, N., Condon, C., Gonzales, R. A., Burke, E., Chianáin, L. N., Thamanam, N., Smart, A., Jordaan, G., & Regan, P. O. (2022). Cultural Simulations, Authenticity, Focus, and Outcomes: A Systematic Review of the Healthcare Literature. *Clinical Simulation in Nursing*, *71*, 65-81. https://doi.org/10.1016/j.ecns.2022.05.008

Watkins, R., Meiers, M. W., & Visser, Y. (2012). *A Guide to Assessing Needs: Essential Tools for Collecting Information, Making Decisions, and Achieving Development Results*. World Bank Publications.

Watts, S., & Stenner, P. (2012). *Doing Q Methodological Research: Theory, Method and Interpretation*. SAGE Publications Ltd. https://doi.org/10.4135/9781446251911

Webler, T., Danielson, S., & Tuler, S. (2009). *Using Q Method to Reveal Social Perspectives in Environmental Research*. Social and Environmental Research Institute. https://www.betterevaluation.org/sites/default/files/Qprimer.pdf

Winick, E. (2024). *Adaptive Self-Care: Designing Resilience in the Onset of Physical Ability Loss* [Master's thesis, Pratt Institute]. New York.

Yılmaz Virlan, A., & Tomak, B. (2025). AI Tools for Writing: A Q-Method Study with Turkish Instructors of English. *Education and Information Technologies*, *30*(12), 16997-17021. https://doi.org/10.1007/s10639-025-13455-2

Appendices

Appendix A. The Interview Guides in Initial Interviews with International Travellers (Part A) and Community Pharmacy Staff (Part B)

Part A. Interview questions for international traveller participants about self-care and community pharmacy readiness

Number	Question
1	Would you travel (have you travelled) to any other places in Indonesia? Are you familiar with any health-related issues in those places? *Prompt: diarrhea, malaria, dengue*
2	Please tell me about your preparation before coming to Indonesia to anticipate any disease or travel-related disease. *Prompt: vaccination, OTC, prescription medicine, travel insurance*
3	Every country has different laws, regulations or policies on health, including purchasing or using medicines. How do you become aware of this?
4	Have you heard someone's opinion about healthcare access in Indonesia for an international traveller? What's your thought on that? *Prompt: trust, accessibility, white-people price*
5	What would you do if you developed an illness during travel? *Prompt: illness severity, health-seeking behaviour, telemedicine*
6	Please describe how do you use/manage medications during travel. How have you interacted with the local healthcare services? *Prompt: regular medication, lost medication, pharmacy*
7	How confident are you when you request a service from a community pharmacy here for your self-care needs? *Prompt: selecting an OTC product*
8	How do you perceive the quality of products available in community pharmacies here? *Prompt: substandard/counterfeit products*
9	How do you communicate if you need a service from a local community pharmacy here? *Prompt: sign language, gestures, interpreter, guide*
10	How easy finding a local community pharmacy here? *Prompt: phone apps*
11	How easy finding a similar product that you are familiar with in your country from community pharmacies here?
12	How affordable are the service and products provided by community pharmacies here? *Prompt: worthiness, different prices between international visitors and locals*
13	Overall, are you satisfied with the community pharmacy service? Why and why not?

Part B. Interview questions for community pharmacy staff participants about self-care and community pharmacy readiness

Number	Question
1	*Have you ever provided a service for an international traveller? Please tell me more.* *Prompt: type of service and product, frequency* Apakah Anda pernah melayani wisatawan mancanegara? Tolong diceritakan. Prompt: jenis layanan dan produk, frekuensi
2	*Does your community pharmacy provide a drug consultation service for international travellers? Please describe.* Apakah apotek Anda memberikan jasa konsultasi obat untuk wisatawan mancanegara? Tolong ceritakan.
3	*Do you think community pharmacies should be ready to provide self-care facilitation services for international travellers? Why?* Menurut Anda, apakah apotek sebaiknya siap menyediakan layanan yang membantu self-care untuk wisatawan mancanegara? Mengapa?
4	*What would be the differences between community pharmacies that can facilitate self-care for international travellers and that cannot?* Apa sajakah perbedaan antara apotek yang dapat memberikan layanan self-care untuk wisatawan mancanegara dengan yang tidak dapat?
5	*Do you feel to have sufficient knowledge, skills and ability to provide self-care facilitation for international travellers? Why?* Apakah Anda merasa memiliki cukup pengetahuan, keterampilan dan kemampuan untuk memberikan layanan self-care untuk wisatawan mancanegara? Mengapa?
6	*Would you think your fellow staff in your community pharmacy help each other to provide self-care facilitation for international travellers? How?* Apakah Anda pikir rekan-rekan di apotek saling membantu dalam memberikan layanan self-care untuk wisatawan mancanegara? Bagaimana?
7	*Would you think your fellow staff in your community pharmacy share the same efficacy to provide self-care facilitation for international travellers? Why?* Apakah Anda pikir rekan-rekan di apotek memiliki kepercayaan diri yang sama memberikan layanan self-care untuk wisatawan mancanegara? Mengapa?
8	*Would the owner or manager of your community pharmacy help enable their staff to provide self-care facilitation for international travellers?* Akankah pemilik atau pengelola apotek membantu staff apotek untuk mampu memberikan layanan self-care untuk wisatawan mancanegara?
9	*Would it benefit you as a staff if your community pharmacy provided a self-care facilitation service for international travellers? Why?* Apakah Anda mendapatkan keuntungan untuk diri Anda sendiri jika apotek Anda menyediakan layanan self-care untuk wisatawan mancanegara? Mengapa?
10	*Is there any incentive for providing self-care service for international travellers? How much?* Apakah ada insentif memberikan layanan self-care untuk wisatawan mancanegara? Seberapa besar?
11	*How do you help international travellers select an OTC product they need?* Bagaimana cara Anda membantu wisatawan mancanegara memilih produk obat OTC yang mereka butuhkan?

12	*What will you do if an international traveller cannot find the product they are looking for from your community pharmacy?* Apa yang akan Anda lakukan jika seorang wisatawan mancanegara tidak bisa mendapatkan produk yang mereka cari di apotek Anda?
13	*In what circumstances will you refer an international traveller to a physician or a hospital?* Dalam situasi bagaimana Anda akan merujuk wisatawan mancanegara ke dokter atau rumah sakit?
14	*Is there any pharmacy-related regulation that makes it difficult to facilitate self-care for international travellers? Why?* *Prompt: drug schedules/categories* Apakah ada kebijakan kefarmasian yang membuat Anda kesulitan memberikan layanan self-care kepada wisatawan mancanegara? Mengapa? Prompt: golongan obat

Appendix B. The Interview Guide Supplemented with Personas and Clinical Scenarios in Readiness Interviews

Penjajakan Kebutuhan Pelancong Non-Kesehatan dalam Perjalanan serta Kesiapan Pelayanan Kesehatan dalam Pertumbuhan Pariwisata di Indonesia

Wawancara Penelitian Kesiapan– Kelompok 4

Tim peneliti: Antonius Nugraha Widhi Pratama, Carl Schneider, Brahm Marjadi, Rebekah Moles

Model wawancara: daring menggunakan Zoom

A. Pendahuluan

1. Sambutan dan tujuan wawancara
   Selamat [pagi/siang/malam]. Terima kasih atas waktu dan kesediaan Anda untuk hadir dalam wawancara ini. Nama saya Antonius Nugraha Widhi Pratama, atau Anton. Saya adalah mahasiswa S3 di Sydney Pharmacy School, Faculty of Medicine and Health, The University of Sydney, Australia. Wawancara ini bertujuan untuk menggali persepsi kesiapan staf apotek (apoteker dan asisten apoteker) di Indonesia untuk memfasilitasi swa-rawat (*self-care*) pelancong mancanegara di Indonesia.

   Sebelum kita lanjutkan, bagaimanakah pemahaman Anda tentang swa-rawat?

   Terima kasih telah memberikan definisi swa-rawat. Penelitian ini menggunakan definisi swa-rawat dari WHO, yakni "kemampuan pribadi, keluarga, dan masyarakat untuk meningkatkan kesehatan, mencegah penyakit, dan memelihara kesehatan dan mengatasi penyakit dan kecacatan dengan atau tanpa dukungan dari penyedia layanan kesehatan."

2. Pembacaan Lembar Persetujuan Lisan
   Lihat dokumen lain (Lembar Persetujuan Lisan untuk Wawancara -Group 4-v 2.0.docx).

B. Latar Belakang Peserta

Peran dan keahlian profesi

1. Tolong ceritakan peran-peran profesi Anda, dan bagaimana peran-peran Anda tersebut berhubungan dengan layanan farmasi, kesehatan, atau perjalanan.

Pengalaman dengan layanan apotek

2. Apa pemahaman Anda tentang peran apotek dalam mendukung pelancong mancanegara?

C. Presentasi Karakter

Latar Belakang

Berdasarkan penelitian kami sebelumnya, ada beragam tipe pelancong yang datang ke Indonesia. Para pelancong ini ada yang membutuhkan atau tidak membutuhkan layanan apotek.

1. Wisatawan yang Ramah
2. Penjelajah Muda
3. Perencana yang Cermat

4. Pelancong yang Siap Sedia
5. Penjelajah Budaya
6. Pengusaha yang Suka Petualangan

Presentasi

Lihat dokumen lain untuk menampilkan alat peraga (REV-ID. Readiness study's personas-Group 4-v1.docx)

D. Diskusi Karakter/Persona

Setiap karakter memiliki masalah kesehatan. Pelancong pertama sakit saluran cerna. Pelancong kedua memiliki penyakit menular seksual. Pelancong ketiga memiliki astma dan nyeri telinga. Pelancong keempat memiliki serangan gout/asam urat. Pelancong kelima mengalami demam, sakit kepala, dan kedinginan. Pelancong keenam membutuhkan antimalaria.

1. Menurut Anda, apa saja yang dibutuhkan para pelancong di luar hal-hal yang berkaitan dengan kondisi kesehatan mereka?
2. Tantangan apa yang mungkin dihadapi para pelancong ketika mengakses layanan farmasi di Indonesia?
3. Bagaimana sebaiknya apotek komunitas merespon kasus-kasus tersebut secara komprehensif?
4. Apa saja program promosi kesehatan di tingkat daerah atau nasional yang relevan untuk pelancong mancanegara dalam melakukan swa-rawat saat berada di Indonesia?

Pertanyaan individu berdasarkan peran peserta

5. a. *Untuk staf apotek (apoteker dan asisten apoteker)/tenaga klinis kesehatan perjalanan*
   Dukungan apa yang dapat meningkatkan pengetahuan, keterampilan, dan rasa percaya diri Anda untuk memfasilitasi swa-rawat pelancong mancanegara?

   b. *Untuk perwakilan organisasi profesi apoteker:*
   Bagaimana organisasi Anda dapat membantu apoteker supaya mampu melayani pelancong mancanegara?
   Pemancing: pendidikan profesi berkelanjutan

   c. *Untuk akademisi:*
   Bagaimana penyelenggara pendidikan farmasi dapat membantu staf apotek (apoteker dan asisten apoteker) untuk berkerja di apotek komunitas di pusat pariwisata?
   Pemancing: mahasiswa farmasi, staf apotek, apoteker yag sudah berpraktik

   d. *Untuk pembuat kebijakan:*
   Apa pendapat Anda tentang layanan apotek untuk pelancong mancanegara saat ini? Kebijakan kesehatan apa yang dibutuhkan untuk mendukung jenis layanan kesehatan ini di masa depan?

   e. *Untuk pemandu wisata dan perjalanan, serta resepsionis hotel:*

Bagaimana Anda dapat membantu pelancong mancanegara yang membutuhkan layanan kesehatan?

E. Penutup

Kesimpulan dan refleksi

1. Menurut Anda, dalam hal apa saja apotek sudah memfasilitasi swa-rawat untuk pelancong mancanegara dengan baik?
2. Menurut Anda, dalam hal apa apotek belum memfasilitasi swa-rawat untuk pelancong mancanegara dengan baik?

Terima kasih

Terima kasih atas waktu dan pendapat Anda yang sangat berharga. Saya akan mengehentikan rekaman ini.

Personas and Clinical Scenarios

1. Wisatawan yang Ramah

Sally (61) adalah wanita asal Australia yang sering berkunjung ke Indonesia.

Dia aktif bergerak, memiliki kesadaran dan kemandirian yang tinggi saat bepergian. Misalnya, ia memakai tabir surya dengan kadar SPF tinggi dan rajin minum banyak air.

Dia selalu memastikan asuransi perjalanannya aktif sebelum meninggalkan Australia.

Dia berharap tenaga kesehatan di Indonesia sudah terbiasa dengan penyakit-penyakit tropis.

Dia membawa losartan 100mg, rosuvastatin 20mg, dan perlengkapan P3K.

Dia adalah penutur jati Bahasa Inggris dan tahu beberapa kata dalam Bahasa Indonesia.

Keluhan Utama

Sally kini sedang berlibur sendiri ke Bali, tujuan yang sudah sering dia kunjungi.

Sejak dua hari lalu, dia mengalami diare, kram dan sakit perut, mual, dan lemas sepulang dari pesta perkawinan di tepi pantai dan mengonsumsi ikan bakar, minuman dingin, dan makanan setempat lainnya.

Berdasarkan pengalaman sebelumnya, dia mengenali gejala-gejala tersebut sebagai *Bali belly*.

Dia datang ke apotek dekat hotel, hendak membeli azithromycin tanpa resep, dan loperamide.

Dia juga meminta saran kapan sebaiknya dia perlu pergi ke dokter atau rumah sakit.

2. Penjelajah Muda

Mahendra (30) adalah seorang *travel vlogger* laki-laki dari India.

Dia merasa muda dan cukup sehat untuk pergi seorang diri untuk pertama kalinya ke Bali, Indonesia.

Dia membawa beberapa obat tanpa resep (pereda nyeri, obat pilek) dan antibiotik (amoxicillin, levofloxacin).

Dia tidak bisa berbahasa Indonesia, tetapi fasih berbahasa Inggris.

Dia berharap tenaga kesehatan di Indonesia mampu mengenali gejala-gejala penyakit tropis endemik.

Keluhan Utama

Mahendra datang ke apotek dengan keluhan yang muncul dua hari lalu, yaitu rasa terbakar saat buang air kecil serta nyeri dan bengkak pada kedua testis.

Dia ingat gejala tersebut mirip dengan penyakit klamidia yang pernah dideritanya dan sembuh dengan azithromycin.

Dia mengaku melakukan hubungan seks tanpa pengaman lima hari yang lalu.

Dia ingin memastikan bahwa antibiotik yang dibawanya bisa digunakan untuk mengobati penyakitnya, atau dia bisa membeli azithromycin tanpa resep dokter.

Dia enggan pergi ke dokter dan berharap staf apotek dapat mengatasi masalahnya.

3. Perencana yang Cermat

Giovanni (26) adalah mahasiswa pria asal Italia. Dia punya persiapan matang untuk perjalanan ke luar negeri, khususnya ke Indonesia.

Persiapannya termasuk mengonsumsi probiotik dua minggu sebelum dan selama berlibur, dan membawa obat yang tersusun rapi dalam tas khusus beserta daftar obat dengan tanda tangan dokter serta resep obat ekstra.

Giovanni membawa salbutamol (Ventolin) dan budesonide (Pulmicort Flexhaler) untuk mengatasi asma ringan yang menetap.

Giovanni lebih percaya kepada tenaga kesehatan di negara asalnya daripada di negara tujuan.

Dia tidak bisa berbahasa Indonesia, tapi cukup memahami Bahasa Inggris.

Keluhan Utama

Giovanni mengalami nyeri dan kemerahan pada telinga. Masalah ini muncul setelah *snorkelling* saat berwisata dengan kapal selama dua hari di Labuan Bajo.

Ini adalah kunjungan pertamanya ke Indonesia, dan dia datang bersama pacar wanitanya.

Ia menghubungi dokter di negara asalnya dan dianjurkan untuk swa-rawat dengan tetes telinga yang dapat dibeli bebas yang mengandung isopropyl alcohol dan glycerin.

Dia datang ke apotek di dekat hotelnya, dan bertanya apakah ia bisa membeli tetes telinga yang dianjurkan dokternya.

4. Pelancong yang Siap Sedia

Fatimah (45) adalah pekerja sosial wanita dari Malaysia yang bepergian bersama teman-temannya. Dia sudah berada di Toraja Utara selama dua bulan untuk suatu proyek sosial.

Dia adalah orang yang penuh persiapan, terlebih karena ia menderita gout/hiperurisema selama 4 tahun terakhir.

Dia lebih percaya kepada tenaga kesehatan di Malaysia daripada di Indonesia.

Dia paham risiko penyakit menular vektor di Indonesia dan aktif mencari informasi tentang negara yang akan dikunjunginya.

Dia membawa allopurinol 300 mg untuk konsumsi harian, celecoxib 200 mg dua kali sehari bila perlu, dan colchicine 0.6 mg bila goutnya kambuh. Dia juga membawa resep dokter.

Dia berbicara Bahasa Melayu dan Inggris.

Dia akan segera kembali ke Malaysia, tapi penerbangannya dibatalkan karena letusan gunung berapi.

Keluhan Utama

Fatimah sedang berada di apotek, dengan keluhan gout yang kambuh, dan mencari colchicine karena persediaannya habis.

Dia membawa resep dokter dari Malaysia.

Dia percaya bahwa stress akibat batal terbang memicu kekambuhan goutnya.

Ia menyatakan sudah berkonsultasi dengan teman dokter di negara asalnya yang menganjurkan untuk segera minum colchicine 1.2 mg, diikuti dosis 0.6 mg enam jam kemudian, dan 0.6 mg satu atau dua kali sehari selama dua sampai tiga hari untuk mengobati kekambuhannya.

5. Penjelajah Budaya

Valerie (35) adalah fotografer profesional wanita dari Swiss.

Ia menghargai dan menghormati pebedaan budaya karena bepergian ke banyak negara adalah bagian dari pekerjaannya.

Ketika sakit, ia mengandalkan layanan kesehatan di negara tujuannya. Ia berharap keluhan dan perasaannya dapat dipahami oleh tenaga kesehatan.

Dia tidak ragu menggunakan alat komunikasi seperti penerjemah demi kelancaran komunikasi.

Dia berharap mendapatkan harga tanpa diskriminasi dan produk berkualitas baik di apotek.

Dia mengerti Bahasa Indonesia dasar dan tidak lancar berbahasa Inggris.

Keluhan Utama

Ini adalah kunjungan Valerie yang ketiga ke Indonesia bersama suaminya.

Kini dia ada di Yogyakarta setelah menginap tiga hari di Borobudur.

Dia mengunjungi Candi Borobudur dan mendaki bukit berhutan untuk melihat matahari terbit. Dia lupa memakai anti nyamuk sebelum mendaki.

Dia datang ke apotek, mengeluh demam, nyeri kepala, dan menggigil sejak tadi malam.

Dia mau memastikan bahwa kondisinya tidak serius dan mencari obat tanpa resep untuk meredakan gejala yang dialami.

6. Pengusaha yang Suka Petualangan

Ming (42) adalah pengusaha pria asal Daratan Tiongkok.

Ia suka mempelajari dan menghargai budaya lokal.

Ia tidak bisa Bahasa Indonesia atau Bahasa Inggris.

Karena kendala bahasa, Ming biasanya menyewa pemandu wisata lokal.

Ia berharap tenaga kesehatan Indonesia punya kompetensi yang serupa dengan tenaga kesehatan di Tiongkok.

Sekali waktu, ia memakai obat OTC, seperti pereda nyeri dan dispepsia.

Dia percaya akan khasiat obat itu berdasarkan pengalamannya dan orang-orang di sekitarnya

Keluhan Utama

Ming sekarang berada di Yogyakarta bersama istri dan putranya. Ini adalah kali pertama mereka ke Indonesia.

Mereka berencana untuk terbang ke Indonesia Timur.

Ming sudah mendengar bahwa penyakit malaria dapat menjadi masalah.

Dia berada di apotek bersama pemandu wisata lokal, hendak membeli obat bebas untuk mencegah malaria. Jika tidak ada, dia bersedia pergi ke dokter.

Dia bertanya kepada staf apotek tentang tindakan-tindakan pencegahan yang perlu dia waspadai.

Appendix C. Python Codes for Web Scraping Online Discussion Forums and Data Preprocessing

Web Scraping Codes on TripAdvisor

```
# -*- coding: utf-8 -*-
"""
Created on Wed Dec  7 14:22:10 2022
Web scraping TripAdvisor forum

https://www.tripadvisor.com/


The website does not have forums that specifically discuss health-related
topics. Therefore, scraping is based on the search results from the following
keywords:

    disease
    illness
    health
    sick
    doctor
    physician
    medicine
    drug
    pharmacist
    hospital
    pharmacy
    # travel health
    # insurance
    self-care
    medical
    unwell
    prescription
    medication
    vaccine
    vaccination


# add: unwell, prescription, medication, vaccine, vaccination
# remove: travel health, insurance


One searh result page consists of 10 topics.
One thread page consists of 10 posts



Practice tutorial:
    How Web Scrap Multiple Pages with ONE Function with Python
    https://www.youtube.com/watch?v=m-koIYWCaIo&t=147s

@author: Antonius Pratama
"""
```

```
#preparing resources
import requests
from bs4 import BeautifulSoup as bs
import pandas as pd
import re
# import math
import os
import random
import time
import cloudscraper as cs       #because the target is protected by cloudflare
from datetime import datetime as dt


today = dt.today().strftime('%d-%m-%Y')

#preferences
headers = {
    'Access-Control-Allow-Origin': '*',
    'Access-Control-Allow-Methods': 'GET',
    'Access-Control-Allow-Headers': 'Content-Type',
    'accept': '*/*',
    'accept-encoding': 'gzip, deflate',
    'accept-language': 'en,mr;q=0.9',
    'User-Agent':'Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36
(KHTML, like Gecko) Chrome/107.0.0.0 Safari/537.36'
    }



# discussion_list = []
discussion_thread = []
search_result_list = []

forum_name = 'tripadvisor'
forum_url = "https://www.tripadvisor.com"

# add: unwell, prescription, medication, vaccine, vaccination
# remove: travel health, insurance,
# values[0] are added with one each because it will be the max number in range()
of a for loop
search_dict = {
                #       'disease'                                       :       [78,
'https://www.tripadvisor.com/SearchForums?q=disease&scope=2&sub-
search=Search&ff=7219&geo=294225&returnTo=__2F__ShowForum__2D__g294225__2D__i7
219__2D__Indonesia__2E__html'],
                #       'illness'                                       :       [49,
'https://www.tripadvisor.com/SearchForums?q=illness&scope=2&sub-
search=Search&ff=7219&geo=294225&returnTo=__2F__ShowForum__2D__g294225__2D__i7
219__2D__Indonesia__2E__html'],
                #       'health'                                        :       [283,
'https://www.tripadvisor.com/SearchForums?q=health&scope=2&sub-
search=Search&ff=7219&geo=294225&returnTo=__2F__ShowForum__2D__g294225__2D__i7
219__2D__Indonesia__2E__html'],  #239
               #       'sick'                                          :       [273,
'https://www.tripadvisor.com/SearchForums?q=sick&scope=2&sub-
```

```
search=Search&ff=7219&geo=294225&returnTo=__2F__ShowForum__2D__g294225__2D__i7
219__2D__Indonesia__2E__html'],  #160
                  'doctor'                                    :        [229,
'https://www.tripadvisor.com/SearchForums?q=doctor&scope=2&sub-
search=Search&ff=7219&geo=294225&returnTo=__2F__ShowForum__2D__g294225__2D__i7
219__2D__Indonesia__2E__html'],
                  #        'physician'                        :        [8,
'https://www.tripadvisor.com/SearchForums?q=physician&scope=2&sub-
search=Search&ff=7219&geo=294225&returnTo=__2F__ShowForum__2D__g294225__2D__i7
219__2D__Indonesia__2E__html'],
                  #        'medicine'                         :        [72,
'https://www.tripadvisor.com/SearchForums?q=medicine&scope=2&sub-
search=Search&ff=7219&geo=294225&returnTo=__2F__ShowForum__2D__g294225__2D__i7
219__2D__Indonesia__2E__html'],
               #       'drug'                                 :       [97,
'https://www.tripadvisor.com/SearchForums?q=drug&scope=2&sub-
search=Search&ff=7219&geo=294225&returnTo=__2F__ShowForum__2D__g294225__2D__i7
219__2D__Indonesia__2E__html'],
                   #         'pharmacist'                     :         [19,
'https://www.tripadvisor.com/SearchForums?q=pharmacist&scope=2&sub-
search=Search&ff=7219&geo=294225&returnTo=__2F__ShowForum__2D__g294225__2D__i7
219__2D__Indonesia__2E__html'],
                  #        'hospital'                         :        [169,
'https://www.tripadvisor.com/SearchForums?q=hospital&scope=2&sub-
search=Search&ff=7219&geo=294225&returnTo=__2F__ShowForum__2D__g294225__2D__i7
219__2D__Indonesia__2E__html'],
                  #        'pharmacy'                         :        [75,
'https://www.tripadvisor.com/SearchForums?q=pharmacy&scope=2&sub-
search=Search&ff=7219&geo=294225&returnTo=__2F__ShowForum__2D__g294225__2D__i7
219__2D__Indonesia__2E__html'],
                  #        #        'travel        health'        :        [83,
'https://www.tripadvisor.com/SearchForums?q=travel+health&scope=2&sub-
search=Search&ff=7219&geo=294225&returnTo=__2F__ShowForum__2D__g294225__2D__i7
219__2D__Indonesia__2E__html'],
                #       #       'insurance'                    :       [443,
'https://www.tripadvisor.com/SearchForums?q=insurance&scope=2&sub-
search=Search&ff=7219&geo=294225&returnTo=__2F__ShowForum__2D__g294225__2D__i7
219__2D__Indonesia__2E__html'],
    # 'self-care'     : [2, 'https://www.tripadvisor.com/SearchForums?q=self-
care&scope=2&sub-
search=Search&ff=7219&geo=294225&returnTo=__2F__ShowForum__2D__g294225__2D__i7
219__2D__Indonesia__2E__html'],
                #       'medical'                              :       [244,
'https://www.tripadvisor.com/SearchForums?q=medical&scope=2&sub-
search=Search&ff=7219&geo=294225&returnTo=__2F__ShowForum__2D__g294225__2D__i7
219__2D__Indonesia__2E__html'],
                #       'unwell'                               :       [39,
'https://www.tripadvisor.com/SearchForums?q=unwell&scope=2&sub-
search=Search&ff=7219&geo=294225&returnTo=__2F__ShowForum__2D__g294225__2D__i7
219__2D__Indonesia__2E__html'],
                     #          'prescription'           :          [86,
'https://www.tripadvisor.com/SearchForums?q=prescription&scope=2&sub-
search=Search&ff=7219&geo=294225&returnTo=__2F__ShowForum__2D__g294225__2D__i7
219__2D__Indonesia__2E__html'],
                   #         'medication'                     :         [114,
'https://www.tripadvisor.com/SearchForums?q=medication&scope=2&sub-
```

```
search=Search&ff=7219&geo=294225&returnTo=__2F__ShowForum__2D__g294225__2D__i7
219__2D__Indonesia__2E__html'],
                #       'vaccine'                                   :       [70,
'https://www.tripadvisor.com/SearchForums?q=vaccine&scope=2&sub-
search=Search&ff=7219&geo=294225&returnTo=__2F__ShowForum__2D__g294225__2D__i7
219__2D__Indonesia__2E__html'],
                    #       'vaccination'                   :       [102,
'https://www.tripadvisor.com/SearchForums?q=vaccination&scope=2&sub-
search=Search&ff=7219&geo=294225&returnTo=__2F__ShowForum__2D__g294225__2D__i7
219__2D__Indonesia__2E__html']
    }


# pausing request to allow server taking a break
time.sleep(random.randint(20, 50))

# removing duplicates in search results
def removeListDuplicates(dict):
    new_dict = []

    for dictionary in dict:
        if dictionary not in new_dict:
            new_dict.append(dictionary)
    return new_dict

# getting the largest page number from a thread
def getMaxPageNum(url):
    r = requests.get(url, headers=headers, timeout=30)
    soup = bs(r.text,'html.parser')

    if soup.find('div',{'class':'pgLinks'}):
        pagination = soup.find('div',{'class':'pgLinks'})
        page_nav = pagination.find_all('a')
        if len(page_nav) >=2:
            max_page_num = int(page_nav[-2].get_text())
            max_page_num += 1
        else:
            max_page_num = 2
    else:
        max_page_num = 2

    return max_page_num

def updateThreadURL(url, page):
    segments = url.split('/')
    target_segment = segments[-1].split('-')
    page = page - 1
    insert = 'o' + str(page) + '0'
    target_segment.insert(4, insert)
    updated_segment = '-'.join(target_segment)
    segments[-1] = updated_segment
    updated_url = '/'.join(segments)

    return updated_url

def getThread(forum_topic, link, page):
```

```
    # automatically inserting new parameter for next page
    if page >= 2:
        link = updateThreadURL(link, page)
    print(link, f'Page: {page}')

    requests.packages.urllib3.disable_warnings()

    req = requests.get(link, headers=headers, timeout=30, verify=False)
    # print(req.status_code)

    soup = bs(req.content, 'html.parser')

    thread_title = soup.find('h1',{'id':'HEADING'}).text

    thread = soup.find_all('div',{'class':'postcontent'})

    authors = soup.find_all('div',{'class':'profile'})

    for post, author in zip(thread, authors):
        #no post quote
        if author.find('div',{'class':'username'}):
            post_author = author.find('span').text
        else:
            post_author = ''

        if post.find('span',{'class':'postNum'}):
                                                            post_number         =
post.find('span',{'class':'postNum'}).get_text().replace('.','')
        else:
            # if there is no post number, the post is a starter
            post_number = 0

         post_text  =  post.find('div',{'class':'postBody'}).text.replace('\n',
'')
        # post_text = post_text.encode('windows-1252').decode('utf-8')

        if page >=2 and post_number == 0:
            message = None
        else:
            message = {
                'forum_topic'    : forum_topic.replace('\n', ''),
                'thread_title'   : thread_title.replace('\n', ''),
                'post_number'    : post_number,
                                                    'post_date'                 :
post.find('div',{'class':'postDate'}).get_text(),
                'post_author'    : post_author,
                'post_quote'     : 'NA',
                'post_text'      : post_text,
                'post_link'      : link
                }

        if message is not None:
            discussion_thread.append(message)

    return
```

```
# getting list of search results and then crawl to each thread
def getSearchList(keyword, search_url, page):

    if page >= 2:
        new_page = str(page+1)
                                                        search_url              =
f'https://www.tripadvisor.com.au/SearchForums?q={keyword}&s=%20&o={new_page}0&
ff=7219&geo=294225'

    requests.packages.urllib3.disable_warnings()

    req = requests.get(search_url, headers=headers, timeout=30, verify=False)
    print(req.status_code)

    soup = bs(req.content, 'html.parser')

    search_results = soup.find_all('tr',{'class':'topicrow'})

    for result in search_results:

        a = result.find_all('a')
        href = result.find('a')['href']

        #collecting data for each topic
        topic = {
            # 'forum_topic'    : keyword,
            # 'page'           : page,
            'title'          : a[0].text,
            'link'           : forum_url + href,
            # 'post_date'      : result.find('span').text,
            # 'post_author'    : a[2].text,
            # 'response_count': 'NA',
            # 'view_count'     : 'NA'
        }

        search_result_list.append(topic)

    return



for keyword, page in search_dict.items():

    search_result_list.clear()
    discussion_thread.clear()

    print('total page:', page[0])
    #scraping all discussion titles from a forum topic
    for i in range(1,page[0]):
        print('keyword:', keyword, ' | page:', i)

        getSearchList(keyword, page[1], i)

    clean_search_result_list = removeListDuplicates(search_result_list)
```

```
    print(clean_search_result_list)
    print(len(clean_search_result_list))

    for idx, thread in enumerate(clean_search_result_list):
        max_page_num = getMaxPageNum(thread['link'])
        print(idx, thread)


        for i in range(1, max_page_num):
            getThread(keyword, thread['link'],i)

                        full_file_name   =   os.path.join("./"   +   forum_name,
f'{keyword}_threads_{today}')

            #creating directory if it does not exist
            if not os.path.exists(forum_name):
                os.mkdir(forum_name)

            df = pd.DataFrame(discussion_thread)
            df.to_json(full_file_name + '.json')
            df.to_csv(full_file_name + '.csv')

print('Rampung!')
```

Web Scraping Codes on BaliPod

```
# -*- coding: utf-8 -*-
"""
Created on Mon Dec  5 16:17:42 2022
Web scraping Balipod

https://balipod.com/

Balipod is an expat forum in Bali.

Scraping search results using keywords because it does not have forum that
specifically discuss health-related topics

Seach keywords:
    disease
    illness
    health
    sick
    doctor
    physician
    medicine
    drug
    pharmacist
    hospital
    pharmacy
    travel health
    insurance
    self-care
    medical


# add: unwell, prescription, medication, vaccine, vaccination
# remove: travel health, insurance

One thread page consists of 20 posts.

DIFFICULTY: everyday, they change one segment of search URL path.
The segment contains 6 digit numbers.
https://balipod.com/forum/search/281451/?q=sick&o=date

281451 is the culprit segment.

So, check the link first whenever wants to scrap.



Practice tutorial:
    How Web Scrape Multiple Pages with ONE Function with Python
    https://www.youtube.com/watch?v=m-koIYWCaIo&t=147s

@author: Antonius Pratama
"""
```

```
#preparing resources
import requests
from bs4 import BeautifulSoup as bs
import pandas as pd
# import re
# import math
import os
# import cloudscraper as cs       #because the target is protected by cloudflare
import random
import time
from datetime import datetime as dt


today = dt.today().strftime('%d-%m-%Y')

#preferences
headers = {
    'Access-Control-Allow-Origin': '*',
    'Access-Control-Allow-Methods': 'GET',
    'Access-Control-Allow-Headers': 'Content-Type',
    'accept': '*/*',
    'accept-encoding': 'gzip, deflate',
    'accept-language': 'en,mr;q=0.9',
    'User-Agent':'Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36
(KHTML, like Gecko) Chrome/107.0.0.0 Safari/537.36'
    }


# discussion_list = []
discussion_thread = []
search_result_list = []

forum_name = 'balipod'
forum_url = "https://balipod.com"

# add: unwell, prescription, medication, vaccine, vaccination
# remove: travel health, insurance
# NOTE: the url segment containing numbers is subject to change everyday

search_dict = {
                #       'disease'                                       :       [9,
'https://balipod.com/forum/search/283439/?q=disease&o=date'],
                #       'disease'                                     :       [10,
'https://balipod.com/forum/search/283564/?q=disease&o=date'],
                #       'illness'                                     :       [10,
'https://balipod.com/forum/search/283578/?q=illness&o=date'],
               #       'sick'                                          :       [11,
'https://balipod.com/forum/search/283603/?q=sick&o=date'],
                #       'health'                                      :       [11,
'https://balipod.com/forum/search/283604/?q=health&o=date'],
                #       'doctor'                                      :       [11,
'https://balipod.com/forum/search/283620/?q=doctor&o=date'],
                  #        'physician'                                  :        [3,
'https://balipod.com/forum/search/283621/?q=physician&o=date'],
                  #        'medicine'                                 :        [10,
'https://balipod.com/forum/search/283625/?q=medicine&o=date'],
```

```
                #       'drug'                                          :       [10,
'https://balipod.com/forum/search/283626/?q=drug&o=date'],
                    #         'pharmacist'                          :         [2,
'https://balipod.com/forum/search/283627/?q=pharmacist&o=date'],
                  #         'hospital'                                :        [11,
'https://balipod.com/forum/search/283628/?q=hospital&o=date'],
                  #         'pharmacy'                                :        [5,
'https://balipod.com/forum/search/283629/?q=pharmacy&o=date'],
    # # 'travel health' : [1, ''],
    # # 'insurance'     : [1, ''],
    # 'self-care'     : [10, 'https://balipod.com/forum/search/283455/?q=self-
care&o=date'],
                #       'medical'                                       :       [11,
'https://balipod.com/forum/search/283631/?q=medical&o=date'],
                 #       'unwell'                                        :       [3,
'https://balipod.com/forum/search/283619/?q=unwell&o=date'],
                        #           'prescription'            :           [6,
'https://balipod.com/forum/search/283632/?q=prescription&o=date'],
                    #         'medication'                          :         [10,
'https://balipod.com/forum/search/283633/?q=medication&o=date'],
                  'vaccine'                                         :        [11,
'https://balipod.com/forum/search/283634/?q=vaccine&o=date'],
                        'vaccination'                           :           [11,
'https://balipod.com/forum/search/283635/?q=vaccination&o=date']
    }

# max number of pages in the sub-forum/topic to get the list of thread
# max_num_pages = 2

time.sleep(random.randint(10, 35))


# removing duplicates in search results
def removeListDuplicates(dict):
    new_dict = []

    for dictionary in dict:
        if dictionary not in new_dict:
            new_dict.append(dictionary)
    return new_dict

# getting the largest page number from search results
def getMaxPageNum(url):
    # scraper = cs.create_scraper(delay=20)
    # scraper_text = scraper.get(url, headers=headers).text
    r = requests.get(url, headers=headers, timeout=30)
    soup = bs(r.text,'html.parser')

    if soup.find_all('li',{'class':'pageNav-page'}):
        page_nav = soup.find_all('li',{'class':'pageNav-page'})
        max_page_num = int(page_nav[-1].get_text())
        max_page_num += 1
    # print(max_page_num)
    else:
        max_page_num = 2
```

```
    return max_page_num


def getThread(forum_topic, link, page):
    # https://balipod.com/forum/threads/booster-time.13488/page-2

    if page >= 2:
        link = f'{link}/page-{page}'

    print(f'page: {page} | url: {link}')

    # scraper = cs.create_scraper(delay=20)
    # scraper_text = scraper.get(link, headers=headers).text

    # soup = bs(scraper_text, 'html.parser')

    r = requests.get(link, headers=headers, timeout=30)
    soup = bs(r.text,'html.parser')

    #print(soup)
    if soup.find('h1',{'class':'p-title-value'}):
        thread_title = soup.find('h1',{'class':'p-title-value'}).text.strip()
    else:
        thread_title = 'None'
    print(thread_title)

    thread = soup.find_all('div',{'class':'message-inner'})

    for post in thread:
        # fetching post_text
        post_text = post.find('div',{'class':'bbWrapper'}).get_text().strip()

        # fetching and processing post number
        post_li = post.find_all('li')
        post_number = post_li[2].get_text().replace('#', '').strip()

        # If a post has a quote from previous post, catch and put it to another
column. Remove quote from post_text.
        if post.find('blockquote'):
            post_quote_all = post.find('blockquote').get_text().strip()
            post_text = post_text.replace(post_quote_all, '').strip()
              post_quote = post.find('div',{'class':'bbCodeBlock-expandContent
js-expandContent'}).text.strip()
        else:
            post_quote = ''

        message = {
            'forum_topic'   : forum_topic,
            'thread_title'  : thread_title,
            'post_number'   : post_number,
            'post_date'     : post.find('time',{'class':'u-dt'}).get_text(),
            'post_author'   : post.find('h4',{'class':'message-name'}).text,
            'post_quote'    : post_quote,
            'post_text'     : post_text.replace('\n','').replace('\t','')
        }
```

```
        discussion_thread.append(message)
        # print(discussion_thread)

    return


def getSearchList(search_url, page):

    """
    getting list of search results

    """
    if int(page) >= 2:
        search_url = search_url.replace('?', f'?page={page}&')

    # scraper = cs.create_scraper(delay=20)
    # scraper_text = scraper.get(search_url, headers=headers).text
    r = requests.get(search_url, headers=headers, timeout=30)
    soup = bs(r.text,'html.parser')
    search_results = soup.find_all('div',{'class':'contentRow-main'})

    for result in search_results:

        # finding and processing url by removing the last segment
        # because some results may be from the second page, or more, of a thread
            thread_url = forum_url + result.find('h3',{'class':'contentRow-
title'}).findNext()['href']
        segments = thread_url.rpartition('/')
        thread_url = str(segments[0])

        #collecting data for each topic
        topic = {
                'title'             :  result.find('h3',{'class':'contentRow-
title'}).text.replace('\n',''),
            'link'          : thread_url,
        }

        search_result_list.append(topic)

    return search_result_list



# aaannndddd action!
for keyword, page in search_dict.items():

    search_result_list.clear()
    discussion_thread.clear()

    print('total page:', page[0])
    #scraping all discussion titles from a forum topic
    for i in range(1, page[0]):
        print('keyword:', keyword, ' | page:', i)

        getSearchList(page[1], i)
```

```
    clean_search_result_list = removeListDuplicates(search_result_list)

    print(clean_search_result_list)

    for thread in clean_search_result_list:
        max_page_num = getMaxPageNum(thread['link'])

        for i in range(1, max_page_num):
            getThread(keyword, thread['link'],i)

                        full_file_name   =   os.path.join("./"   +   forum_name,
f'{keyword}_threads_{today}')

            #creating directory if it does not exist
            if not os.path.exists(forum_name):
                os.mkdir(forum_name)

            df = pd.DataFrame(discussion_thread)
            df.to_json(full_file_name + '.json')
            df.to_csv(full_file_name + '.csv')


print('Rampung!')
```

Web Scraping Codes on the Living in Indonesia Expat Forum

```
# -*- coding: utf-8 -*-
"""
Created on Wed Nov 30 16:15:30 2022

Web scraping Living in Indonesia Expat Forum

www.livinginindonesiaforum.org
Forum topics:
    1. Health, Medical and Healthy Living
    2. Living Outside of Jakarta
    3. Family Life in Indonesia
    4. Travel
    5. Dining Out, Food & Drink

One thread page consists of 15 posts


Practice tutorial:
    How Web Scrape Multiple Pages with ONE Function with Python
    https://www.youtube.com/watch?v=m-koIYWCaIo&t=147s

@author: Antonius Pratama
"""
#preparing resources
import requests
from bs4 import BeautifulSoup as bs
import pandas as pd
import re
import math
import os
import random
import time

#preferences
headers = {
    'Access-Control-Allow-Origin': '*',
    'Access-Control-Allow-Methods': 'GET',
    'Access-Control-Allow-Headers': 'Content-Type',
    'accept': '*/*',
    'accept-encoding': 'gzip, deflate',
    'accept-language': 'en,mr;q=0.9',
    'User-Agent':'Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36
(KHTML, like Gecko) Chrome/107.0.0.0 Safari/537.36'
    }

discussion_list = []
discussion_thread = []

forum_name = 'livinginindonesiaforum'

target_topics = [
      'https://www.livinginindonesiaforum.org/forum/lifestyle/dining-out-food-
drink',            #this has no problem
```

```
    'https://www.livinginindonesiaforum.org/forum/lifestyle/travel',
                #this has no problem
      'https://www.livinginindonesiaforum.org/forum/general/living-outside-of-
jakarta',          #this has no problem
      'https://www.livinginindonesiaforum.org/forum/family-corner/family-life-
in-indonesia',     #this has no problem
     'https://www.livinginindonesiaforum.org/forum/general/health-medical-and-
healthy-living'  #this has no problem
    ]

#max number of pages in the sub-forum/topic to get the list of thread
max_num_pages = 21

# pausing request to allow server taking a break
time.sleep(random.randint(10, 20))


# cleaning annoying html tags inside text
def cleanFontColor (string):
    string = string.replace('COLOR','')
    string = string.replace('000000','')
    string = string.replace('009933','')
    string = string.replace('FONT','')
    string = string.replace('arial','')
    string = string.replace('verdana','')

    return str(string)


# scraping posts in a thread
def getThread(forum_topic, link, page):
    #target
    if page >=2:
        link = f'{link}/page{page}'

    print(link)

    #opening connection
    r = requests.get(link, headers=headers, timeout=15, verify=False)

    soup = bs(r.text, 'html.parser')

      h1  =  soup.find_all('h1',{'class':'main-title  js-main-title  hide-on-
editmode'})

    if len(h1) == 0:
        clean_thread_title = ''
    else:
        clean_thread_title = h1[1].get_text().strip()

        #   thread   =   soup.find_all('div',{'class':'b-post__content   js-
post__content'})
    thread = soup.find_all('div',{'class':'l-row l-row__fixed--left'})

    for post in thread:
```

```
                        clean_post_number     =     post.find('a',{'class':'b-
post__count'}).text.replace('#','')

                    post_text    =    post.find('div',{'class':'js-post__content-
text'}).get_text().strip()

        # If a post has a quote from previous post, catch and put it to another
column. Remove quote from post_text.
        if post.find('div',{'class':'quote_container'}):
                                                                post_quote         =
post.find('div',{'class':'quote_container'}).get_text().strip()
            quote_author = ''
            if not post.find('div',{'class':'bbcode_postedby'}) == None:
                                                                quote_author       =
post.find('div',{'class':'bbcode_postedby'}).get_text().strip()
            post_text = post_text.replace(post_quote, '')
            post_quote = post_quote.replace(quote_author,'')
        else:
            post_quote = ''

        # cleaning post_quote and post_text
        clean_post_quote = re.sub('[^a-zA-Z0-9 \n\.]', ' ', post_quote).strip()
        post_text = cleanFontColor(post_text)
        clean_post_text = re.sub('[^a-zA-Z0-9 \n\.]', ' ', post_text).strip()

        # fetching post_author
        post_author = post.find('div',{'class':'author'}).text.strip()

        message = {
            'forum_topic'    : forum_topic,
            'thread_title'   : clean_thread_title,
            'post_number'    : clean_post_number,
                        'post_date'           :   post.find('div',{'class':'b-
post__timestamp'}).text,
            'post_author'    : post_author,
            'post_quote'     : clean_post_quote,
            'post_text'      : clean_post_text
        }

        discussion_thread.append(message)

    return


#getting discussion list

def getDiscussionList(target_topic_url, page):
    #target
    url = f'{target_topic_url}/page{page}'

    #opening connection
    r = requests.get(url, headers=headers, timeout=15, verify=False)
    soup = bs(r.text, 'html.parser')

    topics = soup.find_all('tr', {'class':'topic-item'})
```

```
    forum_topic = target_topic_url.rsplit("/",-1)[-1]
     forum_topic = re.sub('[^a-zA-Z0-9 \n\.]', '-', forum_topic).encode('utf-
8','surrogateescape').decode('utf-8')

    for item in topics:

           response_count = getattr(item.find('div',{'class':'posts-count'}),
'text', None)

        if response_count == None:
            response_count = 1
        else:
                                response_count    =    response_count.replace('
response','').replace('s','')
            response_count = int(response_count)+1

        view_count = getattr(item.find('div',{'class':'views-count'}), 'text',
None)

        if view_count == None:
            view_count = 1
        else:
            view_count = view_count.replace(' views','')

        #collecting data for each topic
        topic = {
        'forum_topic': forum_topic,
        'page'      : page,
             'title'         :  item.find('a',{'class':'topic-title  js-topic-
title'}).text,
             'link'          :  item.find('a',{'class':'topic-title  js-topic-
title'})['href'],
        'post_date' : item.find('span',{'class':'date'}).text,
        'response_count' : response_count,
        'view_count': view_count
        }

        print(topic['response_count'])

        #calculating the total number of pages for each thread
        if topic['response_count'] >= 15:
            page_num = math.ceil(1+(topic['response_count']/15))
        else:
            page_num = 1

        print(page_num)

        for i in range(1,page_num):
            getThread(forum_topic, topic['link'],i)

        #creating a dictionary using append()
        discussion_list.append(topic)

    #preparing output
    full_file_name = os.path.join("./" + forum_name, forum_topic + "_threads")
```

```
    #creating directory if it does not exist
    if not os.path.exists(forum_name):
        os.mkdir(forum_name)


    df = pd.DataFrame(discussion_thread)
    df.to_json(full_file_name + ".json")
    df.to_csv(full_file_name + ".csv")

    return


for target_topic in target_topics:

    discussion_thread.clear()
    discussion_list.clear()

    #scraping all discussion titles from a forum topic
    for i in range(1, max_num_pages):
        getDiscussionList(target_topic, i)

#
================================================================================
#     #creating files
#     df = pd.DataFrame(discussion_list)
#
#     topic_title = target_topic.rsplit("/",-1)[-1]
#
#     full_file_name = os.path.join('./'+forum_name, topic_title)
#
#     #creating directory if it does not exist
#     if not os.path.exists(forum_name):
#         os.mkdir(forum_name)
#
#     df.to_json(full_file_name + '.json')
#     df.to_csv(full_file_name + '.csv')
#
================================================================================

print('Rampung!')
```

Web Scraping Codes on the Expat Indo Forum

```
# -*- coding: utf-8 -*-
"""
Created on Wed Nov 30 16:15:30 2022

Web scraping Expat Indonesia forum

www.expatindo.org
Forum topics:
    1. Health and Medical Care
    2. Hobbies, Sports, Travel and Entertainment
    3. Where to get? Where to find?


One thread page consists of 20 posts


Practice tutorial:
    How Web Scrape Multiple Pages with ONE Function with Python
    https://www.youtube.com/watch?v=m-koIYWCaIo&t=147s

@author: Antonius Pratama
"""
#preparing resources
# import requests
from bs4 import BeautifulSoup as bs
import pandas as pd
import re
import math
import os
import cloudscraper as cs                #because the target is protected by
cloudflare
import random
import time

#preferences
headers = {'User-Agent':'Mozilla/5.0 (Windows NT 10.0; Win64; x64)
AppleWebKit/537.36 (KHTML, like Gecko) Chrome/107.0.0.0 Safari/537.36'}

discussion_list = []
discussion_thread = []

forum_name = 'expatindoforum'
forum_url = "https://www.expatindo.org"

# built a dictionary with forum topics as keys and max number of pages (+1) and
links as values
target_topics = {
       'health and medical care'                                    : [5,
'https://www.expatindo.org/community/forums/health-and-medical-
care.8'],                  #cannot scrap all links, must be one by one
         'hobbies ports travel and entertainment'                   : [7,
'https://www.expatindo.org/community/forums/hobbies-sports-travel-and-
entertainment.42'],
       'where to get where to find'                                 : [3,
'https://www.expatindo.org/community/forums/where-to-get-where-to-find.32']
```

```
    }

#max number of pages in the sub-forum/topic to get the list of thread
max_num_pages = 7

# pausing request to allow server taking a break
time.sleep(random.randint(10, 20))

# getting thread posts from every page
def getThread(forum_topic, link, page):
    #target
    if page >=2:
        link = f'{link}/page-{page}'

    #opening connection
    #r = requests.get(url, headers=headers)
    #print(r.status_code)


    scraper = cs.create_scraper()
    scraper_text = scraper.get(link).text

    soup = bs(scraper_text, 'html.parser')
    #print(soup)

    thread_title = soup.find('h1',{'class':'p-title-value'}).text.strip()
    #print(thread_title)

    thread = soup.find_all('div',{'class':'message-inner'})


    # post_number = 1

    for post in thread:
        # fetching post_text
        post_text = post.find('div',{'class':'bbWrapper'}).get_text().strip()

        # If a post has a quote from previous post, catch and put it to another
column. Remove quote from post_text.
        if post.find('blockquote'):
            post_quote_all = post.find('blockquote').get_text().strip()
            post_text = post_text.replace(post_quote_all, '').strip()
              post_quote = post.find('div',{'class':'bbCodeBlock-expandContent
js-expandContent'}).text.strip()
        else:
            post_quote = ''

        # fetching and processing post number
        post_li = post.find_all('li')
        post_number = post_li[2].get_text().replace('#', '').strip()

        message = {
            'forum_topic'    : forum_topic,
            'thread_title'   : thread_title,
            'post_number'    : post_number,
            'post_date'      : post.find('time',{'class':'u-dt'}).get_text(),
```

```
            'post_author'    : post.find('h4',{'class':'message-name'}).text,
            'post_quote'     : post_quote,
            'post_text'      : post_text
        }

        discussion_thread.append(message)
        print(thread_title)

    return


#getting thread list from each page
def getThreadList(forum_topic, target_topic_url, page):
    # target
    url = f'{target_topic_url}/page-{page}'
    # print(url)

    # opening connection
    # r = requests.get(url, headers=headers)
    # print(r.status_code)

    scraper = cs.create_scraper()
    scraper_text = scraper.get(url).text

    soup = bs(scraper_text, 'html.parser')
    #print(soup)

    topics = soup.find_all('div', {'class':'structItem'})
    # print(len(topics))

     stats  =  soup.find_all('div',{'class':'structItem-cell  structItem-cell--
meta'})

    # target_topic_url = target_topics[0]
    # forum_topic = target_topic_url.rsplit("/",-1)[-1]
    # forum_topic = re.sub(r'[0-9.]', '', forum_topic)

    for item, stat in zip(topics, stats):

        counts = stat.find_all('dd')

        views = counts[1].text.replace('K','000')

        links = item.find_all('a')
        # print(links)

        thread_link = forum_url + links[1]["data-preview-url"]

        clean_link = thread_link.replace('/preview', '')

        #collecting data for each topic
        topic = {
            'forum_topic'    : forum_topic,
            'page'           : page,
                'title'              :  item.find('div',{'class':'structItem-
title'}).text.replace('\n','').strip(),
```

```
            'link'          : clean_link,
            'post_date'     : item.find('time',{'class':'u-dt'}).text,
            'response_count': counts[0].string,
            'view_count'    : views
        }

        # print(topic['title'])
        # print(topic['response_count'])

        #calculating the total number of pages for each thread
        if int(topic['response_count']) >= 21:
            page_num = math.ceil((1+int(topic['response_count']))/20)
        else:
            page_num = 1

        #print(page_num)

        for i in range(1,page_num+1):
            getThread(forum_topic, topic['link'],i)

        #creating a dictionary using append()
        discussion_list.append(topic)
        # print(discussion_list)

    full_file_name = os.path.join("./" + forum_name, forum_topic + "_threads")

    #creating directory if it does not exist
    if not os.path.exists(forum_name):
        os.mkdir(forum_name)

    df = pd.DataFrame(discussion_thread)
    df.to_json(full_file_name + '.json')
    df.to_csv(full_file_name + '.csv')

    return



for x, y in target_topics.items():

    discussion_list.clear()
    discussion_thread.clear()

    print('total page:', y[0])

    #scraping all discussion titles from a forum topic
    for i in range(1, y[0]):
        getThreadList(x, y[1], i)

#
================================================================================
#     #creating files
#     df = pd.DataFrame(discussion_list)
#
#     topic_title = target_topic.rsplit("/",-1)[-1]
```

```
#     topic_title = re.sub(r'[0-9.]', '', topic_title)
#
#     full_file_name = os.path.join('./'+forum_name, topic_title)
#
#     #creating directory if it does not exist
#     if not os.path.exists(forum_name):
#         os.mkdir(forum_name)
#
#     df.to_json(full_file_name + '.json')
#     df.to_csv(full_file_name + '.csv')
#
================================================================================


print('Rampung!')
```

Data Preprocessing Codes

```
#!/usr/bin/env python
# coding: utf-8

# In[1]:


###Step 2. Data Preprocessing###

""" **Introduction**

The main goal of this machine learning process is to classify opinions that are
and are not related to self-care and self-medication,
according to the Self-Care Matrix.
The previous step is data scraping targetting several popular fora (plural form
of forum), including:
1. livinginindonesiaforum.org
2. expatindo.org
3. balipod.com/forum/
4. tripadvisor.com

Collected data include forum_topic, thread_title, post_number, post_date,
post_author, post_quote, post_text and post_link.
More information is at https://github.com/aprafar/Scraping-fora-traveller-and-
migrant-health-topic.

This preprocessing step aims to clean the scrapped data by removing noisy
characters (mojibakes), new lines & tabs,
html tags, BBCode tags, url links, whitespaces, hashtags, emojis and smileys.
The next processes are to remove special characters (punctuations and accented
characters), remove numbers, convert to lowercase, remove stopwords,
reduce repeated characters and punctuations, expand contractions, correct mis-
spelled words and lemmatisation.


**Steps & Justification**

Before going through the cleaning and preprocessing steps, splitting the
datasets is necessary. At this stage, only 10% of the datasets will be used.

The cleaning and preprocessing steps are as follow.

**1. Remove mojibakes**
Mojibakes are "ghost characters" appear due to incorrect transfer of character
decoding.
Examples are â€™, Ãƒ, Â±, Ãƒ, Â¼, ðŸ™.
They are found in the datasets and have no meaning without being properly
decoded. Removal can be done using ftfy library.

**2. Convert to lowercase**
Uniforming cases will increase the frequency of words during tokenisation.
Making all words lowercase is the most common method.

**3. Remove new lines and tabs**
New lines and tabs are not useful for classifiying self-care and self-
medication.
```

4. Remove html tags
HTML tags have no benefit for text classification and therefore need to be remove.

5. Remove BBCode tags
BBCode tags are popular for writing a post in a forum to make the text bold, change text size or insert a quote.
They have no meaning in text classification and don't deserve to be kept.

6. Remove URLs
URL sharing is common in discussing a forum topic, but they are not meaningful in classifying text.
As such, they need to be removed.

7. Remove hashtags
Hashtags are probably uncommon in forum discussions, but they may be found. Removing them is necessary as they have no meaning in this text classification analysis.

8. Remove emojis
Emojis and smileys may be useful in other kind of analyses, such as sentiment analysis, but not in this text classification analysis.
They don't deserve to be kept.

9. Remove numbers
Numbers are also unnecessary to be kept in this analysis as they don't add or remove the meaning of the text.
As such, they need to be removed.

10. Reduce repeated characters
Some forum users express exagerations by repeating characters and punctuations, such as "It's greeaaatttt!!!!"
These repeated characters and punctutaions are not needed to be kept as they don't change the meaning of the words used for classification.

11. Normalize accented characters
Some accented characters such as àáâãäåèéêëìíîïòóôõöùúûü appear as mojibakes that are removed in the initial process. However, some of them may persist. They need to be normalised.

12. Expand contractions
Contractions need expansion before removing stopwords, for example "it's" will be converted to "it is".
This step shall be done before removing special characters and punctuations.

13. Correct mis-spelled words
Mis-spelled words in English will need to be corrected before classification is conducted.
The corrected words will increase the word frequency.

14. Remove punctuations
Punctuations don't contribute to this text classification analysis and therefore they need to be removed.

15. Remove whitespaces

```
Forum users may leave whitespaces when typing sentences. As they can't be seen
directly on the screen, whitespaces can be frequent.
Keeping them in the analysis is very unnecessary as they are meaningless and
they need to be removed.

**16. Remove stopwords**
Stopwords are not meaningful to text classification and thus, they are removed.
Removing stopwords after making all texts lowercase will be more efficient.

**17. Lemmatisation**
Lemmatisation is chosen over stemming because the results remain readable.



**Tutorial**
1. previous work of Ardi Mirzaei https://github.com/ardimirzaei
2.         https://towardsdatascience.com/cleaning-preprocessing-text-data-by-
building-nlp-pipeline-853148add68a
3.  handling  emojis:  https://stackoverflow.com/questions/33404752/removing-
emojis-from-a-string-in-python
4.  removing  mojibakes:  https://stackoverflow.com/questions/37263832/mixed-
encoding-in-csv-file
5.  removing  BBcodes:  https://stackoverflow.com/questions/31900941/strip-
bbcode-from-string
6.        https://towardsdatascience.com/preprocessing-text-data-using-python-
576206753c28
"""


# In[2]:


get_ipython().system('pip install -U -q autocorrect')
from autocorrect import Speller
from bs4 import BeautifulSoup as bs

#!pip install -U -q bbcode
#import bbcode
import csv
#!pip install -U -q emoji
#import emoji
import ftfy # cleaning mojibake characters
import pandas as pd
#import matplotlib.pyplot as plt
import numpy as np
import re
import string
import time
import unicodedata
import unidecode


import nltk
#nltk.download('stopwords')
#nltk.download('punkt')
nltk.download()
```

```
from nltk.tokenize import word_tokenize
from nltk.stem import WordNetLemmatizer
from nltk.corpus import stopwords as sw


# In[92]:


# scraping results
scraps = [
    '../livinginindonesiaforum/health-medical-and-healthy-living_threads.csv',
    '../livinginindonesiaforum/dining-out-food-drink_threads.csv',
    '../livinginindonesiaforum/family-life-in-indonesia_threads.csv',
    '../livinginindonesiaforum/living-outside-of-jakarta_threads.csv',
    '../livinginindonesiaforum/travel_threads.csv',
    '../expatindoforum/health and medical care_threads.csv',
    '../expatindoforum/hobbies ports travel and entertainment_threads.csv',
    '../expatindoforum/where to get where to find_threads.csv',
    '../balipod/disease_threads_15-12-2022.csv',
    '../balipod/doctor_threads_15-12-2022.csv',
    '../balipod/drug_threads_15-12-2022.csv',
    '../balipod/health_threads_15-12-2022.csv',
    '../balipod/hospital_threads_15-12-2022.csv',
    '../balipod/illness_threads_15-12-2022.csv',
    '../balipod/medical_threads_15-12-2022.csv',
    '../balipod/medication_threads_15-12-2022.csv',
    '../balipod/medicine_threads_15-12-2022.csv',
    '../balipod/pharmacist_threads_15-12-2022.csv',
    '../balipod/pharmacy_threads_15-12-2022.csv',
    '../balipod/physician_threads_15-12-2022.csv',
    '../balipod/prescription_threads_15-12-2022.csv',
    '../balipod/sick_threads_15-12-2022.csv',
    '../balipod/unwell_threads_15-12-2022.csv',
    '../balipod/vaccination_threads_15-12-2022.csv',
    '../balipod/vaccine_threads_15-12-2022.csv',
    '../tripadvisor/disease_threads_17-12-2022.csv',
    '../tripadvisor/doctor_threads_18-12-2022.csv',
    '../tripadvisor/drug_threads_17-12-2022.csv',
    '../tripadvisor/health_threads_17-12-2022.csv',
    '../tripadvisor/hospital_threads_17-12-2022.csv',
    '../tripadvisor/illness_threads_17-12-2022.csv',
    '../tripadvisor/medical_threads_17-12-2022.csv',
    '../tripadvisor/medication_threads_16-12-2022.csv',
    '../tripadvisor/medicine_threads_17-12-2022.csv',
    '../tripadvisor/pharmacist_threads_17-12-2022.csv',
    '../tripadvisor/pharmacy_threads_17-12-2022.csv',
    '../tripadvisor/physician_threads_17-12-2022.csv',
    '../tripadvisor/prescription_threads_16-12-2022.csv',
    '../tripadvisor/sick_threads_17-12-2022.csv',
    '../tripadvisor/unwell_threads_16-12-2022.csv',
    '../tripadvisor/vaccination_threads_16-12-2022.csv',
    '../tripadvisor/vaccine_threads_16-12-2022.csv'
            ]

#get sample size from raw data
```

```
def get_sample(size:int, dataset:list, new_filename:str): # Defining datatype
for each param https://peps.python.org/pep-3107/
    """
    use: getting n [size] percent sample from each file/dataset listed in the
[dataset]
          and create a new file [new_filename] in csv format containing row
samples

    """
    sample_df =[]

    for f in dataset:
        df = pd.read_csv(f)
        sample_each = df.head(int(len(df)*(size/100)))
        sample_df.append(sample_each)

    sample_df = pd.concat(sample_df)

    # create a new file from combined results
    sample_df.to_csv(f"{new_filename}_{size}%.csv", index=False, encoding="utf-
8")

    print("--------------------Note--------------------")
    print(f"Taking {len(sample_df)} rows for {size}% sample size.")
    print("----------------End-of-Note-----------------")
    return sample_df

print(get_sample(1,scraps, "merged-samples"))


# In[4]:


# Removing new lines and tabs
def remove_mojibakes(txt:str):
    """
    use: to remove occurences of mojibakes, e.g. â€™, Ãƒ, Â±, Ãƒ, Â¼, ðŸ™ in a
string.

    param: input text, "String" datatype
    return: cleaned text from mojibakes

    Example
    input: Mojibake examples are â€™, Ãƒ, Â±, Ãƒ, Â¼, ðŸ™.
    output: If you are lucky the Booster will only give you about 2 months extra
immunity.
    """
    clean_txt = ftfy.fix_text(txt)

    return clean_txt

# Testing function
s = "This string contains weird characters, such as â€™, ÃƒÂ±, ÃƒÂ¼, â€˜, â€“,
Â, â€¦, Ã, and emojis like ðŸ™, ðŸ˜ƒ, ðŸ˜‰, ðŸŽ, ðŸŽµ, ðŸ˜Š, ðŸ¤£, ðŸ¤•, â€œ,
ðŸ¤, ðŸ˜†."
print(remove_mojibakes(s))
```

```
# In[5]:


# Removing new lines and tabs
def remove_newlines_tabs(txt:str):
    """
    use: to remove occurences of newlines, tabs and combinations, e.g. \\n, \\.

    param: input text, "String" datatype
    return: cleaned text from newlines, tabs and combinations

    Example
    input: If you are lucky\n the Booster will only give you\\n about 2 months
extra immunity.\t\n
    output: If you are lucky the Booster will only give you about 2 months extra
immunity.
    """
    txt = str(txt)
     clean_txt  =  txt.replace("\\n",  "  ").replace("\n",  "  ").replace("\t",  "
").replace("\\", " ").replace(". com", ".com")

    return clean_txt


# In[6]:


# Removing html tags
def remove_html_tags(txt:str):
    """
    use: to remove occurence of html tags such as <div></div><p></p>

    param: input text, "String" datatype
    return: cleaned text from html tags

    Example
    input: <div><p>so how many ivermectin did you take???</p></div>
    output: so how many ivermectin did you take???
    """
    # Starting BeautifulSoup object soup
    soup = bs(txt, "html.parser")
    # Remove html tags and take the text
    clean_txt = soup.get_text(separator=" ")
    return clean_txt

# Testing function
s = "<div><p>so how many ivermectin did you take???</p></div>"
print(remove_html_tags(s))


# In[8]:


# Removing BBCodes
```

```
def remove_bbcode_tags(txt:str):
    """
    use: to remove occurence of bbcode tags such as [b][/b]

    param: input text, "String" datatype
    return: cleaned text from bbcode tags

    Example
    input: so how many [b]ivermectin[/b] did you take???
    output: so how many ivermectin did you take???

    Note:
    BBCode reference: https://www.bbcode.org/reference.php
    """
                                                clean_txt                          =
re.sub(r"\[\/?(?:b|i|u|s|size|style|color|center|left|right|quote|spoiler|sup|
sub|url|img|li|ul|ol|br|list|code|pre|table|tr|th|cell|row|youtube|blur|email|
bbvideo|line|align|nfo|pipes|rate){1,}.*?]"," ", txt)

    """
        Regex explanation (https://regex101.com/r/hTWTCh/1):

        "\[\/?(?:b|i|u|sup|url|image|color|size|font){1,}.*?]"
         \[ matches the character [ with index 9110 (5B16 or 1338) literally
(case insensitive)
        \/ matches the character / with index 4710 (2F16 or 578) literally (case
insensitive)
        ? matches the previous token between zero and one times, as many times
as possible, giving back as needed (greedy)
        Non-capturing group (?:b|i|u|sup|url|image|color|size|font){1,}
         {1,} matches the previous token between one and unlimited times, as
many times as possible, giving back as needed (greedy)
        . matches any character (except for line terminators)
        *? matches the previous token between zero and unlimited times, as few
times as possible, expanding as needed (lazy)
    """
    return clean_txt

# Testing function
s = "The site [url]https://www.bbcode.org[/url] is clickable."
print(remove_bbcode_tags(s))


# In[9]:


# Remove URLs
# Still doesn't work properly, but almost there --> Should I change the scraping
codes to prevent them remove url patterns in the texts?
def remove_urls(txt:str):
    """
    use: to remove occurence of urls in a string

    param: input text, "String" datatype
    return: cleaned text from urls
```

```
    Example
    input: The list of things YouTube won't allow is quite breathtaking! Sorry
if          this          is          also          not          allowed
but...https://shopee.co.id/search?keyword=ivermectin%20tablet
    output: The list of things YouTube won't allow is quite breathtaking! Sorry
if this is also not allowed but...

    Found these occurences in the dataset:
    http   www.facebook.com group.php gi...0736442
    vaksinln.dto.kemkes.go.id
    https://journals.lww.com/americanth...r_Prevention_and_Treatment_of.98040.
aspx?s=04Remember hearing about how India was dying under the pandemic a few
weeks ago?
    The list of things YouTube won't allow is quite breathtaking! Sorry if this
is                    also                    not                    allowed
but...https://shopee.co.id/search?keyword=ivermectin%20tablet
        Almost   a   second   lockdown?    https://coconuts.co/bali/news/bali-
...strictions-following-surge-in-covid-19-cases/
    """
    #clean_string = re.sub(r"(https?:\/\/)(\s)*(www\.)?(\s)*((\w|\s)+\.)*([\w\-
\s]+\/)*([\w\-]+)((\?)?[\w\s]*=\s*[\w\%&]*)*", " ", string)
     clean_txt  = re.sub(r'''(?i)\b((?:https?://|www|vaksinln\d{0,3}[.]|[a-z0-
9.\-]+[.][a-
z]{2,4}/)(?:[^\s()<>]+|\(([^\s()<>]+|(\([^\s()<>]+\)))*\))+(?:\(([^\s()<>]+|(\
([^\s()<>]+\)))*\)|[^\s`!()\[\]{};:'".,<>?«»“”‘’]))''', " ", txt)
    """
    https://stackoverflow.com/questions/11331982/how-to-remove-any-url-within-
a-string-in-python
    """

    return clean_txt

# Testing function
s   =   "Almost   a   second   lockdown?    https://coconuts.co/bali/news/bali-
...strictions-following-surge-in-covid-19-cases/  The list of things YouTube
won't allow is quite breathtaking! Sorry if this is also not allowed
but...https://shopee.co.id/search?keyword=ivermectin%20tablet     and     this
vaksinln.dto.kemkes.go.id                      and                      this
http://www.facebook.com/group.php/gi...0736442"
print(remove_urls(s))


# In[10]:


# Remove whitespaces
def remove_whitespaces(txt:str):
    """
    use: to remove occurences of whitespaces in a string

    param: input text, "String" datatype
    return: cleaned text from unnecessary whitespaces

    Example
    input: Hi !  How  are  you  ?
    output: Hi! How are you?
```

```
    """
    clean_txt = re.sub(r"\s+", " ", txt)
    clean_txt = clean_txt.replace(' ? ','? ').replace(' ! ', '! ').replace(' .
', '. ')
    return clean_txt

# Testing function
s = "Almost a second lockdown ?       https://coconuts.co/bali/news/bali-
...strictions-following-surge-in-covid-19-cases/  The list of things YouTube
won't allow is quite breathtaking !  Sorry if this is also not allowed
but...https://shopee.co.id/search?keyword=ivermectin%20tablet     and     this
vaksinln.dto.kemkes.go.id                        and                        this
http://www.facebook.com/group.php/gi...0736442"
print(remove_whitespaces(s))


# In[11]:


# Remove hashtags
#   From   Ardi's   previous   work:   https://github.com/aprafar/Scraping-fora-
traveller-and-migrant-health-topic/blob/main/02%20-
%20Data%20Preprocessing/Text_Preprocessing.py
def remove_hashtags(txt:str):
    """
    use: to remove occurences of hashtag symbol (#) and characters after it in
a string

    param: input text, "String" datatype
    return: cleaned text from hashtags

    Example
    input: I have the same thoughts/questions as you in my post #225
    output: I have the same thoughts/questions as you in my post
    """
    clean_txt = re.sub(r"#[A-Za-z0-9]+"," ", txt)
    return clean_txt


# In[12]:


# Remove emojis, emoticons, etc
#  https://stackoverflow.com/questions/33404752/removing-emojis-from-a-string-
in-python
def remove_emojis(txt:str):
    emojis = re.compile("["
        u"\U0001F600-\U0001F64F"  # emoticons
        u"\U0001F300-\U0001F5FF"  # symbols & pictographs
        u"\U0001F680-\U0001F6FF"  # transport & map symbols
        u"\U0001F1E0-\U0001F1FF"  # flags (iOS)
        u"\U00002500-\U00002BEF"  # chinese char
        u"\U00002702-\U000027B0"
        u"\U000024C2-\U0001F251"
        u"\U0001f926-\U0001f937"
        u"\U00010000-\U0010ffff"
```

```
        u"\u2640-\u2642"
        u"\u2600-\u2B55"
        u"\u200d"
        u"\u23cf"
        u"\u23e9"
        u"\u231a"
        u"\ufe0f"  # dingbats
        u"\u3030"
        "]+", re.UNICODE)
    clean_txt = re.sub(emojis, " ", txt)
    return clean_txt

# Testing function
s = "Hi 😳 How is your 🙈 and 😌. Have a nice weekend 💕👭. These are mojibakes: â€™, Ãƒ, Â±, Ãƒ, Â¼, ðŸ™."
s = remove_emojis(s)
print(s) #emojis as mojibake ðŸ™ persists
print(remove_whitespaces(s))


# In[13]:


# Remove numbers
#  From  Ardi's  previous  work:  https://github.com/aprafar/Scraping-fora-traveller-and-migrant-health-topic/blob/main/02%20-%20Data%20Preprocessing/Text_Preprocessing.py
def remove_numbers(txt:str):
    """
    use: to remove occurences of numbers in a string

    param: input text, "String" datatype
    return: cleaned text from numbers

    Example
    input: Seminyak/Legian maybe 75% of the tourist related businesses closed.
    output: Seminyak/Legian maybe % of the tourist related businesses closed.
    """
    clean_txt = re.sub(r"[0-9]+"," ", txt)
    return clean_txt

# Testing function
s = "Seminyak/Legian maybe 75% of the tourist related businesses closed."
print(remove_numbers(s))


# In[84]:


# Reduce repeated characters
def reduce_alphas_puncts(txt:str):
    """
   use: to reduce repeated alphabets to two characters and repeated punctuations to one character

    param: input text, "String" datatype
```

```
    return: a new string with reduced number of repeated alphabet and punctuation

    Example
    input: It's greeeeaaattttt!!!
    output: It's greeaatt!
    """
    # Pattern matching for all alphabets
    pattern_alphabets = re.compile(r"([A-Za-z])\1{1,}", re.DOTALL)

    # Pattern matching for all punctuations
    pattern_punctuations = re.compile(r"([.,/#!$%^&*?;:{}=_`~()+-])\1{1,}")

    # Reduce repeated alphabets to two chars
    reduced_alphabets = pattern_alphabets.sub(r"\1\1", txt)

    # Reduce repeated punctuations to one char
    reduced_alphas_puncts = pattern_punctuations.sub(r"\1", reduced_alphabets)

    # The below statement is replacing repetition of spaces that occur more
than two times with that of one occurrence.
    clean_txt = re.sub(" {2,}"," ", reduced_alphas_puncts)

    return clean_txt

# Testing function
s = "It's      greeeeaaattttt!!!..... Great  thanks"
print(reduce_alphas_puncts(s))


# In[15]:


# Expand contractions
# https://towardsdatascience.com/cleaning-preprocessing-text-data-by-building-
nlp-pipeline-853148add68a
CONTRACTION_MAP = {
        "ain't": "is not",
        "aren't": "are not",
        "can't": "cannot",
        "can't've": "cannot have",
        "'cause": "because",
        "could've": "could have",
        "couldn't": "could not",
        "couldn't've": "could not have",
        "didn't": "did not",
        "doesn't": "does not",
        "don't": "do not",
        "hadn't": "had not",
        "hadn't've": "had not have",
        "hasn't": "has not",
        "haven't": "have not",
        "he'd": "he would",
        "he'd've": "he would have",
        "he'll": "he will",
        "he'll've": "he he will have",
        "he's": "he is",
```

```
"how'd": "how did",
"how'd'y": "how do you",
"how'll": "how will",
"how's": "how is",
"i'd": "i would",
"i'd've": "i would have",
"i'll": "i will",
"i'll've": "i will have",
"i'm": "i am",
"i've": "i have",
"isn't": "is not",
"it'd": "it would",
"it'd've": "it would have",
"it'll": "it will",
"it'll've": "it will have",
"it's": "it is",
"let's": "let us",
"ma'am": "madam",
"mayn't": "may not",
"might've": "might have",
"mightn't": "might not",
"mightn't've": "might not have",
"must've": "must have",
"mustn't": "must not",
"mustn't've": "must not have",
"needn't": "need not",
"needn't've": "need not have",
"o'clock": "of the clock",
"oughtn't": "ought not",
"oughtn't've": "ought not have",
"shan't": "shall not",
"sha'n't": "shall not",
"shan't've": "shall not have",
"she'd": "she would",
"she'd've": "she would have",
"she'll": "she will",
"she'll've": "she will have",
"she's": "she is",
"should've": "should have",
"shouldn't": "should not",
"shouldn't've": "should not have",
"so've": "so have",
"so's": "so as",
"that'd": "that would",
"that'd've": "that would have",
"that's": "that is",
"there'd": "there would",
"there'd've": "there would have",
"there's": "there is",
"they'd": "they would",
"they'd've": "they would have",
"they'll": "they will",
"they'll've": "they will have",
"they're": "they are",
"they've": "they have",
"to've": "to have",
```

```
        "wasn't": "was not",
        "we'd": "we would",
        "we'd've": "we would have",
        "we'll": "we will",
        "we'll've": "we will have",
        "we're": "we are",
        "we've": "we have",
        "weren't": "were not",
        "what'll": "what will",
        "what'll've": "what will have",
        "what're": "what are",
        "what's": "what is",
        "what've": "what have",
        "when's": "when is",
        "when've": "when have",
        "where'd": "where did",
        "where's": "where is",
        "where've": "where have",
        "who'll": "who will",
        "who'll've": "who will have",
        "who's": "who is",
        "who've": "who have",
        "why's": "why is",
        "why've": "why have",
        "will've": "will have",
        "won't": "will not",
        "won't've": "will not have",
        "would've": "would have",
        "wouldn't": "would not",
        "wouldn't've": "would not have",
        "y'all": "you all",
        "y'all'd": "you all would",
        "y'all'd've": "you all would have",
        "y'all're": "you all are",
        "y'all've": "you all have",
        "you'd": "you would",
        "you'd've": "you would have",
        "you'll": "you will",
        "you'll've": "you will have",
        "you're": "you are",
        "you've": "you have"
        }
def expand_contractions(txt:str, contraction_map = CONTRACTION_MAP):
    """
    use: to expand contracted phrases to their full form

    param: input text, "String" datatype
    return: clean string with no contracted phrases

    Example
    input: It's great!
    output: It is great!
    """
    # Tokenise first
    list_of_tokens = txt.split(' ')
```

```
    # Check if the token matches with the Key and then replace the token with
the Value

    # Check whether the word is in the list_of_tokens
    for word in list_of_tokens:
        # Check if the word is in the dictionary as a Key
        if word in contraction_map:
            # If the word presents in both places, replace it with the Value
              list_of_tokens = [item.replace(word, contraction_map[word]) for
item in list_of_tokens] # List comprehension syntax my_new_list = [ expression
for item in list ]

    # Returning tokens to a String
    clean_txt = ' '.join(str(token) for token in list_of_tokens)

    return clean_txt

# Testing function
s = "It's great if We're going together!"
print(expand_contractions(s.lower()))


# In[16]:


# Normalize accented characters
#  John  La  Roy  https://stackoverflow.com/questions/15261793/python-efficient-
method-to-replace-accents-%C3%A9-to-e-remove-a-za-z-d-s-and
def normalise_accents(txt:str):
    """
    use: to normalise occurences of accented characters (à, è, ì, ò, ù, À, È,
Ì, Ò, Ù) in a string

    param: input text, "String" datatype
    return: clean text from accented characters

    Example
     input: In Seminyâk/LégiÂn maybe 75% of the tourist related businesses is
closed.
    output: In Seminyak/LegiAn maybe 75% of the tourist related businesses is
closed.
    """
      clean_txt  =  ''.join((c  for  c  in  unicodedata.normalize('NFD',txt)  if
unicodedata.category(c) != 'Mn'))

    return clean_txt

# Testing function
s = "In Seminyâk/LégiÂn maybe 75% of the tourist related businesses is closed."
print(normalise_accents(s))


# In[74]:


# Remove punctuations
```

```
# From Ardi's previous work: https://github.com/aprafar/Scraping-fora-traveller-and-migrant-health-topic/blob/main/02%20-%20Data%20Preprocessing/Text_Preprocessing.py
puncts_list = [',', '.', '"', ':', ')', '(', '-', '!', '?', '|', ';', "'", '$', '&', '/', '[', ']', '>', '%', '=', '#', '*', '+', '\\', '•', '~', '@', '£',
 '·', '_', '{', '}', '©', '^', '®', '`', '<', '→', '°', '€', '™', '›', '♥', '←', '×', '§', '″', '′', '█', '½', '…',
 '“', '★', '”', '–', '●', '►', '−', '¢', '²', '¬', '░', '¶', '↑', '±', '¿', '▾', '═', '¦', '║', '―', '¥', '▓', '—', '‹', '─',
 '▒', ' : ', '¼', '⊕', '▼', '▪', '†', '■', '’', '■', '¨', '▄', '♫', '☆', '¯', '♦', '¤', '▲', '¸', '¾', '·', '´', '∞',
 '.', ') ', '↓', '、', '|', ' (', '»', ', ', '♪', '╩', '╚', '³', '・', '╦', '╣', '╔', '╗', '▬', '❤', 'ï', 'Ø', '¹', '≤', '‡', '√', ]

def remove_punctuations(txt:str):
    """
    use: to remove occurences of punctuations ('%', '=', '#', '*') in a string

    param: input text, "String" datatype
    return: clean text from punctuations

    Example
     input: In Seminyak/Legian maybe 75% of the tourist related businesses is closed.
     output: In SeminyakLegian maybe 75 of the tourist related businesses is closed.
    """
    # Take each punctuation
    for punctuation in puncts_list:
        # Check whether puctuation is also found in list
        if punctuation in txt:
            # If the punctuation presents in both places, remove it
            txt = txt.replace(punctuation," ")

    clean_txt = re.sub(r"[^a-zA-Z0-9]+", " ", txt)

    return clean_txt

# Testing function
s = "Seminyâk/LégiÂn maybe 75% of the tourist related businesses is closed."
print(remove_punctuations(s))


# In[19]:


# Correct mis-spelled words
def correct_spelling(txt:str):
    """
    use: to correct occurences of mis-spelled words in a string

    param: input text, "String" datatype
    return: clean text from mis-spelled words

    Example
    input: 75% of the toursit realted busineses is cloesd.
```

```
    output: 75% of the tourist related business is closed.
    """
    spell_check = Speller(lang='en')
    clean_txt = spell_check(txt)

    return clean_txt

# Testing function
s = "75% of the toursit realted busineses is cloesd."
print(correct_spelling(s))


# In[20]:


# Remove stopwords
stop_list = set(sw.words('english'))
def remove_stopwords(txt:str):
    """
    use: to remove unused words that don't add much meaning to a sentence

    param: input text, "String" datatype
    return: clean text from unused stopwords

    Example
    input: 75% of the tourist related businesses is closed
    output: 75 % tourist related businesses closed
    """
    # Use  repr() function to give precise info about the string
    txt = repr(txt)

    no_stopwords = [word for word in word_tokenize(txt) if word.lower() not in
stop_list]

    clean_txt = ' '.join(no_stopwords)

    return clean_txt

# Testing function
s = "75% of the tourist related businesses is closed"
print(remove_stopwords(s))


# In[21]:


# Lemmatisation
w_tokenizer = nltk.tokenize.WhitespaceTokenizer()
lemmatizer = nltk.stem.WordNetLemmatizer()
def lemmatise(txt:str):
    """
    use: to convert words to their root words, different from stemming

    param: input text, "String" datatype
    return: clean text in the form of root words
```

```
    Example
    input: 75% of the tourist related businesses is closed
    output:
    """
    # Convert words to their roots
    clean_txt = [lemmatizer.lemmatize(w,'v') for w in w_tokenizer.tokenize(txt)]

    return clean_txt

# Testing function
s = "the tourist related businesses is closed"
print(lemmatise(s))
print("Rampung!")


# In[86]:


# Putting it all together in one function
def preprocess_please(txt:str):
#     print(txt)

#     print("---Removing mojibakes ..---")
    txt = remove_mojibakes(txt)
#     print(txt)

#     print("---Lower cases ..---")
    txt = txt.lower()
#     print(txt)

#     print("---Removing newlines and tabs ..---")
    txt = remove_newlines_tabs(txt)
#     print(txt)

#     print("---Removing html tags ..---")
#     txt = remove_html_tags(txt)
#     print(txt)

#     print("---Removing BBCode tags ..---")
    txt = remove_bbcode_tags(txt)
#     print(txt)

#     print("---Removing urls ..---")
    txt = remove_urls(txt)
#     print(txt)

#     print("---Removing hashtags ..---")
    txt = remove_hashtags(txt)
#     print(txt)

#     print("---Removing emojis ..---")
    txt = remove_emojis(txt)
#     print(txt)

#     print("---Removing numbers ..---")
    txt = remove_numbers(txt)
```

```
#     print(txt)

#     print("---Reducing repeated characters ...---")
    txt = reduce_alphas_puncts(txt)
#     print(txt)

#     print("---Normalising accents ...---")
    txt = normalise_accents(txt)
#     print(txt)

#     print("---Expanding contractions ...---")
    txt = expand_contractions(txt)
#     print(txt)

#     print("---Correcting spelling ...---")
    txt = correct_spelling(txt)
#     print(txt)

#     print("---Removing punctuations ...---")
    txt = remove_punctuations(txt)
#     print(txt)

#     print("---Removing whitespaces ...---")
    txt = remove_whitespaces(txt)
#     print(txt)

#     print("---Removing English stopwords ...---")
    txt = remove_stopwords(txt)
#     print(txt)

#     print("---Lemmatising ...---")
    txt = lemmatise(txt)
#     print(txt)

#     print("Rampung! Finish!")
    return txt

# Testing function
# s = "Almost a second lockdown ?      https://coconuts.co/bali/news/bali-...strictions-following-surge-in-covid-19-cases/  The list of things YouTube won't allow is quite breathtaking !  Sorry if this is also not allowed but...https://shopee.co.id/search?keyword=ivermectin%20tablet     and     this vaksinln.dto.kemkes.go.id                              and                    this http://www.facebook.com/group.php/gi...0736442 In Seminyâk/LégiÂn maybe 75% of the tourist related businesses is closed. It's great if We're going together! The site [url]https://www.bbcode.org[/url] is clickable. This string contains weird characters, such as â€™, ÃƒÂ±, ÃƒÂ¼, â€˜, â€“, Â, â€¦, Ã, and emojis like ðŸ™, ðŸ˜ƒ, ðŸ˜‰, ðŸŽ, ðŸŽµ, ðŸ˜Š, ðŸ¤£, ðŸ¤•, â€œ, ðŸ¤, ðŸ˜†."

# print(preprocess_please(s))

s1 = "Great  thanks I m currently a patient of Dr Hendrik Asali in Bellezza Shopping Arcade Unit 230 Jl Arteri Permata Hijau Tel 021 5366 4742 or 5366 4743. I can recommend him  he speaks English well and his surgery has all the latest equipment  as far as I can tell. I tried Dr Marisa for a cleaning and thought she was good but she used the  sand blasting  method. I ve since found that
```

```
technique is not recommended. Dr. Hendrik uses ultrasound.   The price was Rp
140 000 for a cleaning.... both dentists about the same. A porcelain crown costs
RP1.5M Dr Hendrik operates from a very sterile medical clinic in the Bellezza
Mall. Dr. Marisa s clinic....not so good and needed reconstruction."
print(preprocess_please(s1))


# In[95]:


# Apply preprocess_please() to the real world

# First, open the merged samples file
df = pd.read_csv("merged-samples_1%.csv")
df.head()


# In[96]:


# Drop the Unnamed:0 column
df.drop("Unnamed: 0", axis=1, inplace=True)
df.head()


# In[97]:


# We will only use the post_text column
# fdp: forum discussion posts
fdp = df.loc[:,['post_text']]
fdp.head()

# Checking missing values
for col in fdp.columns:
    print(col, fdp[col].isnull().sum())

# Drop missing values
fdp = fdp.dropna()

# Double-checking missing values
for col in fdp.columns:
    print(col, fdp[col].isnull().sum())


# In[98]:
# Create a new column containing lemmas by applying the preprocess_please()
function
fdp['clean_post_text'] = fdp['post_text'].apply(lambda x: preprocess_please(x))
fdp.head()

# Create a new file for preprocessed data
preprocessed_data = fdp.to_csv("preprocessed_data.csv", index=False)
```

Appendix D. Stata Codes Using the qfactor Module

```
/*===Only running pf and oblimin for 2-, 3-, 4-, 5-factor solution===*/
import excel "SCIT-ready-for-Stata.xlsx", sheet("Sheet1") firstrow clear
log using "output-stata-scit-pf-oblimin-2-5-factors.log", replace
qfactor qsort*, nfa(2) ext(pf) rot(oblimin(0))
qfactor qsort*, nfa(3) ext(pf) rot(oblimin(0))
qfactor qsort*, nfa(4) ext(pf) rot(oblimin(0))
qfactor qsort*, nfa(5) ext(pf) rot(oblimin(0))

log close

/*===3 Factor Solutions===*/
log using "output-stata-scit.log", replace
qfactor qsort*, nfa(3) ext(ipf) rot(oblimin(0))

log close
```

Appendix E. Human Research Ethics Approval from The University of Sydney, Australia

A. The original document dated 15 March 2023

THE UNIVERSITY OF SYDNEY

Research Integrity & Ethics Administration
HUMAN RESEARCH ETHICS COMMITTEE

Wednesday, 15 March 2023

Dr Carl Schneider
Pharmacy; Faculty of Medicine and Health
Email: carl.schneider@sydney.edu.au

Dear Carl,

The University of Sydney Human Research Ethics Committee (HREC) has considered your application.

I am pleased to inform you that after consideration of your response, your project has been approved.

Details of the approval are as follows:

Project No.:	**2022/938**
Project Title:	**On-Travel Needs Assessment among Non-Healthcare Travelers and Healthcare Preparedness for Growing Indonesia Tourism**
Authorised Personnel:	**Schneider Carl; Moles Rebekah; Pratama Antonius; Marjadi Brahmaputra;**
Approval Period:	**15/03/2023** to **15/03/2027**
First Annual Report Due:	**15/03/2024**

Documents Approved:

Date Uploaded	Version Number	Document Name
01/03/2023	Advertisements/Flyer	Clean-Invitation-Initial interviews-flyer-Group 1-v 3.0
01/03/2023	Advertisements/Flyer	Clean-Invitation-Q-Study's statement sorting-flyer-Group3 v3
01/03/2023	Advertisements/Flyer	Clean-Invitation-Readiness study's nested interviews-G3 v3
01/03/2023	Participant Consent Form	Clean-PCF for Q-study and readiness study-Group 3 and 4-v 3
01/03/2023	Participant Info Statement	Clean-PIS-Q-Study's statement sorting-Group 3-v 3.0
01/03/2023	Participant Consent Form	Oral Consent for initial interviews-Group 1-v 1.0
01/03/2023	Participant Consent Form	Oral Consent for nested interviews-Group 4-v 1.0
01/03/2023	Participant Consent Form	Oral Consent for Q-Study-Group 3-v 1.0
16/01/2023	Participant Consent Form	Clean-PCF for initial interviews-Group 1-v 2.0
16/01/2023	Participant Info Statement	Clean-PIS-Initial interviews-Group 1-v 2.0
16/01/2023	Participant Info Statement	Clean-PIS-Q-Study's expert panel-Group 2-v 2.0
16/01/2023	Advertisements/Flyer	Clean-Invitation-Readiness study's-flyer-Group 4-v2.0
16/01/2023	Participant Consent Form	Clean-PCF for panel of experts-Group 2-v 2.0
16/01/2023	Participant Info Statement	Clean-PIS-Readiness study-Group 4-v 2.0
16/01/2023	Recruitment Letter/Email	Clean-Invitation-Q-Study's expert panel-Group 2-v 2.0
21/11/2022	Participant Consent Form	Participant consent form for Q readiness study-Gr3 4 Bahasa
21/11/2022	Safety Protocol	Overseas Research Safety Protocol-Antonius Pratama

Research Integrity & Ethics Administration
Research Portfolio
Level 3, F23 Administration Building
The University of Sydney
NSW 2006 Australia

T +61 2 9036 9161
E human.ethics@sydney.edu.au
W sydney.edu.au/ethics

ABN 15 211 513 464
CRICOS 00026A

THE UNIVERSITY OF SYDNEY

Special Condition/s of Approval

1. It is a condition of approval that certified translations of the public documents (e.g. Participant Information Statement, Participant Consent Form) be made and provided to participants, once these documents have been approved in English. https://intranet.sydney.edu.au/research-support/ethics-integrity/human-ethics/guidelines.html#translated-documents

2. A researcher safety protocol or risk assessment is needed for students/staff travelling overseas or conducting fieldwork off campus. Note that this is a Faculty, School or Department process and includes safety and insurance arrangements. You do not need to provide a copy to the Ethics Office, however you will need to keep a copy of the approved document on file as part of your records.

3. It will be a condition to obtain ethics approval in Indonesia as stated in response to Q71. This should be provided to the ethics office via a Special Conditions of Approval form.

Condition/s of Approval

- Research must be conducted according to the approved proposal.
- An annual progress report must be submitted to the Ethics Office on or before the anniversary of approval and on completion of the project.
- You must report as soon as practicable anything that might warrant review of ethical approval of the project including:
  - Serious or unexpected adverse events (which should be reported within 72 hours).
  - Unforeseen events that might affect continued ethical acceptability of the project.
- Any changes to the proposal must be approved prior to their implementation (except where an amendment is undertaken to eliminate *immediate* risk to participants).
- Personnel working on this project must be sufficiently qualified by education, training and experience for their role, or adequately supervised. Changes to personnel must be reported and approved.
- Personnel must disclose any actual or potential conflicts of interest, including any financial or other interest or affiliation, as relevant to this project.
- Data and primary materials must be retained and stored in accordance with the relevant legislation and University guidelines.
- Ethics approval is dependent upon ongoing compliance of the research with the *National Statement on Ethical Conduct in Human Research*, the *Australian Code for the Responsible Conduct of Research*, applicable legal requirements, and with University policies, procedures and governance requirements.
- The Ethics Office may conduct audits on approved projects.
- The Chief Investigator has ultimate responsibility for the conduct of the research and is responsible for ensuring all others involved will conduct the research in accordance with the above.

This letter constitutes ethical approval only.

THE UNIVERSITY OF SYDNEY

Please contact the Ethics Office should you require further information or clarification.

Sincerely,

[redacted]
Associate Professor Helen Mitchell
Chair
Human Research Ethics Committee (HREC 1)

The University of Sydney of Sydney HRECs are constituted and operate in accordance with the National Health and Medical Research Council's (NHMRC) National Statement on Ethical Conduct in Human Research (2018) and the NHMRC's Australian Code for the Responsible Conduct of Research (2018)

B. Updated ethics approval dated 25 June 2024

THE UNIVERSITY OF SYDNEY

RESEARCH INTEGRITY
& ETHICS ADMINISTRATION

HUMAN RESEARCH ETHICS APPROVAL

The University of Sydney confirms that this project meets the requirements of the National Statement on Ethical Conduct in Human Research.

Project identifier:	2022/HE000938
Project title:	On-Travel Needs Assessment among Non-Healthcare Travelers and Healthcare Preparedness for Growing Indonesia Tourism
Version:	1.02
Chief Investigator:	Associate Professor Carl Schneider
Authorised project team:	Brahmaputra Marjadi
	Antonius Pratama
	Professor Rebekah Moles
Date of approval:	Tuesday, 25 June, 2024
Project end date:	14 Mar 2027

Provisos *(if applicable)*

Project summary

Developing an illness during international travel is not uncommon, regardless of severity. Minor ailments developed during travel are subject to self-medication, the most common form of self-care involving help from health practitioners, with community pharmacies a frequent setting. However, there is a paucity of evidence on how international travellers perform self-care during travel in a developing country like Indonesia. Also, little has been known about the country's pharmacists' readiness to care for international travellers. For community pharmacists, the care includes the facilitation of self-care for minor ailments.

The overarching goal of this study is to characterise the readiness of Indonesian pharmacy staff to respond self-care needs of international travellers. Initially, this study will identify the self-care needs among international travellers during travel to Indonesia and the prioritisation of those needs. Secondly, this study will explore the readiness of Indonesian pharmacy staff to facilitate the self-care needs of international travellers.

Summary of changes

The proposed amendments will only affect participants for the Q-Study and readiness study and include the alteration of participant inclusion criteria and methods of recruitment.

1. Initial interviewees are also eligible for the Q Study and readiness study as this will strengthen the methodological rigour. This does not require any changes to approved documents.

2. Recruitment of community pharmacy staff and related stakeholders for the readiness study. This requires modification in the methods of recruitment, PIS and PCF. The recruitment will be via publicly available contact details, supplemented with communication to stakeholders previously known to researchers. The stakeholders may include pharmacy academics, policymakers in health and pharmacy, professional pharmacy organisations, and travel and tour agencies.

3. A supporting letter from an academic institution in Indonesia (Universitas Jember) should be updated in regard to the additional fieldwork.

4. The local contact number of the fieldwork data collector will be changed.

Documents approved

Document type	File name	Document version	Application version
Change Tracking	2022_HE000938 v1_01 - v1_02 Changes.pdf	1	1.2
Application	Application Form.docx	2	1.2
Other	Certification of Translation 025-ATP-PRF-VI-2024 - 14Jun2024.pdf	1	1.2
Recruitment or advertising material	Clean-Invitation-Q-Study's statement sorting-flyer-Group 3-v4.0.docx	1	1.1
Recruitment or advertising material	Clean-Invitation-Q-Study's statement sorting-flyer-Group 3-v5.0.docx	1	1.2
Recruitment or advertising material	Clean-Invitation-Readiness study interviews-flyer-Group 4-v4.0.docx	1	1.1
Recruitment or advertising material	Clean-Invitation-Readiness study interviews-flyer-Group 4-v5.0.docx	1	1.2
Participant Consent Form (PCF)	Clean-Oral Consent for interviews-Group 4-v 2.0.docx	1	1.1
Participant Consent Form (PCF)	Clean-Oral Consent for Q-Study-Group 3-v 2.0.docx	1	1.1
Participant Consent Form (PCF)	Clean-PCF for Q-study-Group 3-v4.0.docx	1	1.1
Authorisation or approval	Clean-Permission request for business managers-v 2.0.docx	1	1.1
Participant Information Statement (PIS)	Clean-PIS-Q-Study's statement sorting-Group 3-v4.0.docx	1	1.1
Participant Information Statement (PIS)	Clean-PIS-Readiness study-Group 4-v 3.0.docx	1	1.1
Authorisation or approval	EN. 2023 -Letter of support-Universitas Jember.pdf	1	1.2
Authorisation or approval	EN. Extension 2024-Letter of support-Universitas Jember.pdf	1	1.2
Other	Letter to HREC1-Update on methods-v2.pdf	1	1.2
Participant Consent Form (PCF)	New-PCF for Readiness-study-Group 4-v1.0.docx	1	1.1
Recruitment or advertising material	Tracked-Invitation-Q-Study's statement sorting-flyer-Group 3-v4.0.docx	1	1.1
Recruitment or advertising material	Tracked-Invitation-Q-Study's statement sorting-flyer-Group 3-v5.0.docx	1	1.2
Recruitment or advertising material	Tracked-Invitation-Readiness study interviews-flyer-Group 4-v4.0.docx	1	1.1

Recruitment or advertising material	Tracked-Invitation-Readiness study interviews-flyer-Group 4-v5.0.docx	1	1.2
Participant Consent Form (PCF)	Tracked-Oral Consent for interviews-Group 4-v 2.0.docx	1	1.1
Participant Consent Form (PCF)	Tracked-Oral Consent for Q-Study-Group 3-v 2.0.docx	1	1.1
Participant Consent Form (PCF)	Tracked-PCF for Q-study-Group 3-v4.0.docx	1	1.1
Authorisation or approval	Tracked-Permission request for business managers-v 2.0.docx	1	1.1
Participant Information Statement (PIS)	Tracked-PIS-Q-Study's statement sorting-Group 3-v4.0.docx	1	1.1
Participant Information Statement (PIS)	Tracked-PIS-Readiness study-Group 4-v 3.0.docx	1	1.1

Conditions of Approval

- Research must be conducted according to the approved proposal.
- An annual progress report must be submitted on or before the anniversary of approval and a final report on completion of the project.
- You must report as soon as practicable anything that might warrant review of ethical approval of the project including:
  - Serious or unexpected adverse events (which should be reported within 72 hours).
  - Unforeseen events that might affect continued ethical acceptability of the project.
- Any changes to the proposal must be approved prior to their implementation (except where an amendment is undertaken to eliminate *immediate* risk to participants).
- Researchers working on this project must be sufficiently qualified by education, training, and experience for their role, or adequately supervised. Changes to the project team must be reported and approved.
- Researchers must disclose any actual, potential of perceived conflicts of interest, including any financial or other interest or affiliation, as relevant to this project.
- Research data and primary materials must be retained and stored in accordance with relevant legislation and University guidelines.
- Ethics approval is dependent upon ongoing compliance of the research with the *National Statement on Ethical Conduct in Human Research*, the *Australian Code for the Responsible Conduct of Research*, applicable legal requirements, and with University policies, procedures, and governance requirements.
- If your research project is a clinical trial and is being sponsored by the University or is to be conducted on a University of Sydney site, you must comply with additional University governance requirements prior to commencing your Clinical Trial.
- The University may conduct audits on approved projects.
- The Chief Investigator has ultimate responsibility for the conduct of the research and is responsible for ensuring all others involved will conduct the research in accordance with the above.

Ethics Committee Representative

Chair
On behalf of the University of Sydney

The University of Sydney HRECs are constituted and operate in accordance with the National Statement on Ethical Conduct in Human Research and the Australian Code for the Responsible Conduct of Research (NHMRC). All personnel named on the project should be acquainted with these documents.

Research Integrity & Ethics Administration
Research Portfolio
Level 3, Michael Spence Building (F23)
The University of Sydney
NSW 2006 Australia

T +61 2 9036 9161
E human.ethics@sydney.edu.au
W intranet.sydney.edu.au/ethics

ABN 15 211 513 464
CRICOS 00026A

C. Updated ethics approval dated 24 January 2025

THE UNIVERSITY OF SYDNEY

RESEARCH INTEGRITY
& ETHICS ADMINISTRATION

HUMAN RESEARCH ETHICS APPROVAL

The University of Sydney confirms that this project meets the requirements of the National Statement on Ethical Conduct in Human Research.

Project identifier:	2022/HE000938
Project title:	On-Travel Needs Assessment among Non-Healthcare Travelers and Healthcare Preparedness for Growing Indonesia Tourism
Application version:	2.02
Chief Investigator:	Associate Professor Carl Schneider
Project team:	Brahmaputra Marjadi
	Mr Antonius Pratama
	Professor Rebekah Moles
Project start date:	14 Mar 2023
Project end date:	14 Mar 2027
Date of issue:	Friday, 24 January, 2025

Project summary

The overarching goal of this study is to characterise the readiness of Indonesian pharmacy staff to respond self-care needs of international travellers. Initially, this study will identify the self-care needs among international travellers during travel to Indonesia and the prioritisation of those needs. Secondly, this study will explore the readiness of Indonesian pharmacy staff to facilitate the self-care needs of international travellers.

Summary of amendments

The proposed amendments intend to supplement the data collection intruments for the readiness study, the last data collection process. This proposed update will not change any participants, invitations, or forms.

Documents approved

Document type	File name	Document version	Application version
Change Tracking	2022_HE000938 v2_01 - v2_02 Changes.pdf	1	2.02
Application	Application Form.docx	4	2.02
Other	Certification of Translation 016-ATP-PRF-XII-2024.pdf	1	2.01
Other	Readiness study's interview guide-Group 4-v1.docx	1	2.01
Other	Readiness study's personas-Group 4-v1.docx	1	2.01
Other	Translated-Readiness study's interview guide-Group 4-v1.docx	1	2.01
Other	Translated-Readiness study's personas-Group 4-v1.docx	1	2.01

Conditions of Approval

- Research must be conducted according to the approved proposal.
- An annual progress report must be submitted on or before the anniversary of approval and a final report on completion of the project.
- You must report as soon as practicable anything that might warrant review of ethical approval of the project including:
  - Serious or unexpected adverse events (which should be reported within 72 hours).
  - Unforeseen events that might affect continued ethical acceptability of the project.
- Any changes to the proposal must be approved prior to their implementation (except where an amendment is undertaken to eliminate *immediate* risk to participants).
- Researchers working on this project must be sufficiently qualified by education, training, and experience for their role, or adequately supervised. Changes to the project team must be reported and approved.
- Researchers must disclose any actual, potential of perceived conflicts of interest, including any financial or other interest or affiliation, as relevant to this project.
- Research data and primary materials must be retained and stored in accordance with relevant legislation and University guidelines.
- Ethics approval is dependent upon ongoing compliance of the research with the *National Statement on Ethical Conduct in Human Research*, the *Australian Code for the Responsible Conduct of Research*, applicable legal requirements, and with University policies, procedures, and governance requirements.
- If your research project is a clinical trial and is being sponsored by the University or is to be conducted on a University of Sydney site, you must comply with additional University governance requirements prior to commencing your Clinical Trial.
- The University may conduct audits on approved projects.
- The Chief Investigator has ultimate responsibility for the conduct of the research and is responsible for ensuring all others involved will conduct the research in accordance with the above.

Ethics Committee Representative

Kathryn Bartimote
Chair
ASC 2
On behalf of the University of Sydney

The University of Sydney HRECs are constituted and operate in accordance with the National Statement on Ethical Conduct in Human Research and the Australian Code for the Responsible Conduct of Research (NHMRC). All personnel named on the project should be acquainted with these documents.

Research Integrity & Ethics Administration
Research Portfolio
Level 3, Michael Spence Building (F23)
The University of Sydney
NSW 2006 Australia

T +61 2 9036 9161
E human.ethics@sydney.edu.au
W intranet.sydney.edu.au/ethics

ABN 15 211 513 464
CRICOS 00026A

Appendix F. Human Research Ethics Approval Document from Universitas Jember, Indonesia

KOMISI ETIK PENELITIAN KESEHATAN (KEPK)
FAKULTAS KEDOKTERAN GIGI UNIVERSITAS JEMBER
(THE ETHICAL COMMITTEE OF MEDICAL RESEARCH
FACULTY OF DENTISTRY UNIVERSITY OF JEMBER)

No.1959/UN25.8/KEPK/DL/2023

Title of research protocol : " "On Travel Needs Assessment among Non-Healthcare Travelers and Healthcare Preparedness for Growing Indonesia Tourism."

Document Approved	:	Research Protocol
Principal investigator	:	Associate Professor Carl R. Schneider
Member of research	:	1. apt. Antonius Nugraha Widhi Pratama, S.Farm., M.P.H.
		2.Associate Professor Brahm Marjadi
		3.Professor Rebekah Moles
Physician	:	-
Date of approval	:	April 1-December 30, 2023
Place of research	:	1. Bali,
		2.Tana Toraja,
		3. West Manggarai,
		4. Magelang

The Research Ethic Committee Faculty of Dentistry University of Jember states that the above protocol meets the ethical principle outlined and therefore can be carried out.

Jember, March 24th 2023

Chairperson of Research Ethics Committee
Faculty of Dentistry University of Jember

[redacted]

(Prof. Drg. Dwi Prijatmoko, Ph.D.)

Appendix G. The Enhancing Transparency in Reporting the Synthesis of Qualitative Research (ENTREQ) Statement [17]

No	Item	Description	Page Number*
1.	Aim	The aim of this review was to determine the self-care needs of international travellers and temporary migrants, and to assess how these needs align with existing self-care frameworks.	2, 5
2.	Synthesis methodology	Thematic synthesis	2, 8
3.	Approach to searching	The pre-planned approach with comprehensive search strategies was used to seek all available studies.	6-7
4.	Inclusion criteria	International tourists, backpackers, international students, business travellers and transient or seasonal migrant workers were included. Literature must be qualitative, multi-methods or mixed-methods primary research articles focusing on self-care among international travellers and migrants. All qualitative research designs were considered. The language and publication date were not restricted.	6
5.	Data sources	Information sources were MEDLINE, Embase, International Pharmaceutical Abstracts, and PsycINFO databases via Ovid, and CINAHL via EBSCO. Searches were performed on 5 October 2022 and updated on 30 October 2024.	6-7
6.	Electronic search strategy	The concepts of self-care and travel were elaborated into keywords and search strings depending on the database (S3 Appendix).	7, S3 Appendix
7.	Study screening methods	Researchers ANWP and JC independently screened the title, abstract, and full text. Any discrepancies were discussed with Researcher CS until a consensus was reached.	7
8.	Study characteristics	Characteristics of included studies were the year of publication, aim(s), study location, sample, sample size, data collection method, and data analysis (Table 1).	12
9.	Study selection results	The searches identified 3275 citations. Upon deduplication, abstract screening, and assessment of eligibility criteria, 17 studies were retained for inclusion. The details of the screening process and reasons for exclusion were presented in Figure 1.	10-11
10.	Rationale for appraisal	Appraisal was based on methodological rigour to assess aspects such as sampling strategy, data collection and analysis methods, the researcher's position, the general sense of the results, conclusion-making, and transferability (S4 Appendix).	7
11.	Appraisal items	The Center for Evidence-Based Medicine's Critical Appraisal of Qualitative Studies sheet was used to appraise the included studies.	7

12.	Appraisal process	Researchers ANWP and JC appraised 17 studies independently by answering "Yes", "No", or "Unclear" for every criterion. Discrepancies were resolved by consensus between Researchers ANWP, JC, and CS.	7
13.	Appraisal results	All studies were considered acceptable because most questions were answered "Yes". Most studies did not report the researcher's position owing to variations in reporting standards between journals. The appraisal results were presented in S4 Appendix.	S4 Appendix
14.	Data extraction	All texts under the "Results" or "Findings" section were considered data.	8
15.	Software	Covidence for screening and quality appraisal and NVivo 13 for data analysis	7, 8
16.	Number of reviewers	Two reviewers (ANWP and CS)	7, 8
17.	Coding	Researcher ANWP performed a line-by-line coding in close consultation with Researcher CS. The themes generated by the study's authors were used to name the codes in most instances.	8
18.	Study comparison	All included studies were read before data extraction. Each study was extracted individually.	7
19.	Derivation of themes	Descriptive and analytical themes were synthesised in this review. Descriptive themes were generated inductively by comparing similarities and differences of codes between studies. A hierarchical tree structure was made for each descriptive theme. A new theme was created when deemed necessary. Analytical codes were generated by reviewing and reinterpreting the descriptive themes to answer the research question.	8
20.	Quotations	The quotation examples are presented in Appendices S5 and S6 to illustrate descriptive themes. The quotations were from participants of the original studies.	S5 Appendix, S6 Appendix
21.	Synthesis output	The self-care needs among international travellers were Self-Care Empowerment, Mutual Understanding, Healthcare Challenges and Opportunities, Preventive Self-Care, and Facilitated Self-Care.	23

* The page numbers correspond to the pages of the submitted manuscript.

Appendix H. PRISMA 2020 Checklist

	Item #	Checklist item	Location where item is reported *
TITLE			
Title	1	Identify the report as a systematic review.	Line 2
ABSTRACT			
Abstract	2	See the PRISMA 2020 for Abstracts checklist.	Lines 20-42
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of existing knowledge.	Lines 46-91
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses.	Lines 91-94
METHODS			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses.	Section Scope, inclusion, and exclusion criteria Lines 104-124
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.	Section Scope, inclusion, and exclusion criteria Lines 116-124
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used.	Section Scope, inclusion, and exclusion criteria Lines 104-124, S3 Appendix
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.	Section Study selection and quality assessment Lines 125-145
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.	Section Study selection and quality assessment Lines 125-145
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g. for all measures, time points, analyses), and if not, the methods used to decide which results to collect.	Section Study selection and quality assessment Lines 125-145
	10b	List and define all other variables for which data were sought (e.g. participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information.	Section Study selection and quality assessment Lines 125-145
Study risk of bias	11	Specify the methods used to assess risk of bias in the included studies, including details of the	Section Study selection and

	Item #	Checklist item	Location where item is reported *
assessment		tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.	quality assessment Lines 125-145, 427-434
Effect measures	12	Specify for each outcome the effect measure(s) (e.g. risk ratio, mean difference) used in the synthesis or presentation of results.	N/A because the reports collected are qualitative studies
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g. tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5)).	Section Study selection and quality assessment Lines 125-145
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions.	Section Data synthesis Lines 146-184
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses.	Section Study selection and quality assessment Lines 125-145
	13d	Describe any methods used to synthesize results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used.	Sections Study selection and quality assessment, Data synthesis Lines 125-145, 146-184
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g. subgroup analysis, meta-regression).	N/A because the reports collected are qualitative studies
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesized results.	N/A because the reports collected are qualitative studies
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases).	N/A because the reports collected are qualitative studies
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome.	Section Mapping to the Self-Care Matrix Lines 185-195
RESULTS			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram.	Section Study characteristics Lines 204-221 Fig 1 PRISMA flow diagram
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and	Lines 204-221

	Item #	Checklist item	Location where item is reported *
		explain why they were excluded.	Fig 1 PRISMA flow diagram
Study characteristics	17	Cite each included study and present its characteristics.	Lines 211-212 Table 1
Risk of bias in studies	18	Present assessments of risk of bias for each included study.	S4 Appendix
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g. confidence/credible interval), ideally using structured tables or plots.	N/A because the reports collected are qualitative studies
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies.	Section Descriptive themes, analytical themes, and mapping to the Self-Care Matrix Lines 201-237 Fig 2 S5 Appendix
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g. confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect.	N/A because the reports collected are qualitative studies
	20c	Present results of all investigations of possible causes of heterogeneity among study results.	N/A because the reports collected are qualitative studies
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesized results.	N/A because the reports collected are qualitative studies
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed.	N/A because the reports collected are qualitative studies
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed.	N/A because the reports collected are qualitative studies
DISCUSSION			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence.	Lines 325-331
	23b	Discuss any limitations of the evidence included in the review.	Lines 409-434
	23c	Discuss any limitations of the review processes used.	Lines 409-434

	Item #	Checklist item	Location where item is reported *
	23d	Discuss implications of the results for practice, policy, and future research.	Lines 331-343, 376-379, 399-400, 406-408
OTHER INFORMATION			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered.	Methods Lines 98-100
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared.	Methods Lines 98-100
	24c	Describe and explain any amendments to information provided at registration or in the protocol.	Section Scope, inclusion, and exclusion criteria Lines 105-115
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review.	The role of the funder was described in the journal's submission form.
Competing interests	26	Declare any competing interests of review authors.	The competing interest declaration was described in the journal's submission form.
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review.	The data availability statement was described in the journal's submission form.

* The line numbers correspond to the document of the submitted manuscript.

Appendix I. Search strategies

Review title: Self-care needs among international migrants and travellers: A systematic review and meta-synthesis

PROSPERO register: CRD42022372693

Table A. Search strategy on EMBASE via Ovid

No	Keywords and Boolean operator
1	self care.mp. or exp self care/
2	self medication.mp. or exp self medication/
3	self treatment.mp.
4	self diagnosis.mp.
5	self prescription.mp.
6	self management.mp.
7	exp non prescription drug/ or non prescription medicine.mp.
8	over-the-counter.mp.
9	drug seeking behavior.mp. or exp drug seeking behavior/
10	information seeking behavior.mp. or exp information seeking/
11	travel.mp. or exp travel/
12	traveler.mp.
13	traveller.mp.
14	travel related illness.mp. or exp travel related disease/
15	international student.mp.
16	tourist.mp. or exp tourism/
17	medical tourism.mp. or exp medical tourism/
18	business traveller.mp.
19	business traveler.mp.
20	exp migrant/ or exp emigrant/ or exp immigrant/ or exp migrant worker/
21	asylum seeker.mp. or exp refugee/ or exp asylum seeker/
22	1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10
23	11 or 12 or 13 or 15 or 16 or 18 or 19
24	17 or 23
25	14 and 22
26	22 and 23
27	14 and 26
28	11 or 12 or 13 or 14 or 15 or 16 or 18 or 19
29	17 or 28
30	22 and 28
31	22 and 29

Table B. Search strategy on International Pharmaceutical Abstract via Ovid

No	Keywords and Boolean operator
1	self care.mp. [mp=title, subject heading word, registry word, abstract, trade name/generic name]
2	self medication.mp. [mp=title, subject heading word, registry word, abstract, trade name/generic name]
3	self treatment.mp. [mp=title, subject heading word, registry word, abstract, trade name/generic name]
4	self diagnosis.mp. [mp=title, subject heading word, registry word, abstract, trade name/generic name]
5	self prescription.mp. [mp=title, subject heading word, registry word, abstract, trade name/generic name]
6	self management.mp. [mp=title, subject heading word, registry word, abstract, trade name/generic name]
7	non prescription medicine.mp. [mp=title, subject heading word, registry word, abstract, trade name/generic name]
8	nonprescription drug*.mp. [mp=title, subject heading word, registry word, abstract, trade name/generic name]
9	over-the-counter.mp. [mp=title, subject heading word, registry word, abstract, trade name/generic name]
10	drug seeking behavior.mp. [mp=title, subject heading word, registry word, abstract, trade name/generic name]
11	information-seeking behavior.mp. [mp=title, subject heading word, registry word, abstract, trade name/generic name]
12	travel*.mp. [mp=title, subject heading word, registry word, abstract, trade name/generic name]
13	touris*.mp. [mp=title, subject heading word, registry word, abstract, trade name/generic name]
14	business travel*.mp. [mp=title, subject heading word, registry word, abstract, trade name/generic name]
15	travel related illness.mp. [mp=title, subject heading word, registry word, abstract, trade name/generic name]
16	international student.mp. [mp=title, subject heading word, registry word, abstract, trade name/generic name]
17	migrant*.mp. [mp=title, subject heading word, registry word, abstract, trade name/generic name]
18	immigra*.mp. [mp=title, subject heading word, registry word, abstract, trade name/generic name]
19	asylum seeker.mp. [mp=title, subject heading word, registry word, abstract, trade name/generic name]
20	refugee.mp. [mp=title, subject heading word, registry word, abstract, trade name/generic name]
21	medical touris*.mp. [mp=title, subject heading word, registry word, abstract, trade name/generic name]
22	1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10 or 11
23	12 or 13 or 14 or 15 or 16
24	21 or 23
25	17 or 18 or 19 or 20 or 24

26	22 and 23
27	22 and 24
28	22 and 25

Table C. Search strategy on MEDLINE via Ovid

No	Keywords and Boolean operator
1	exp Self Care/ or self care.mp.
2	exp Self Medication/ or self medication.mp.
3	self treatment.mp.
4	self diagnosis.mp.
5	self prescription.mp.
6	self management.mp. or exp Self-Management/
7	exp Nonprescription Drugs/ or non prescription medicine.mp.
8	over-the-counter.mp.
9	drug seeking behavior.mp. or exp Drug-Seeking Behavior/
10	information seeking behavior.mp. or exp Information Seeking Behavior/
11	exp Travel/ or travel.mp.
12	travel related illness.mp. or Travel-Related Illness/
13	traveler.mp.
14	traveller.mp.
15	exp International Educational Exchange/ or international student.mp.
16	migrant.mp. or exp "Transients and Migrants"/
17	immigrant.mp. or exp "Emigrants and Immigrants"/
18	asylum seeker.mp. or exp Refugees/
19	1 or 2 or 3
20	4 or 5 or 6
21	7 or 8
22	9 or 10
23	11 or 12 or 13 or 14
24	16 or 17
25	19 and 23
26	19 or 20 or 21 or 22
27	23 and 26
28	15 or 18 or 23 or 24
29	19 and 28
30	26 and 28
31	1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10
32	23 and 31
33	tourist.mp.
34	exp Tourism/ or exp Medical Tourism/ or tourism.mp.
35	31 or 33 or 34
36	23 and 35
37	36 not 32
38	23 or 33 or 34
39	31 and 38

40	16 or 38
41	31 and 40

Table D. Search strategy on APA PsycINFO via Ovid

No	**Keywords and Boolean operator**
1	self care.mp. or exp Self-Care/
2	exp Self-Medication/ or self medication.mp.
3	self treatment.mp.
4	self diagnosis.mp.
5	self prescription.mp.
6	self management.mp. or exp Self-Management/
7	exp Nonprescription Drugs/ or non prescription medicine.mp.
8	over-the-counter.mp.
9	drug seeking behavior.mp.
10	exp Information Seeking/ or information seeking behavior.mp.
11	tourist.mp.
12	travel?er.mp.
13	business travel?er.mp.
14	tourism.mp.
15	tourism.mp. or exp Tourism/
16	exp Traveling/ or travel.mp.
17	international student.mp. or exp International Students/
18	medical tourism.mp.
19	exp Migrant Workers/ or exp Migrant Farm Workers/ or migrant.mp.
20	sojourner.mp.
21	exp Study Abroad/
22	backpacker.mp.
23	digital nomad.mp.
24	travel-related disease.mp.
25	1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10
26	11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24
27	25 and 26

Table E. Search strategy on CINAHL via EBSCO

Database	**Search terms**
CINAHL	(((MM "Self Medication") OR "self medication or self-medication" OR (MM "Self-Care: Non-Parenteral Medication (Iowa NOC)") OR (MM "Self-Care: Parenteral Medication (Iowa NOC)")) OR ((MM "Self Care+") OR "self care or self-care") OR ("self treatment or self-treatment") OR "self-treatment" OR ((MM "Self-Diagnosis+") OR "self diagnosis") OR ("self prescription") OR ((MM "Self-Management") OR "self management or self-management") OR ((MM "Drugs, Non-Prescription") OR "non prescription drugs") OR ("over the counter") OR ((MM "Drug-Seeking Behavior") OR (MM "Information Seeking Behavior") OR "drug seeking behavior")) AND (((MM "Medical Tourism") OR "medical tourism") OR (("travelers" OR (MM "Travel+")) OR ("travel related illness") OR "tourist" OR ((MM "Tourism+") OR "tourism") OR ("business travel") OR ("business traveler") OR ("international students" OR (MM "Students, Foreign"))))

Appendix J. Quality assessment of studies

Author(s) (Year)	Rationale	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
Arcury et al. (2006)	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Fauk et al. (2022)	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Khirikoekkong et al. (2023)	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes
Kilanowski et al. (2010)	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Liew et al. (2020)	Yes	Yes	Yes	No	Yes	No	Yes	Yes	Yes
Lin et al. (2016)	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Madden et al. (2017)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
McElfish et al. (2016)	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
McVea (1997)	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes
Obach et al. (2024)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Parent et al. (2022)	Yes	Yes	Unclear	Yes	Yes	No	Yes	Yes	Yes
Porqueddu (2017)	Yes	Yes	Unclear	Yes	Yes	No	Yes	Yes	Yes
Shahab et al. (2019)	Yes	Yes	Unclear	Yes	Yes	Yes	Yes	Yes	Yes
Tyson et al. (2019)	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Vajta et al. (2015)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Westerling et al. (2020)	Yes	Yes	Unclear	Yes	Yes	No	Yes	Yes	Yes
Yan et al. (2020)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Q1. Was a qualitative approach appropriate? Q2. Was the sampling strategy appropriate for the approach? Q3. What were the data collection methods? Q4. How were data analysed and how were these checked? Q5. Is the researcher's position described? Q6. Do the results make sense? Q7. Are the conclusions drawn justified by the results? Q8. Are the findings transferable to other clinical settings?

Appendix K. Analytical and descriptive themes

Analytical	Descriptive themes	Examples of supporting statements		Interpretations from authors' findings
Healthcare challenges and opportunities	Stigma, legal status, and discrimination	A	*"Most people who see me think I am Colombian or Venezuelan. Maybe because they have this idea in their mind that a Venezuelan or a Colombian woman, because of what they see on social networks or see elsewhere, that these people are very liberal. The intention to approach and propose something to you is there, but knowing that you, even if you answer kindly and more so when you answer kindly, if you give a hint of kindness, they are going to talk, and they talk to you until you don't stop them or just walk away, they are still going to be there. You try to be nice to the person, but they get confused most of the time and it's not right. Because you can just say hello and that's it, but they want to go beyond that and invite you to something."* -Woman, 24, Ecuador **(Obach, 2024)**	• Some migrant women experienced "sexualisation", leading to unequal treatment and harassment. • Male migrants regarded "pride" as important and living with diabetes was seen as a loss of self-pride, thus creating barriers to self-management and help-seeking. • Stereotypes and stigmas manifested into discrimination and unequal treatment. • Not having a temporary residence permit denied some migrants healthcare access, although this practice had no legal basis, and healthcare access should be universal. • Migrants felt that they experienced unequal treatment at healthcare facilities and they believed because of either their insurance status or ethnicity.
		B	*"Even if we arrive the first, we are left for the last [to receive care]; that is called discrimination"* -Man, 21, Venezuela **(Obach, 2024)**	
		C	*"At that time, I brought some medicines [ARV] from here [Indonesia], and after taking them all I didn't try to access the medicines over there because I was afraid of getting caught by the authorities. I didn't have documents; I was an illegal migrant worker. I was afraid that if I looked for the medicines, then doctors or nurses might ask for some documents and that would be a problem for me. I could get caught and jailed or deported. Sometimes, authorities such*	

			as the police went to check for illegal people [migrant workers] in the plantation areas. I remember some friends of mine and I had to run and hide in the forest a few times because of that." -Isto **(Fauk, 2022)**	
	Accessibility	A	*"When I first arrived in Malaysia, I checked on the internet about HIV clinics so I knew. However, I worked in an oil palm plantation which was far from the city. The distance from the plantation to the city where there was an HIV clinic was very far. The problem was that there was no public transportation in the plantation area, so it was very difficult to get to the city. Besides, I didn't know anyone or friends or relatives in the city, so at that time I thought if I went to the city then who would help me to get the access to HIV clinic and the [ARV] medicines, and where I should sleep because I believed I couldn't go back to the plantation area on the same day, there was no transportation. Therefore, for almost three years I worked there I didn't access the medicines."* -Kobus, 40 years old **(Fauk, 2022)**	• Migrant farmworkers rely on themselves when sick. • A lack of public transport to HIV care services in the city and having no friends and relatives who can help access the services or where they could stay overnight demotivated migrants. • Living far from a health facility was the reason to stay at home, wait and see, or self-medicate. • Distance and transportation also hindered migrants from accessing food at affordable prices, and to seek for rapid diagnostic tests. • An extended hospital stay raised worries about the need for medical repatriation • Some migrants cannot pass the license driving exam due to limited English reading skills.
		B	*"[I] live far away from the clinic and [I] could not come. For that reason, I gave him [child] medicines based on my own understanding [on medicines]. Only if he did not feel better, we would come here [MKT clinic]. If the medicines he took made him better, we would not come here. Because [we live] far away from clinic, for that reason we don't come. But, if he is not better, we would come [to clinic] with bicycle, we would rent other people's motorbike, or we would come on foot early in the morning."* – IDI, male participant **(Khirikoekkong, 2023)**	
	Finance and	A	*"…you have to buy half, half of the amount of food to be able to buy your medication."* -Woman, P26 **(Tyson, 2019)**	• Migrants with low-earning and unstable jobs faced challenges in affording health services.

		B	*"I would insure myself. Yeah. And now they won't give, very few people will give you when you are over 80.. .They don't want to give it to you at that age. You are too big a risk."* -P1 **(Liew, 2020)**	• Many migrant farmworker mothers cited the high cost of meals. • Having large families and financial pressures led to a preference for cheap, high-dense foods. • Although farmworkers wanted to see a doctor, the lack of insurance prevented them. • Despite the willingness, finding insurance providers for elderly tourists can be problematic. • Some migrants can afford insurance, reducing medical expenses and preventing doctor refusal. • Backpackers spent money on activities rather than medical expenses, despite the insurance.
		C	*"Health insurance will be much appreciated because when you go to a hospital with no insurance or money to pay, the doctors won't see the patient."* **(Lin, 2016)**	
	Reliance on health services outside the destination country	A	*"But here, it's too expensive to go get medical help because if you go to a consultation with the doctors, they charge you a lot of money. That's why people prefer to buy creams to treat themselves. ... And sometimes he [doctor] doesn't even give you what you need because, sometimes, they give you a prescription that you have to go buy at the pharmacy. And if they don't have that cream at the pharmacy, you return home with nothing. But you have already paid the doctor. ... Yes, if it's not necessary, you don't go because if they charge three to four thousand dollars, that's too much money. And if you get sick suddenly and you still feel like you can put up with it, it's better to go to Mexico because the medicine is cheaper there."* -M10:342 **(Arcury, 2006)**	• Some migrants postponed their care until they returned to their countries of origin. • Some migrants travelled to other countries with physicians speaking the language they understand. • Some migrants obtained antibiotics in their countries of origin without a prescription and brought them to the destination country.
		B	*"If you go there [Bangkok], they can understand any language you speak. The doctors come from many countries and speak many languages like Arabic, French, Spanish, English, and German."* **(Lin, 2016)**	
	Reliance on the	A	*"So I found it very good to the extent like you know that erm, they had all the notes, everything ready and had what they found and what wasn't found."* -P11 **(Liew, 2020)**	• Farmworkers went to a pharmacy to consult the pharmacist about their skin conditions. • Hotel staff referred to a pharmacy for free consultation or to a local hospital.

		B	*"I went to the pharmacist to get free advice and they told me to go see a doctor."* **(Vajta, 2015)**	• Seeking treatment from a physician was initiated when self-treatment failed. • Migrants had difficulty booking a GP appointment on short notice. Negative sentiments occurred to doctors' consultations. • Despite some communication barriers, tourists were satisfied with the quality of care of the destination country.
	Unregulated resources	A	*"After I was diagnosed with HIV over there [in Malaysia], I asked a friend of mine to help me access HIV treatment, and he told me that he knew a traditional healer who could give [traditional] medicines. So, we both went to that traditional healer, and I got the medicines from him. I took the medicines from that traditional healer for about a year and didn't access the medicines [ART] from doctors".* -Sebas, aged 39 **(Fauk, 2022)**	• Some migrants visited traditional healers in the destination country to obtain "treatment" for HIV. • Male migrants self-treated fever and bought sets of polypharmacy from grocery shops, while some preferred injections by unqualified health workers. • Postmails, flea markets, or Mexican specialty stores were some sources to obtain medicines. • Purchasing medicines inside the forest can be costly in the unregulated market. • Migrants obtained antibiotics online without a prescription.
		B	*"Y: There is a grocery store in [a North Carolina town]. They sell Mexican food and stuff. They have it there for you to buy. They don't have it out there on the counter, you have to ask for it. Interviewer: They sell medicines for people to inject? Y: Yes, but you have to ask them for it."* **(McVea, 1997)**	
Facilitated self-care	**Adherence to treatment**	A	*"On Saturday, I didn't have. I left my meds behind. So I missed those two days. But erm, the minute I got back on Sunday, I took my meds. So I missed a day and a half."* -P2 **(Liew, 2020)**	• Migrants on ARV therapy before migrating had the initial intention of accessing HIV care services. • Missed medication doses could be due to inflexible travel itineraries or negligence. • Side effects (e.g. itching, bad palatability, drowsiness) influenced gold miners to stop the treatment. • Non-adherence to diabetes treatment was because of distrust of medications and side effects. • Advice from health workers motivated gold miners to complete malaria treatment.
		B	*"I drink it because they tell me to drink it to feel good. Can't short my treatment."* -Sala Bora Mining Camp, Region 8 **(Yan, 2020)**	
	Self-care products	A	*"I usually bring meds, you know, to do me another two weeks. So if I am going to be traveling, I make sure I have enough meds for two weeks after my travel."* -P3 **(Liew, 2020)**	• Farmworkers either go to a pharmacy for a consultation and OTC products or use home remedies.

		B	*"The strips to check your sugar alone cost…between $30 to $50 for 50 strips…that is the most expensive that there is… but I...buy a box and every three months or two months I check the sugar and later I say, 'No, I have 100, just walking or exercising it will go down.'"* -Man, P15 **(Tyson, 2019)**	• Some migrants self-made their traditional medicines using fresh parts of plants and bought herbal medicines at supermarkets or online instead of ARV due to easier access. • Migrants felt easier access to medication in their country of origin. • For "self-care" with lay injections, migrants used a limited range of medicines. • Young migrants felt easy access to condoms through the health system. • Gold miners can access free malaria kits and share them through donations or transactions. • Elderly travellers brought walking sticks and wearable devices (smartwatches). • Travellers buy medications at travel destinations, and it can be challenging without a prescription. • Travellers stored emergency medications in easy-to-access storage and had an extra supply.
		C	*"I consumed packaged herbal medicines which I bought from supermarkets. Sometimes I ordered them online, but those are a little bit expensive. They were easier to access and I didn't need any prescription from a medical doctor to get them. It is not like ARV medicines where everybody has to go through a lot of procedures and tests to be able to access them. So, I didn't think of accessing ARV medicines. I worked nearby a hospital for more than one year and I knew about HIV care services there, but I didn't access them. I took herbal medicines for nearly two years and then switched to [ARV] medicines once I came back here [to Indonesia]. I continued the treatment using herbal medicines for six months here [in Indonesia] because I bought a few bottles [while abroad] and brought them with me [to Indonesia]. Once I finished them all, I restarted the ARV medicines."* -Primus, aged 28 **(Fauk, 2022)**	
	Self-treatment	A	*"[I learned home remedies from] my grandparents mainly. They would tell me, 'Look, boil this peel/bark and that is good….' They just tell me that it works because of the bitterness, that it works because of the bitterness and that is how one is controlled. They have their belief that it is because of the bitterness, they say."* -Woman, P05 **(Tyson, 2019)**	• Self-treatment for fever was with leftover medicines, polypharmacy packs from grocery shops, or herbal medicines. • Self-treatment with herbal medicines was influenced by familiarity with it in the country of origin. • Migrants were unsure about the effectiveness of herbal or traditional medicines.

		B	*"Actually, I took traditional medicines when I was working overseas because they were easy to get or I could make them by myself. It was not because I thought they were more effective than medical treatment (ARVs). Besides, the medicines from doctors (ARVs) were difficult to find in the place where I worked, I didn't even know where to access them". -Metak, 45 years old* **(Fauk, 2022)**	• Rubbing the body with a soaked towel or showering was used to reduce body temperature. • Beliefs of the superiority of injections drove migrants to resort to lay injections. • Seeking treatment from a physician was initiated when self-treatment failed.
Mutual understanding	**Communication and language**	A	*"The thing is I didn't understand French, and neither did my wife. So we were trying to get information and the nurses actually weren't very pleasant."* -P11 **(Liew, 2020)**	• Language barriers reduced migrants' confidence and ability to explain their health problems. • Communication issues occurred in Karen/Burmese-speaking migrants at Thai health facilities. • Migrants hoped doctors could speak their languages to make them free from medical interpreters. • Language barriers with local health workers lead to unpleasant experiences. • Better communication with doctors could improve health. • Successful health education among migrants should include materials in their language.
		B	*Marshallese participants discuss that "the language barrier is also a barrier to better health."* **(McElfish, 2016)**	
	Intercultural understanding	A	*"To understand a disease, it's more important to understand how a patient feels."* **(Lin, 2016)**	• Travel can broaden travellers' language and cultural horizons. • Some migrants travelled to neighbouring countries with physicians speaking their language. • Misunderstanding patients' cultural backgrounds impeded the patient-doctor relationship. • A few migrants felt that the destination country's approach to medication and promotion of self-care was appropriate. The system prioritises self-care, prevention, and minimal use of drugs. • Regulations that have become more inclusive should have been accompanied by training on intercultural health and migratory steps. • Migrants hoped for the recognition of herbal remedies in the destination country's health system.
		B	*Marshallese participants discuss that "the language barrier is also a barrier to better health."* **(McElfish, 2016)**	
Preven	**Anxiet y and**	A	*"I was anxious beforehand about how I would go, given that I wasn't as strong as I used to be."* -P3 **(Liew, 2020)**	• Police interventions caused instability and gold miners to live on the run with fear and anxiety.

		B	*"The police don't let them go to work and they have to live on the run. It's a difficult situation. They come and they break and they burn everything […] They have no job opportunities, they have no profession and many of them are forced to work on the other side, even illegally"* -Key actor A01 **(Parent, 2020)**	• Migrants tried to hide from authorities and avoided visiting health facilities, minimising the risks of getting caught, detained, or deported. • Undocumented migrants feared deportation, and this became a barrier to healthcare access. • Miners suffered mentally, physically, and socially due to legal, economic, and social exclusions. • A few migrants believed that controlling anger was important in managing diabetes. • Most travellers with cardiovascular diseases felt uncomfortable when travelling solo. • Some elderly travellers are worried about perceived physical fitness during travel.
	Agency	A	*"You have to take care of yourself. The boss is not someone who is going to take you to the clinic, unless you are off. For example, it's happened to my friends when they got sick here, when they felt really bad, they had to miss a few hours of work or even one day so they can get there on their bicycle because the boss doesn't take anyone."* -M28:25 **(Arcury et al., 2006)**	• Migrant farmworkers felt the need to rely on themselves when being sick. • Most travellers with cardiovascular diseases felt uncomfortable when travelling solo. • Young migrants were perceived to a lack of self-care for pregnancy prevention.
		B	*"It's a little bit inhibiting in the sense that erm, you know, if I was to go on my own to.. ..I'll be a little bit nervous. A little bit nervous. You know you are on your own. You didn't feel well, not just your heart, but anything, you know. If you are on your own, what would you do, yeah."* -P4 **(Liew, 2020)**	
	Dietary choice	A	*"Erm, there's so much...you can eat as much as you like, and drink as much as you like. But you have to be controlled you see."* -P6 **(Liew, 2020)**	• Many migrant farmworker mothers were able to identify foods they thought unhealthy and their influences on wellness. They felt time limit affects the preparation of healthy meals for the family.

		B	*"We eat a lot of things made from corn flour, which, it is bad for us…but...[if you're] 100% Mexican, that's just the way food is for us!" (laughs)* **(Kilanowski, 2010)**	• A few migrant farmworker mothers mentioned the dietary moderation. • Travellers perceived the importance of maintaining a well-controlled diet while travelling. • Diabetes education and self-management practices alone cannot address issues about affordability and the ability to store and prepare healthy food. • Some migrants contrasted the Western diet with their healthier traditional diet. • Some migrants faced difficulty modifying diets comprising culturally traditional food and dishes. • Some ethnic foods labelled unhealthy by migrants were inevitable in cultural celebrations.
	Health risk management	A	*"… wouldn't be advisable to go and do any strenuous activities they have never done before like you know. Silly things like that. Put themselves in any danger."* -P4 **(Liew, 2020)**	• Some travellers would avoid extreme leisure activities due to their heart conditions. • Most elderly travellers prefer to travel with their partner or in a group, which can be life-saving. • Migrants who knew the risks of self-injection changed their practices, i.e. using disposable needles or entirely abandoning them.
		B	*"Interviewer: So you used disposable needles all the time? F: Yes, and now with AIDS, we don't do it any other way. Who's not afraid of AIDS? I don't know what it is or, for example, I don't know what symptoms to look for, but I know it is dangerous and people who have it die. So you imagine me playing with someone's life."* **(McVea, 1997)**	
	Hygiene practice	A	*"Yes, there must be [a treatment for fungus]. A person has to change daily and take a bath and shave. And you also have to change your underwear. …Of course, when you take a bath, you have to scrub your whole foot, your toes, everything in order to get rid of the filth because if you don't get rid of the filth, that will come back."* -M26:383 **(Arcury, 2006)**	• Washing and bathing immediately relieved several rashes, especially in cool water with refreshment and soothing effects. • Washing the affected areas thoroughly was recognised by a few farm workers. • Some migrant farmworker mothers were aware of hygiene before cooking food for their families.
		B	*"Sometimes we don't have anything to eat because we get back late [around sundown] and have to prepare food and that takes even more time...But I before I cook I like to shower [to get the dirt and chemicals off]."* **(Kilanowski, 2010)**	

	Physical activity	A	*"Oh I will, I walk more when I be abroad. Yeah I would.. ..walk every morning before breakfast, and I will go for cycle every afternoon."* -P7 **(Liew, 2020)**	• Some elderly travellers expressed physical limitations stemming from their condition during travel. • For some elderly travellers with cardiovascular diseases, travelling in groups provided opportunities to strengthen existing friendships and increase their physical activities. • Although most participants self-reported integrating exercise into their diabetes management, they faced difficulties due to the physical demands of the jobs, long working hours, unpredictable schedules, and competing priorities.
		B	*"When they detected that I had diabetes they told me that I had to walk between 30 to 45 minutes. I would go to the park that is here in [city name]. I walked around it twice, but when I started working there and sometimes we get out late, sometimes we get out early, sometimes we go out, we sometimes work for up to 24 hours; with what energy am I going to go and exercise?"* -Woman, P22 **(Tyson, 2019)**	
	Self-awareness	A	*"I won't go on travel if I don't feel well. Because I know people who have gone on travel and died on the plane. So I'm unlikely to go if there's any hint of the risks of me not being well."*-P3 **(Liew, 2020)**	• Travellers with cardiovascular diseases expressed an appreciation of personal health and responsibility for ensuring their cardiovascular conditions were well controlled and stable before travel, with trip cancellation possible owing to personal illness. • There was a lack of perceived need to seek pre-travel health advice as no travellers sought it. • Some study participants perceived that young people, in general, perceived HIV as low-risk or that they were not afraid enough.
		B	*"I don't think they see the seriousness of the situation about AIDS because they don't live it. I think they should at least experience a mild infection for them to be afraid. Because they talk about AIDS, but we don't take care of ourselves when we are young."* -Woman, 21, Ecuador **(Obach, 2024)**	
	Social engagement	A	*"It would be really helpful if the church can put more emphasis on teaching people how to change their mindset about eating all these bad food."* - Participant 19, male, age 36 **(Shahab, 2019)**	• Some migrants knew local people to whom they sought directions to a traditional healer. • Most travellers prefer to travel with their partner or in a group, which can be life-saving for some. • For some elderly travellers with cardiovascular diseases, travelling in groups provided opportunities to strengthen existing friendships and increase their physical activities. • Some migrants could be helped by local friends as interpreters. • Friends and families settled in the destination country helped new migrants orientate the health system. • Migrants practising lay injection depended on family, relatives, and friends. • Religious leaders could potentially influence behavioural change. • Backpackers who travel in groups will support each other in an unfamiliar environment.
		B	*"We did a bus trip around Sicily, there were about 35 or 40 of us. So we flew out, on a bus, traveling around...absolute fantastic. Absolutely fabulous."* -P3 **(Liew, 2020)**	

	Community interventions and initiatives	A	*"And here, there is another phenomenon, talking about the general issue of HIV organisations here in Chile. First, they are, in my opinion, few. Secondly, the supply of services is also limited, compared to other neighbouring countries in the region. So, what this means is that, at least, the community-based organisations - which are the ones that have the most access to the population - are the ones that have the least access to resources, so it is the most paradoxical thing. The ones that have the most contact with the population are the ones that have the least access to resources, so, of course, in the overall picture, what this does is that, uh, we seem to be doing things backwards in terms of civil society and HIV."* -Man, 26, Colombia **(Obach, 2024)**	• Health initiatives bolstered young migrants' agency over their SRH and must go conjointly with promoting community-based migrant organisations. • Community initiatives delivered information and linked the health system and migrants. • Many gold miners found the free malaria kit easy to use and carry and returned for a second kit. • Some shared medications at mining sites implied an incomplete medication course. • Religious leaders could potentially influence behavioural change. • Physicians should explain the rational use of antibiotics despite administration/side effects.
		B	*"It would be really helpful if the church can put more emphasis on teaching people how to change their mindset about eating all these bad food."* - Participant 19, male, age 36 **(Shahab, 2019)**	
	Knowledge and health	A	*"Well I like to be told exactly about my condition, and the ins and outs of it, and the dangers of it. And advised as to how to behave in a way that is more beneficial for your condition."* -P1 **(Liew, 2020)**	• Fever carried different meanings, including endemic malaria, dengue, or simply "sick". • Despite malaria, gold miners cited other health risks and problems without understanding them.

		B	*"I had made up my mind before I left Indonesia and intended to access the [ARV] medicines, but when I was there [in Thailand] I was not brave enough to look for and meet doctors because I didn't know their language. I didn't know how to explain what I was going through. Another concern was that I didn't even know where to start. For example, here [in Indonesia] the procedure is that you just need to go to a public health centre and the nurse will examine your condition and refer you to the HIV clinic. But I didn't know the procedure over there, so I didn't make any efforts to access the [ARV] medicines while I was there"* -Ali, aged 48 **(Fauk, 2022)**	• The self-diagnostic kit's "how-to" was in the video as part of its distribution to gold miners. • Antibiotic information was obtained from a health worker, product leaflets, and the Internet. • Being comprehensively well-informed about their conditions was essential for elderly travellers. • Educating migrants about healthy diets motivated them to modify their dietary habits for diabetes. • Migrants who knew the risks of self-injection changed their practices, i.e. using disposable needles or entirely abandoning them. • Some migrants were thought to have sex education before arriving in the destination country. • Travellers felt they needed to know the health system at their destination countries. • Language barriers worsened the navigation of the health system in the destination countries. • Backpackers sought direction from local sources once their illness needed medical attention. • Settled friends, families, and co-workers helped new migrants orientate the health system. • Migrants' employers asked them to register with a GP without sufficient support for the process.
		C	*Most participants got information about antibiotics from their physician or pharmacist. Turkish migrants often asked pharmacists questions about antibiotics. The manufacturers' leaflets were an important additional source of information in the migrant group. Younger participants also mentioned the internet as an information source.* (**Westerling, 2020)**	

GP: general practitioners, HIV: human immunodeficiency virus, ARV: antiretroviral, OTC: over-the-counter, SRH: sexual and reproductive health

Appendix L. Codebook examples and thematic tree

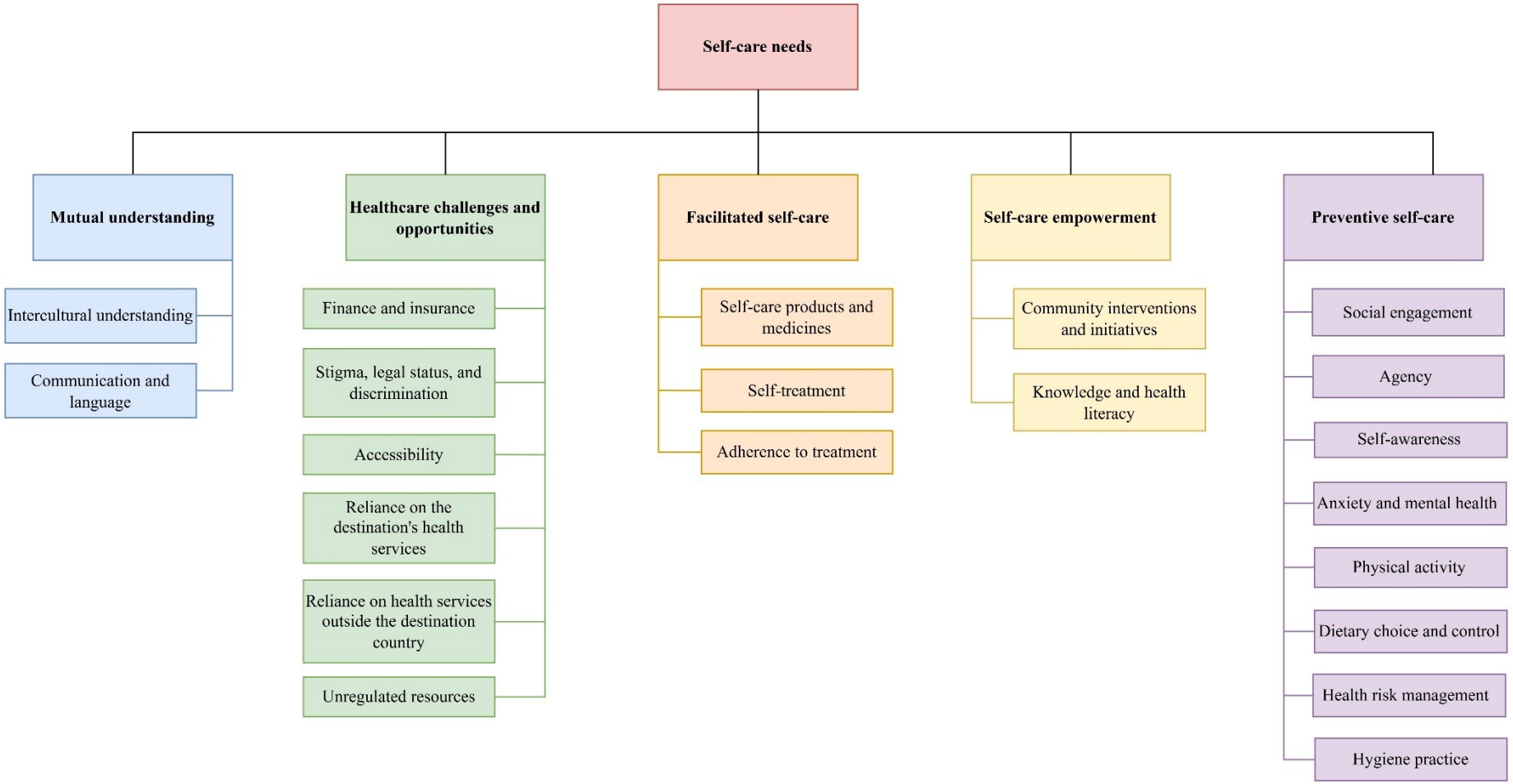
Table A. Codebook examples

Analytical theme	Descriptive theme	Definition	Deidentified quote from the original study
Healthcare challenges and opportunities	Distance and transport	The degree to which individuals are facilitated in their ability to gain entry to and to receive care and services from the health care system, including geographic, transportational, and financial factors	"That time when I had malaria, [I] used to take Artecom [malaria drug], depends if you feel you know the treatment, you have the symptoms, take Artecom. That time I didn't take a smear because the interior was far, no hospital." "The stores are far away and the food is expensive and...there is no ride to go to the store. We don't all have cars and there is no bus out here and it's too far to walk. Most of us don't know how to drive."
	Stigma, legal status, and discrimination	Social stereotyping, illegal/undocumented status, or unjust/prejudicial treatments that hinder individuals from accessing healthcare	"Sometimes I feel like they [GP] are saying, 'why are you coming to see me?" "Even if we arrive the first, we are left for the last [to receive care]; that is called discrimination"
	Unregulated resources	Informal or loosely regulated business offering services and products needed by international travellers to perform self-care	"[…] I asked a friend of mine to help me access HIV treatment, and he told me that he knew a traditional healer who could give [traditional] medicines. […] I took the medicines from that traditional healer for about a year and didn't access the medicines [ART] from doctors" "A lot of people selling medicines and a lot of people buying taking and injecting without understanding. They do not go to hospital/clinic."
Preventive self-care	Dietary choice and control	Control and choice over dietary patterns, which have been found to be important in reducing disease risk	"[…] you can eat as much as you like, and drink as much as you like. But you have to be controlled you see." "I try to eat healthy food, [but] sometimes I eat the food that I shouldn't eat with a lot of grease."
	Physical activity	Bodily movement produced by skeletal muscles requires energy	"Oh I will, I walk more when I be abroad. Yeah I would.. ..walk every morning before breakfast, and I will go for cycle every afternoon."

Analytical theme	Descriptive theme	Definition	Deidentified quote from the original study
		expenditure, e.g. walking, exercise	"[…] I would go to the park that is here in [city name]. I walked around it twice, but when I started working there and sometimes we get out late, sometimes we get out early, sometimes we go out, we sometimes work for up to 24 hours; with what energy am I going to go and exercise?"
	Social engagement	Any group or communal activities that trigger and motivate someone to act towards a healthy lifestyle	"[…] I knew some local people, so I asked them about traditional healers and they told me about a traditional healer nearby; he was the one who gave me the traditional medicines. I felt fine, so I didn't think of taking ARV medicines." "Just by chatting to other people and the longer you stay then you understand better."

GP: general practitioners, ART: anti-retroviral therapy

Figure A. Thematic tree



Appendix M. Consolidated criteria for reporting qualitative studies (COREQ) 32-item checklist (Tong et al., 2007)

No	Item	Description
	Domain 1: Research team and reflexivity	
	Personal characteristics	
1.	Interviewer/facilitator	*Which author/s conducted the interview or focus group?* ANWP conducted the interviews using an interview guide conceptualised by all team members.
2.	Credentials	*What were the researcher's credentials? E.g. PhD, MD* ANWP was a PhD student. BM was a medical doctor, PhD, and associate professor. CS was a nurse, pharmacist, PhD, and associate professor. RM was a pharmacist and professor.
3.	Occupation	*What was their occupation at the time of the study?* ANWP was a PhD student in pharmacy. BM, RM, and CS were academics in the field of medicine, public health, pharmacy, and nursing.
4.	Gender	*Was the researcher male or female?* ANWP, BM, and CS were males, and RM was female.
5.	Experience and training	*What experience or training did the researcher have?* The team members' collective experience of conducting qualitative and/or mixed-methods studies was 72 years. All team members travelled globally.
	Relationship with participants	
6.	Relationship established	*Was a relationship established prior to study commencement?* No relationship was established between the interviewer (ANWP) and the participants before the study.
7.	Participant knowledge of the interviewer	*What did the participants know about the researcher? e.g. personal goals, reasons for doing the research* The interviewer, ANWP, introduced himself as a PhD student when approaching the prospective participants. The Participant Information Statement sheet was given to the participants for reading. They were given the opportunity to ask the interviewer about the study before they consented to join the interview.
8.	Interviewer characteristics	*What characteristics were reported about the interviewer/facilitator? e.g. bias, assumptions, reasons and interests in the research topic*

No	Item	Description
		The interviews were in English, which was not the interviewer's native language.
	Domain 2: Study design	
	Theoretical framework	
9.	Methodological orientation and Theory	*What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis* This study used framework analysis based on pragmatism.
	Participant selection	
10.	Sampling	*How were participants selected? e.g. purposive, convenience, consecutive, snowball* Purposive sampling with maximum variation was used to select the participants.
11.	Method of approach	*How were participants approached? e.g. face-to-face, telephone, mail, email* The interviewers approached prospective participants face-to-face and offered the research flyer or the Participant Information Statement sheet. The approach was purposive. The interviewer intentionally approached different types of travellers, i.e. with a family, friend(s), single, elderly, and young adult.
12.	Sample size	*How many participants were in the study?* Seventeen participants agreed to be interviewed.
13.	Non-participation	*How many people refused to participate or dropped out? Reasons?* One participant disagreed to be audio recorded and therefore was excluded from data analysis.
	Setting	
14.	Setting of data collection	*Where was the data collected? e.g. home, clinic, workplace* Face-to-face interviews were conducted either online or face-to-face in public spaces, mainly on beaches.
15.	Presence of non-participants	*Was anyone else present besides the participants and researchers?* For some participants who were travelling with their couple or family members, their couple or family members were around but did not interfere with the interviews. As the interviews took place in public spaces, i.e. tourist spots, many other travellers were present.
16.	Description of sample	*What are the important characteristics of the sample? e.g. demographic data, date* The important characteristics of the sample are the countries of origin, reflecting the language barriers in communication with the locals.
	Data collection	
17.	Interview guide	*Were questions, prompts, guides provided by the authors? Was it pilot tested?*

No	Item	Description
		The interview guide was drafted by ANWP and discussed with the other authors. The guide was not pilot-tested.
18.	Repeat interviews	*Were repeat interviews carried out? If yes, how many?* There were no repeat interviews because maintaining contact with each participant was challenging.
19.	Audio/visual recording	*Did the research use audio or visual recording to collect the data?* The research only used audio recording to collect the data.
20.	Field notes	*Were field notes made during and/or after the interview or focus group?* Field notes were made during the interview for one particular participant who disagreed to be audio-recorded.
21.	Duration	*What was the duration of the interviews or focus group?* The interview durations ranged from about 5.5 to 22 minutes (mean ± SD = 10.9 ± 4.3). The short duration was because the participants had not experienced interactions with a local health provider. Another reason was that the interviewer and the participant were not native English speakers, limiting the discussions.
22.	Data saturation	*Was data saturation discussed?* Data saturation was not discussed because the study used information power instead.
23.	Transcripts returned	*Were transcripts returned to participants for comment and/or correction?* Transcripts were not returned to participants because some participants were not willing for further communication.
	Domain 3: analysis and findings	
	Data analysis	
24.	Number of data coders	*How many data coders coded the data?* Two researchers were involved in the coding. Researcher ANWP created the initial codes in close consultation with CS.
25.	Description of the coding tree	*Did authors provide a description of the coding tree?* The coding tree description was based on Robson and Robinson's Information-Seeking and Communication Model (ISCM).
26.	Derivation of themes	*Were themes identified in advance or derived from the data?* Categories were identified in advance according to Robson and Robinson's ISCM.
27.	Software	*What software, if applicable, was used to manage the data?*

No	Item	Description
		Data management used NVivo 1.7.1 software (QSR International, Melbourne, Australia, https://lumivero.com/).
28.	Participant checking	*Did participants provide feedback on the findings?* Participants did not provide feedback on the findings.
	Reporting	
29.	Quotations presented	*Were participant quotations presented to illustrate the themes / findings? Was each quotation identified? e.g. participant number* Participant quotations were presented to illustrate findings. Each quotation was identified with the participant's ID.
30.	Data and findings consistent	*Was there consistency between the data presented and the findings?* There was consistency between the data presented and the findings.
31.	Clarity of major themes	*Were major themes clearly presented in the findings?* Major categories were clearly presented in the findings.
32.	Clarity of minor themes	*Is there a description of diverse cases or discussion of minor themes?* There is a description of diverse cases under the description of major findings.

Appendix N. Concourse development process, scree plot, and slope diagram

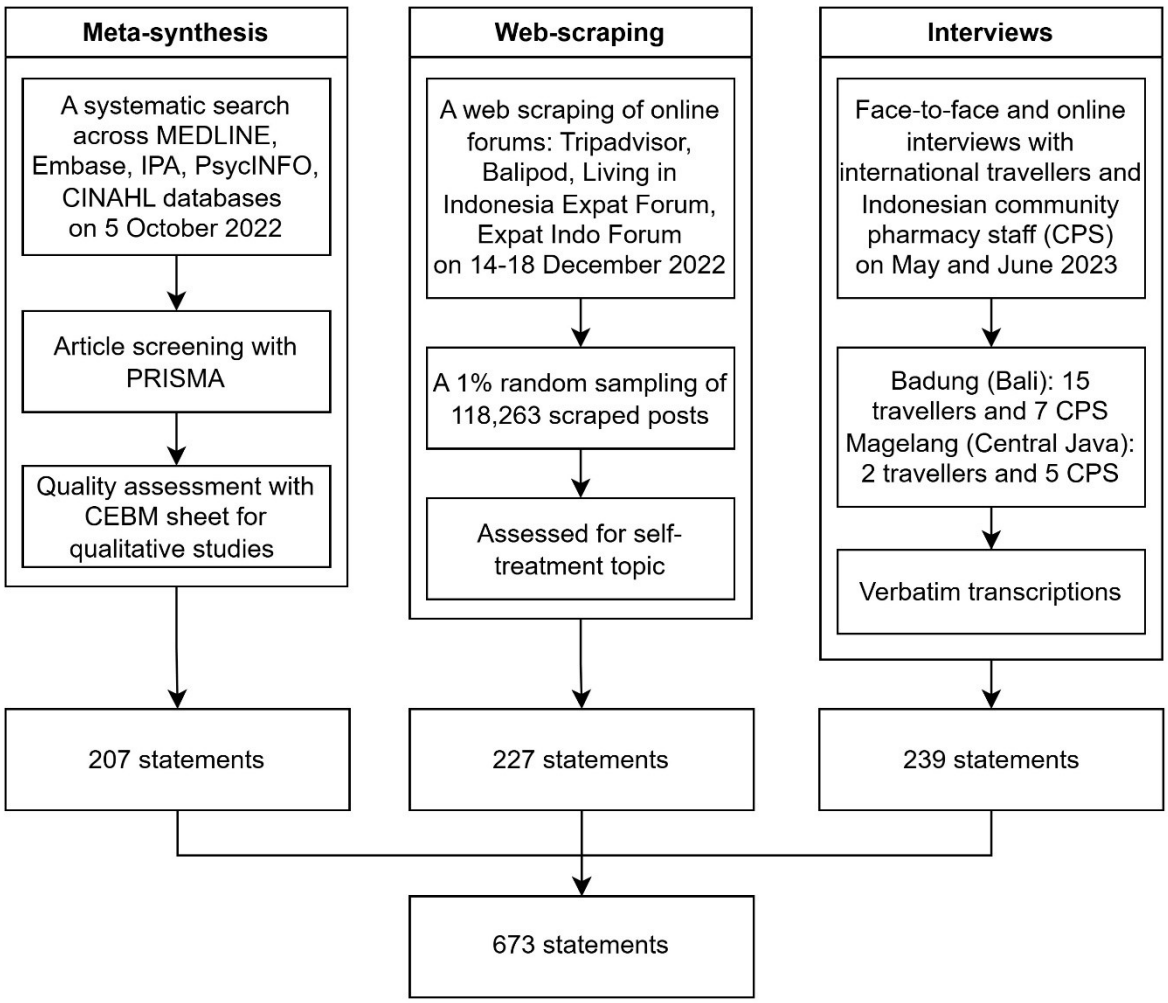


Figure N.1. Concourse development flowchart

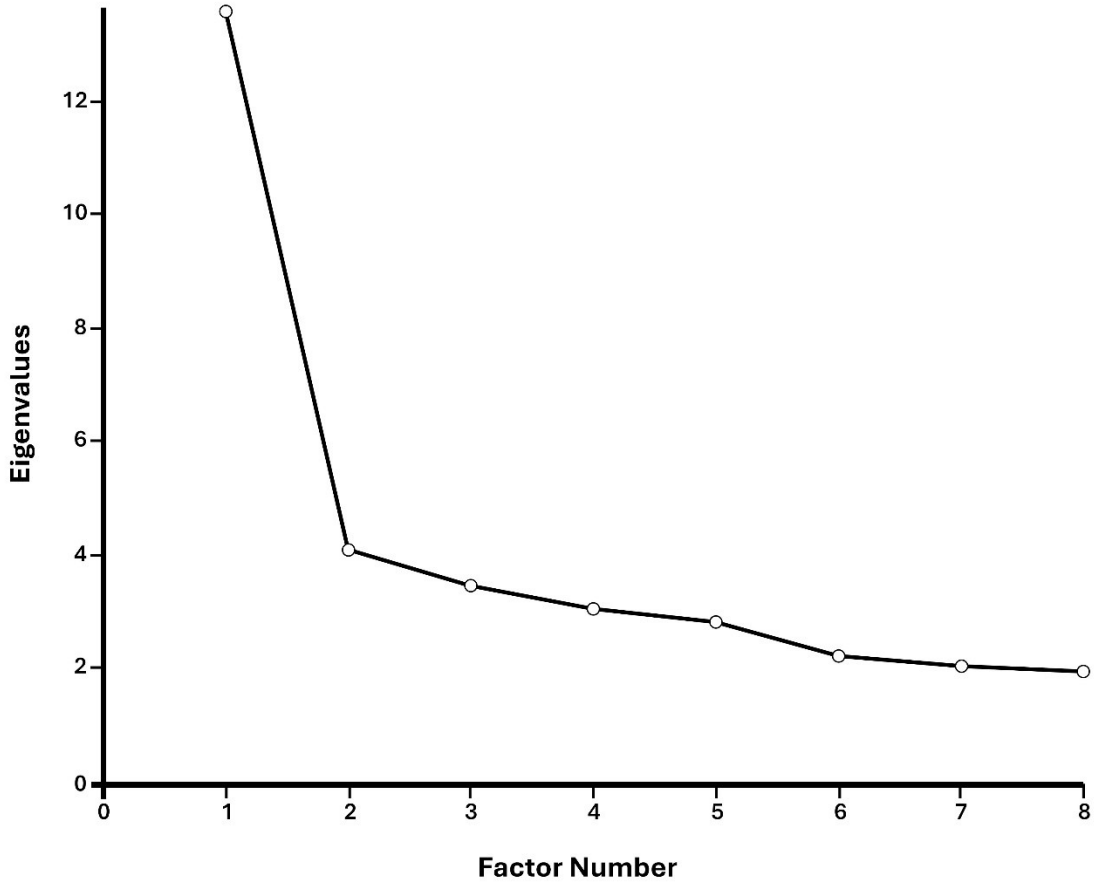


Figure N.2. Scree plot

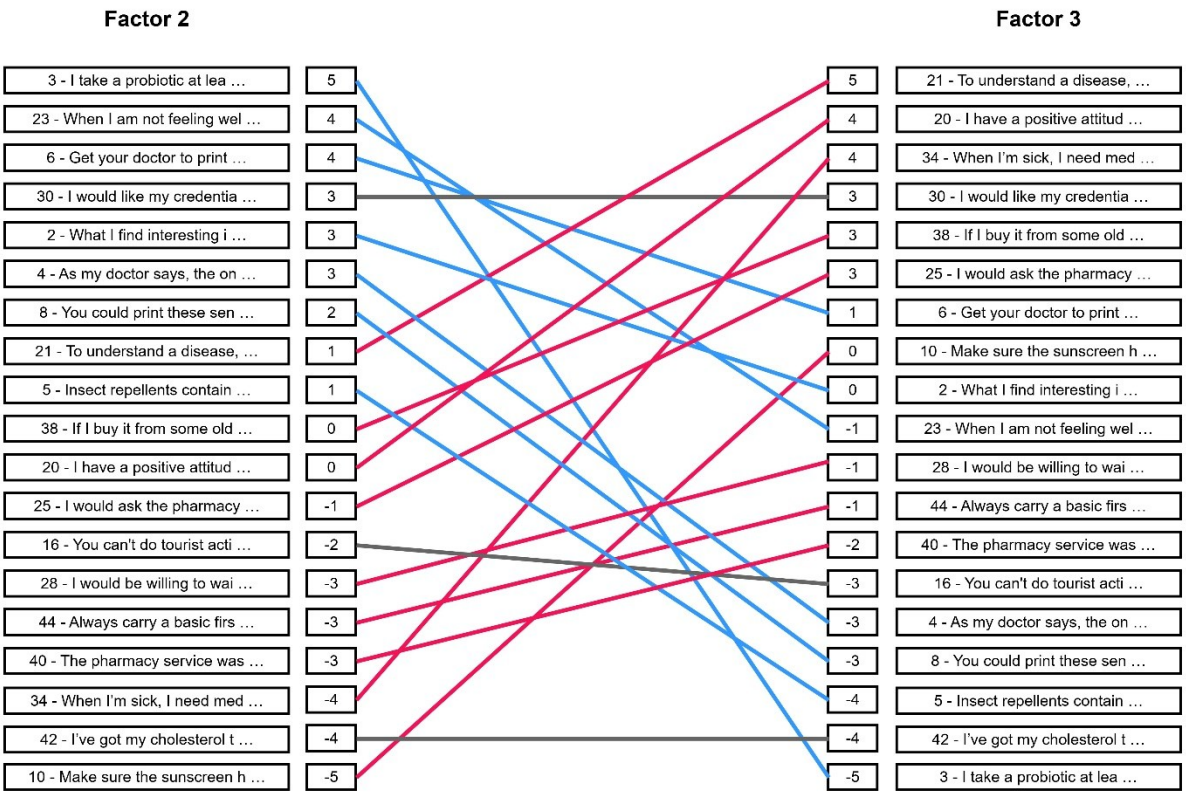


Figure N.3. Slope diagram representing the relative mirroring position of selected statements on Factors 2 and 3

Red line: The statement's position on Factor 2 is lower than on Factor 3. Blue line: The statement's position on Factor 3 is higher than on Factor 2. Grey line: The statement's position is similar on both factors.

Appendix O. Modified Kappa scores, Q-set, and rotated factor loadings

Table O.1. A matrix of evaluation of modified Kappa scores (*k) on clarity and heterogeneity**

		k* **for Heterogeneity**			
		Bad	**Fair**	**Good**	**Excellent**
k* **for Clarity**	**Bad**	1	0	1	3
	Fair	0	0	0	0
	Good	0	0	4	15
	Excellent	5	0	22	43

Bad: < 0.40, Fair: 0.40-0.59, Good: 0.60-0.74, Excellent: > 0.74

Table O.2. The final Q-set version consisting of 45 statements

Self-Care Activities (n=13, 29%)
Good hygiene
s11. Don't eat the salad. At least not from any cheap warungs [food stalls]. In the higher end restaurants, eat at your own risk. If it looks suspect, it probably is.
Healthy eating
s45. Stay hydrated, especially in hot climates, by drinking plenty of water throughout the day.*
Knowledge and health literacy - Information-seeking
s36. I would use a chatbot large language model AI [Artificial Intelligence] like Bard [now Gemini] from Google. When I get a specific answer, I always verify it by researching again.
Mental wellbeing, self-awareness or agency
s15. The one that causes me more anxiety would be the atrial fibrillation because whenever the atrial fibrillation has happened, it happens unannounced.
s17. You can eat as much as you like, and drink as much as you like. But you have to be self-controlled.
s4. As my doctor says, the only way to be sure is not to get bitten by mosquitoes and that applies to animal bites as well of course.
Physical activity
s16. You can't do tourist activities without a certain amount of walking.
Rational use of products and services - Decision-making
s37. If I get sick I would first try to find the pharmacy and do self-care the way I would know it.
Rational use of products and services - Self-assessment or self-diagnosis
s19. From time to time, when I take microscopy or rapid diagnostic tests for malaria, I determine the type based on how I feel and the specific symptoms.
s7. I am in Indonesia and need paracetamol and medicine for an infection because I have cystitis [a urinary tract infection] from a swimming pool
Rational use of products and services - Self-management, self-treatment or self-medication
s3. I take a probiotic at least 2 weeks before I go and take them with me.
s44. Always carry a basic first aid kit with essentials like bandages, antiseptics, and pain relievers.*
s9. Please take the medication in hand luggage; check-in baggage can and does get lost.
Self-Care Behaviour (n=1, 2%)
Health promotion
s2. What I find interesting is how little publicity or warnings there are about dengue in the media. It makes me wonder if the local government don't want to put tourists off, so they are trying to keep it fairly quiet.
Self-Care Context and Reliance on Resources (n=10, 22%)
Health status - acute illness
s24. I visit a pharmacy to obtain something to prevent or treat insect bites.
s31. I prefer to self-treat my wounds from light road accidents, and go to a hospital for severe injuries by myself.
s32. The most frequent health problem is traveller's diarrhea. Here, it's called Bali belly.
s33. Some tourists need medicines for fever and flu, or runny nose and cough and cold.
Health status - travelling with chronic disease(s)

s42. I've got my cholesterol tablet and I've also got Crohn's disease, so I bring out immunosuppressive drugs.
Home country's health system
s23. When I am not feeling well, I will call my doctor in my home country. He will ask about my symptoms and tell me what medicine to get over the phone.
s43. If I get sick I have to warn my health insurance, and then I must say where I am, and then I go to the doctor here.
Local health system
s13. Health professionals in Indonesia should be familiar with the symptoms of tropical diseases.
s40. The pharmacy service was very good. They called me the next morning, whether my condition is better or worse. Maybe they want to know how it is, and it is very good.
Social network
s39. If I need help with my sickness, I have already friends from my home country who have lived here for about ten years.
Self-Care Environment, Drivers and Barriers to Self-Care (n=21, 47%)
Accessibility and transport
s28. I would be willing to wait for a pharmacy to obtain an item if they don't have it in stock.
Accommodation with extra health-related services
s12. In Kuta Beach, Bali area, large hotels fog the gardens against mosquitoes every day.
s18. I would consider asking hotel/accommodation reception staff to be informed about health facilities.
s26. Now there is a hotel that cooperates with a local pharmacy.
Communication
s22. Hospitals in the neighbouring country are way better than those in here because they treat you as a foreigner and are able to speak English and interact with you.
s25. I would ask the pharmacy staff to show the medicine price using a calculator.
s27. I would like to consult with the pharmacy using electronic communication, such as WhatsApp.
s29. A tour guide will make pharmacy staff more confident because the pharmacy staff can understand what medicine I want to buy.
s8. You could print these sentences out. They translate to I can't have nuts, have an allergy and might die.
Cultural awareness
s21. To understand a disease, it's more important to understand how a patient feels.
Finance and insurance
s34. When I'm sick, I need medications at a fair price.
s35. I have my travel insurance, which covers basically everything that I would need during my trip.
s41. I try to avoid the local doctor because it's too expensive.
Information
s14. Tourists should have some understanding of the medical system in the country they are visiting.
Pre-existing beliefs
s20. I have a positive attitude toward antibiotics because my close friends, relatives and myself have positive experiences.
Regulations, safety and security

s1. If you have any issues at airport customs you can always get a doctor to provide a letter with any prescribed and non prescribed items you need to take with you.
s6. Get your doctor to print out a list of your medications and keep them in their packet stating what they are and with your name on the package. That way, you should have no problems.
Self-care products and prescription medicines
s10. Make sure the sunscreen has a high SPF [sun protection factor] number.
s30. I would like my credentials as a doctor in my home country to be acknowledged in my destination country to access prescription medicines, such as antibiotics.
s38. If I buy it from some old woman on the street who sells Xanax [alprazolam], the quality of the medicine may be unreliable, not like when I buy it from a pharmacy.
s5. Insect repellents containing DEET [N,N-diethyl-meta-toluamide] or picaridin are what you need and apply on exposed areas of your body, following directions on the bottle/aerosol.

*Additional item suggested by an expert in the panel of reviewers

Table B.3. Rotated factor loadings

Variable	Factor 1	Factor 2	Factor 3
qsort1	0.11	0.03	0.55*
qsort2	0.53*	-0.26	0.25
qsort3	0.38	0.01	-0.42*†
qsort4	0.37	0.57*	0.16
qsort5	0.23	-0.28	0.35
qsort6	0.36	0.40	-0.42
qsort7	0.37*	-0.33	0.07
qsort8	0.73*	-0.16	0.06
qsort9	0.08	-0.61*†	0.09
qsort10	0.44	-0.21	0.63*
qsort11	0.62*	-0.04	0.25
qsort12	0.52*	0.19	0.42
qsort13	0.49*	0.16	-0.02
qsort14	0.38	-0.42*†	0.14
qsort15	0.58*	-0.07	0.23
qsort16	0.39*	0.11	-0.12
qsort17	0.47*	0.23	0.26
qsort18	0.57*	-0.15	-0.02
qsort19	0.73*	0.07	0.02
qsort20	0.70*	0.16	0.24

Variable	Factor 1	Factor 2	Factor 3
qsort21	0.26	0.12	0.48*
qsort22	0.60*	-0.13	0.40
qsort23	0.64*	0.04	-0.15
qsort24	0.58*	0.17	0.05
qsort25	0.59*	0.48	-0.11
qsort26	0.12	0.78*	0.09
qsort27	0.35*	0.23	0.00
qsort28	0.72*	-0.01	-0.22
qsort29	0.46	0.53*	0.08
qsort30	0.45*	0.08	-0.04
qsort31	0.59*	0.23	0.15
qsort32	0.50*	0.38	0.10
qsort33	0.04	-0.02	-0.30
qsort34	0.63*	-0.31	-0.22
qsort35	0.65*	0.17	-0.30
qsort36	0.58*	-0.02	0.10
qsort37	0.28	-0.55*†	0.10
qsort38	0.71*	-0.11	0.27
qsort39	0.58*	-0.17	-0.25
qsort40	0.63*	-0.20	-0.16
qsort41	0.51*	-0.04	-0.31

Variable	Factor 1	Factor 2	Factor 3
qsort42	0.46*	-0.12	0.08
qsort43	0.03	0.44*	0.27
qsort44	0.41*	0.17	-0.27
qsort45	0.60*	0.24	-0.07
qsort46	0.53*	-0.06	0.00
qsort47	0.43*	-0.01	-0.25
qsort48	0.49*	-0.33	0.04
qsort49	0.15	-0.10	-0.36*†
qsort50	0.41	0.17	-0.54*†
qsort51	0.74*	-0.05	-0.36
qsort52	0.50*	-0.13	-0.03
qsort53	0.69*	-0.14	0.18

*: defining Q-sort, †: negative loading

Appendix P. Themes, gaps, and participants' quotes

No	Theme	What Should Be	Participant	What Should Be Quote	What Is	Participant	What Is Quote	Gap/Need
1	Travel health pharmacy service	International travellers should know where to go to community pharmacies offering travel health services.	G4-04-AC	*It should be verified if the pharmacy is a regular pharmacy or if it is a specific pharmacy that participates and is committed to travel medicine services.*	The concept of travel health pharmacy is hardly known in Indonesia	G4-02-AC	*[As a board member] of the professional organisation, I agree [...] there should be this 'pharmacy tourism' program. [However], I don't know the big picture [yet]. However, there is a desire in this professional organisation [for extending services], because we are [in] the era of openness, more and more people come and so on.*	A lack of recognition of travel health pharmacy services in Indonesia
2	Travel health pharmacy service				At the system level, there is a lack of an identifier for community pharmacies that provide proficient travel health services.	G4-04-AC	*Well, they usually live in an orderly manner. Are there pharmacies or enough pharmacies that provide travel medicine services in Indonesia? This is actually the challenge because, in my opinion, it almost doesn't exist.*	
3	Travel health pharmacy service	Pharmacies have competent referral communications both domestically and with global partners.	G4-04-AC	*[For] general pharmacies, I think they need a lot of preparation, as well as communication with referral places. Hopefully, [community pharmacies committed to travel medicine service] can work together with those abroad so that they can recommend [them]. If [the travellers] come to this place in Indonesia, you can get in touch with the pharmacy here.*	At the service provider level, few community pharmacists are proficient in travel health services.	G4-04-AC		

No	Theme	What Should Be	Participant	What Should Be Quote	What Is	Participant	What Is Quote	Gap/Need
4	Pharmacist recognisability	International travellers should be able to distinguish community pharmacists from other staff.	G4-12-PH	*In our [pharmacy], we install a pharmacist plate/board. In Indonesia, there is a pharmacist plate [containing the name, registration number, and practice hours of the pharmacist on duty].*	Sometimes, international travellers misidentify pharmacists as doctors.	G4-12-PH	*Usually, [travellers] think it's a doctor's plate/board. If the traveller does not bring a tour guide, or his family does not have anyone to accompany them, [they] see the plate as a doctor's plate.*	Inconsistent attributes for pharmacists in community pharmacies in travel destinations
5	Pharmacist recognisability		G4-12-PH	*At my [pharmacy], the pharmacist wears that suit, you know. Now in [Yogyakarta], pharmacists wear suits during working hours. So that they [have] a good appearance. That's how [the customers] will trust us. [It's part of] a branding of the role of pharmacists.*	Sometimes, international travellers misidentify pharmacists as other staff.	G4-05-PO	*Uniforms, costumes, [are important] because it is clear to doctors. In pharmacies, some pharmacists wear uniforms, while others do not. So [the customers] can't distinguish the pharmacists from [other] staff.*	
6	Pharmacist recognisability		G4-05-PO	*IAI [Indonesian Pharmacist Association] itself also requires [their members] to wear a uniform or pharmacist's suit when practising to distinguish and increase customer trust.*				
7	Pharmacist accessibility	International travellers should have access to a community pharmacist during business hours.	G4-12-PH	*The role of the pharmacy, of course, is that of the pharmacist. Of course, when the pharmacist always stands by, they will certainly support the success of the therapy.*	Some community pharmacists do not stand by during business hours.	G4-03-PO	*Frankly, in Indonesia, we are still struggling. There are still many pharmacies where pharmacists are only available at certain hours, not continuously during opening hours. So, there are some [community pharmacists] that [stand by], but there are still many that have not. So, it is still not evenly distributed. That's one of the obstacles and challenges for us in the future.*	Inconsistent accessibility to community pharmacists during business hours

No	Theme	What Should Be	Participant	What Should Be Quote	What Is	Participant	What Is Quote	Gap/Need
8	Pharmacist accessibility				Some community pharmacists commit to the jargon "no pharmacist, no service".	G4-12-PH	*Because in Yogyakarta, most pharmacies [hold the slogan] 'no pharmacist, no service'. Therefore, when the pharmacy opens, there must be a pharmacist on duty.*	
9	Pharmacist accessibility				Some pharmacists are only available by phone, not in person.	G4-10-PH	*However, in my own pharmacy, I always inform the staff that if they are confused or a patient needs medicine but doesn't know what to give, they can contact me directly. Like that.*	
10	Pharmacist accessibility				Some community pharmacists in travel destinations have multiple jobs.	G4-10-PH	*[Standby pharmacist] is perhaps one of the most challenging [obstacles]. Furthermore, many pharmacists here hold two jobs simultaneously.*	
11	Community pharmacy facilities, layout and display	Community pharmacies in travel destinations should be navigable for international travellers.	G1-03-PH	*[This pharmacy] will definitely have signage in two languages, for example. Then, the SOPs at the pharmacy are also in two languages, for example, Bahasa Indonesia and English. There may be signs indicating the locations for placing prescriptions, dispensing medicines, and providing drug information services, available in two languages.*	Most signage is in Bahasa Indonesia only.	G4-02-AC	*Regarding facilities or additional ornaments in the pharmacy [that provides travel medicine services], I have not seen them yet.*	Unclear signage for international travellers in community pharmacies in travel destinations
12	Community pharmacy facilities, layout and display	Community pharmacies in travel destinations should allow international travellers to have a private consultation.	G1-11-PT	*I think it's mandatory [to have consultation space]. It is mandatory because all travellers want to have a consultation before buying the medicine. [They] want to consult their complaints [and] illness before*	Consultations in some community pharmacies in travel destinations are sometimes conducted in areas where they might be overheard.	G4-10-PH	*There is a [consultation place]. But indeed it is not very private. Near the counter, near the cashier.*	A consultation that is consistently provided in a private, dedicated consultation area

No	Theme	What Should Be	Participant	What Should Be Quote	What Is	Participant	What Is Quote	Gap/Need
13	Community pharmacy facilities, layout and display	International travellers visiting community pharmacies in travel destinations should be provided with a convenient waiting space.		*buying medicine. It is mandatory to have a consultation room.*	Some community pharmacies in travel destinations lack waiting space.	G4-08-TO	*Regarding the waiting room, sorry, it's not good. In Yogyakarta, the waiting room is not good [at some pharmacies]. There is no waiting room sometimes.*	A lack of convenient waiting space for international travellers in community pharmacies in travel destinations
14	Community pharmacy facilities, layout and display	Community pharmacies in travel destinations should have interesting product displays.			Some community pharmacies in travel destinations lack interesting product displays.	G4-05-PO	*The pharmacy is less interesting. For [the travellers], it's as if they're unsure about going into the pharmacy. Less convincing. Looking at the availability, from the displays of drugs, there are only a few items. The display system is not eye-catching. That could make them underestimate [the pharmacy].*	A lack of awareness of the importance of product display among community pharmacies in travel destinations
15	Suboptimal services	Community pharmacies should provide comprehensive services to international travellers beyond just dispensing medications.	G1-08-PH	*[The role of community pharmacies] is not just to medicine provider.*	Some community pharmacies in travel destinations only function as a medicine shop for international travellers.	G4-13-TO	*The role of pharmacies is primarily still focused on providing medicines; as such, it has not yet extended to educating tourists. So it only provides the medicine that tourists want.*	A reduced number of services accessible from community pharmacies for international travellers
16	Suboptimal services		G1-09-PH	*If we serve correctly, at least, even if we don't understand, we can find other solutions.*	Approaches to handling requests vary between community pharmacies in travel destinations.	G4-10-PH	*Sometimes, there are also some illnesses that they may have just encountered here. For example, itching after being bitten by an ant. So, I offer [topical] medicine for insect [bite].*	A perceived lack of competence of community pharmacies to handle symptom-based requests
17	Suboptimal services				International travellers use product-based requests more often than symptom-based ones.	G4-10-PH	*Most [travellers] who come to my pharmacy already know what medicine they want to buy.*	

No	Theme	What Should Be	Participant	What Should Be Quote	What Is	Participant	What Is Quote	Gap/Need
18	Suboptimal services				Travellers have very limited clinical interactions with pharmacy staff.	G1-01-PT	*Usually, [we] use sign language. For example, if we tell [the international travellers] the price, because sometimes [the pharmacy] is crowded, we just use a calculator. They will understand.*	
19	Suboptimal services	International travellers should be able to obtain product substitutes, with the involvement of the home country's health professionals, if desired.	G1-06-PH	*For example, when the medicines they are usually looking for in their country are unavailable, we substitute or help find them. So it is like they trust [us] and feel helped. In other words, they can find a solution at our clinic or pharmacy.*	Approaches to finding substitutes vary between staff members of community pharmacies in travel destinations.	G1-06-PH	*This is my complaint. I used to take [this medicine] in my country. In Indonesia, is there a product with similar [active ingredients]? Yes, I would take it if the price is still [affordable]. Some [travellers] mention the medicine [available] in their country. Since we don't have it, we usually substitute it with the products we do have.*	A lack of identified effective strategies for finding substitutes, with the involvement of the home country's health professionals, if desired by international travellers
20	Suboptimal services		G4-12-PH	*If he got a recommendation from his doctor, maybe we can help him take a photo of the medicine first. If indeed what we say to him is insufficient, because he is a very careful person, he can consult with his doctor [overseas] while we also wait, if allowed. If we are allowed to communicate with the doctor through his cell phone as well, it's actually okay, like chatting.*				
21	Trust in products provided by community pharmacies	Community pharmacies in travel destinations must provide safe and quality pharmaceutical products for their customers.	G4-09-TC	*[Pharmacies must] ensure that the drugs given are safe, appropriate and not expired.*	Some international travellers are aware of the counterfeit medication issues in Southeast Asian countries.	G4-07-TC	*How trusted are our medicines for travellers? There are some travellers I talked to, who suspect that many drugs, especially in Southeast Asia, not only in Indonesia, are counterfeit, fake.*	A lack of trust among international travellers in the quality of domestic (Indonesian) pharmaceutical products

No	Theme	What Should Be	Participant	What Should Be Quote	What Is	Participant	What Is Quote	Gap/Need
22	Trust in products provided by community pharmacies				Some international travellers worry about the circulation of counterfeit medications in Indonesia.	G4-09-TC	*Perhaps many tourists are more worried about the medicines sold in Indonesian pharmacies.*	
23	Trust in products provided by community pharmacies				International travellers trust more international brands.	G1-07-PH	*These tourists tend to use foreign products, [products from Foreign Capital Investment Companies, PMA], such as Panadol. They rarely use domestic products. Maybe that's their habit. Familiarity. It seems that they are unsure about our products. I offer [them] a [domestic] drug with a similar active ingredient. They asked for Panadol. When I ran out of stock, I offered Sanmol or Pamol, but they didn't want to.*	
24	Prescription dispensing	Community pharmacies must comply with current regulations in dispensing prescription medicines.	G4-12-PH	*There are some [medicines] that can be given [without a prescription], but there are also those that must be accompanied by a doctor's prescription. Yes, of course, we have to follow the regulations.*	Community pharmacies vary in compliance with current regulations in dispensing prescription medicines.	G1-01-PT	*We do not provide antibiotics without a prescription. It just so happens that the foreign [traveller] was looking for antibiotics in our place. We do not provide antibiotics without a prescription. We recommend them to [go to] another pharmacy. Another pharmacy may or may not [serve or reject], it depends on the policy of each [pharmacy].*	A lack of commitment to comply with current regulations in dispensing prescription medications among community pharmacies

No	Theme	What Should Be	Participant	What Should Be Quote	What Is	Participant	What Is Quote	Gap/Need
25	Prescription dispensing					G4-11-PM	*It means, [pharmacies] carelessly give medicines. [When travellers] asked for antibiotics [without a prescription], they gave. [They] ask for prescription drugs without a prescription. I don't think it provides good self-care.*	
26	Prescription dispensing	International travellers should obtain or bring prescriptions for the medications they need.	G4-11-PM	*By regulation, for passengers' luggage, for personal use within a reasonable [amount of medicines] is allowed at the time of entering the airport. [...] It can be brought by the patient by bringing written evidence [such as] a prescription. That is, if their [medicines] are unavailable in Indonesia, they can bring the prescription that has been given [as] evidence of complaints [that require] the use of the drug.*	Some international travellers do not bring a prescription when requesting prescription medications.	G1-06-PH	*Sometimes, [some travellers] may ask for painkillers, but we must not provide them without a doctor's prescription. So, we usually recommend them to the doctor immediately, as it happens that the doctor is also at [our] clinic.*	A lack of awareness among international travellers to have a good pre-travel preparation, including securing a sufficient medicine supply and standby prescriptions
27	Prescription dispensing				Some international travellers perceive that prescription medications in Indonesia can be obtained without a prescription.	G1-06-PH	*[The travellers] are quite often asking for drugs such as tramadol or alprazolam. Sometimes, they might think it might be possible to buy without a prescription or maybe in other cities, there might be pharmacies that dispense it [without a prescription].*	
28	Prescription dispensing					G4-07-TC	*If there are travellers who need [antibiotics], [the regulation] should be the same. It means, if there is no prescription, it should not be [served]. But in reality, it is difficult [not to dispense].*	

No	Theme	What Should Be	Participant	What Should Be Quote	What Is	Participant	What Is Quote	Gap/Need
29	Service outreach	International travellers should have uniform and facilitated access to services from community pharmacies in travel destinations.	G4-07-TC	*To overcome various problems, teleconsultation and telemedicine could be utilised, maybe. [It could be] with the head office or with a larger pharmacy service, for example, if there are difficulties. It could be one of the options, in my opinion.*	Some community pharmacies in travel destinations are not linked to telehealth.	G4-05-PO	*So, [the patients] consult a doctor, who then issues a prescription. For example, through Halodoc [telemedicine app], it has been linked to pharmacies that have cooperated. So, not all pharmacies can serve if they do not cooperate [with the telemedicine provider].*	A lack of utilisation of regulated digital technology by community pharmacies in travel destinations to enhance service outreach
30	Service outreach		G4-05-PO	*Well, there are some [pharmacies] that participate in the e-market. You have to look for the TSF permit. Not all [pharmacies join the e-market]. Actually, it can be administered by anyone. [...] It is limited to over-the-counter medications. No prescription medications.*	The government regulate the utilisation of e-commerce for community pharmacies.	G4-05-PO	*There is a PSEF permit [a licensing procedure for Pharmaceutical Electronic System Provider]. [It is] legal. [Community pharmacies] can [apply].*	
31	Service outreach		G4-11-PM	*One of the things we have to be careful about, if there are travellers from abroad, is that we have to confirm the legal facilities that allow the sale of medications online.*	Some community pharmacies in travel destinations do not utilise e-commerce.	G4-05-PO	*Some, not all, pharmacies can apply or link with technology that can be accessed by [travellers]. Perhaps not all pharmacies can utilise e-markets.*	
32	Language and communication	Staff members of community pharmacies in travel destinations should have some foreign language proficiency.	G4-08-TO	*The most important thing is to have a language [proficiency]. [It is] because the last time I was in contact with a pharmacy [...], when my client needed a certain medication, [the pharmacy staff member] was confused to figure out what medication [my client] was looking for. So, at that time, we had to find a larger pharmacy to understand what the tourist was looking for.*	Some community pharmacies in travel destinations do not have any staff members with foreign language proficiency.	G4-13-TO	*The language may be a primary challenge. Language is a challenge because [the staff] are shy and not confident with foreign languages, especially English. Even scared sometimes. I once accompanied a tourist to the pharmacy. So, it was I who communicated. They seemed to be afraid and uncomfortable communicating with tourists.*	A lack of access among international travellers to community pharmacy staff members with foreign language proficiency in travel destinations

No	Theme	What Should Be	Participant	What Should Be Quote	What Is	Participant	What Is Quote	Gap/Need
33	Language and communication				Some staff members of community pharmacies in travel destinations lack foreign language proficiency.	G1-04-PT	*Some languages are difficult as well. I don't understand. So, usually use […] gestures.*	
34	Language and communication				Some staff members of community pharmacies in travel destinations are unfamiliar with terms to describe illnesses in a foreign language.	G1-11-PT	*We learn to understand patient complaints in foreign languages. For example, a cold is not [mentioned as] a flu, but usually it's a runny nose like that. Not everyone knows [what] a runny nose [is]. We are therefore given training in foreign languages that may be rarely heard by locals.*	
35	Language and communication				Some community pharmacies in travel destinations provide a short course in English communication for staff members.	G1-06-PH	*We have experience. As before, we had an English teacher to teach us, or at the very least, to assess our friends' English skills at the pharmacy. So, it's a kind of test, but it's a relaxed test. The teacher asked, usually Indonesian, as if they were a foreigner. I have this complaint, this, this. What medicines can be suggested for me? Starting from the pharmacists to the pharmacy assistants, everyone tried it.*	A lack of support for improving foreign language proficiency among staff members of community pharmacies in travel destinations

No	Theme	What Should Be	Participant	What Should Be Quote	What Is	Participant	What Is Quote	Gap/Need
36	Language and communication				Some community pharmacies in travel destinations make language proficiency a job requirement.	G1-06-PH	*It just so happens because we work at an international clinic. So, in the recruitment process, not only the pharmacists, but also the doctors [and] also the nurses, the [job] interview also includes English language requirements. Just to know their abilities. Are doctors and pharmacists prepared to serve foreign patients?*	An inconsistency in job requirements for community pharmacy staff in travel destinations
37	Language and communication	Staff members of community pharmacies in travel destinations should have the confidence to communicate in a foreign language.	G1-12-PT	*The English [communication skills], such as how to communicate the price, are also important. Maybe it's lacking there. They are less trained and insecure when they meet foreign patients.*	Staff members of community pharmacies in travel destinations encourage each other to communicate in a foreign language.	G1-06-PH	*Maybe [communication skills] should be encouraged. You can do it. Try. Usually, the barrier is within ourselves. [...] We encourage each other. [...] It depends on whether you want to learn or not. Whether you want to try it or not. [You] feel embarrassed or not. [The confidence] depends on ourselves, not on how long they work in the pharmacy.*	A confidence deficit among staff members of community pharmacies in travel destinations to communicate in a foreign language
38	Language and communication	Community pharmacies in travel destinations should be able to overcome language barriers when serving international travellers.	G1-08-PH	*We must be able to conclude, or know what the [customer's] intention is, although we have language differences. And we must also be able to prepare alternative treatment in Indonesia, [although] it is not in accordance with the [practice in their] country [of origin]. Therefore, we can offer alternatives to ensure optimal self-care for travellers.*	Approaches to overcome language barriers vary between staff members of community pharmacies in travel destinations.	G1-09-PH	*For example, if we interview, ee.. One is interviewing, and another [staff member] helps to prepare the medicine. Or if we are confused, we are helped by friends [...] to complete the information. Suppose they ask, we are able to answer in this way. For example, if [our friend] wants to add more, they can also do it.*	A lack of identified strategic approaches to overcome language barriers

No	Theme	What Should Be	Participant	What Should Be Quote	What Is	Participant	What Is Quote	Gap/Need
39	Language and communication	International travellers should have some proficiency in Bahasa Indonesia, especially in less-established travel destinations.	G4-01-PH	*It means that [the travellers] don't have to be skilful. They must at least know a bit of Bahasa Indonesia because when they go to Indonesia, very few people know English.*	Some international travellers lack proficiency in Bahasa Indonesia.	G4-07-TC	*Of the traveller's [factor], what foreign language they master, including whether they understand Bahasa Indonesia or English at least.*	A lack of awareness of the benefits of having proficiency in Bahasa Indonesia among international travellers
40	Language and communication	International travellers in less-established travel destinations should be aware of the important roles of tour guides, especially when interacting with pharmacy staff.	G1-04-PT	*If there is a guide, [we are] more confident because they understand better what the traveller wants. It means what the traveller wants to buy. […] So, [we are] more confident when dispensing the medicine.*	There is underutilised role of tour guides.	G4-13-TO	*Many tourists now, even in Toraja, rent their own motorbikes and travel on their own. Well, so the need for a guide has actually decreased. Except, if they want to do trekking. Usually, trekking cannot be done without a guide.*	A lack of awareness of the importance of tour guides in facilitating encounters between international travellers and pharmacy staff.
41	Language and communication		G4-13-TO	*I once accompanied a tourist to the pharmacy. I was the one who communicated. So, [pharmacy staff] seemed to be scared and uncomfortable communicating with tourists.*		G4-13-TO	*[Pharmacy staff] are shy and uncomfortable with foreign languages, especially English. Sometimes, they get scared when [visited by a traveller].*	
42	Professional development	Staff members of community pharmacies in travel destinations should have currency in knowledge, including in travel medicine.	G4-04-AC	*There should be training on travel medicine, so that [pharmacy staff] are more aware, better prepared to provide more optimal services. It turns out that in travel medicine, there are many aspects that require attention.*	Some staff members of community pharmacies in travel destinations lack knowledge about travel health pharmacy services.	G4-02-AC	*[However], I don't know the concept, the big picture [of travel medicine] [yet].*	Deficiencies in current knowledge, including about travel medicine, among staff members of community pharmacies in travel destinations.
43	Professional development				There are limited CPDs covering travel medicine issues.	G4-13-TO	*[Professional development activities] so far are proliferating, including workshops and online seminars. It revolves only around antihypertensives, antidiabetics, and tuberculosis. But no one is interested in discussing travel medicine.*	

No	Theme	What Should Be	Participant	What Should Be Quote	What Is	Participant	What Is Quote	Gap/Need
44	Professional development				Some staff members of community pharmacies in travel destinations lack awareness about travel health.	G4-13-TO	*Awareness of travel medicine remains low, even among professionals. In my opinion, it is because travel medicine is not a concern for pharmacists. No one has raised it yet.*	
45	Professional development				Some chain community pharmacies in travel destinations routinely provide product knowledge updates for staff members.	G1-10-PH	*The management at [a chain pharmacy] has been helpful to us. Every month, we are given product knowledge [updates], such as training, complaint handling training. Like that. The monthly training is routine. So, every month, we are introduced to products. And we are also given knowledge about the products. Therefore, the insight into handling foreign tourists is broader. Every month, knowledge continues to increase, along with language.*	
46	Professional development	Community pharmacy staff should proactively self-study as a form of professional development.	G1-10-PH	*Over time, as the information changes, we must keep updating. Sometimes the information can also come from the tourists themselves. Like that.*	Some community pharmacy staff members self-study.	G1-10-PH	*As time goes by, I also read some current articles. [For example,] actually, it's better to treat the wound in a moist condition because if it's dry, it will promote a long-lasting scar.*	
47	Professional development	Community pharmacies in travel destinations should have staff members with cultural competence.	G4-07-TC	*[It is necessary] to understand the culture, maybe. Some travellers from certain countries may have different communication styles. But it may be a bit difficult. Or perhaps add [more] access to references, perhaps, for its staff members.*	Some community pharmacies in travel destinations learn about cultural differences from the customer-staff interactions.	G1-11-PT	*[It is necessary] to know how the cultures of foreign tourists are. Sometimes, patients also share [stories] a lot. How were they there? How did they first come here? [What were] their impressions? So we know what it's like overseas. Yes, [we] share with each other. Very useful.*	A lack of cultural competence among staff members of community pharmacies in travel destinations

No	Theme	What Should Be	Participant	What Should Be Quote	What Is	Participant	What Is Quote	Gap/Need
48	Professional development	Staff members of community pharmacies in travel destinations should be competent in communicating with international travellers.	G4-03-PO	*We, as pharmacists, have been routinely holding CPDs. This means that we held [both] online and offline webinars to increase our capacity, including enhancing our communication skills, in addition to clinical pharmacy [expertise]. It was very supportive. [It is] how we provide better services to the community, especially [international] travellers.*	Some staff members of community pharmacies in travel destinations lack communication skills	G1-12-PT	*Some [staff member] are lacking in communication. Perhaps, they understand the meaning, for example, if a foreign patient asks for a [medicine] for a sore throat. They might know, but just couldn't explain.*	A lack of communication skills among staff members of community pharmacies in travel destinations
49	Professional development				Some staff members of community pharmacies in travel destinations are not confident to communicate with international travellers.	G4-13-TO	*They seem to be afraid and uncomfortable communicating with tourists. That language prevents them from explaining further.*	
50	Professional development				Some staff members of community pharmacies in travel destinations dismiss international travellers' requests due to communication barriers.	G1-09-PH	*The problem is with the language, perhaps. If people, for example, don't understand, they can easily just say they don't have [the medicine]. That's it, right?*	
51	Health promotion programs	International travellers should have access to health promotion programs relevant to Indonesia.	G4-04-AC	*[The health promotion programs] should be related to how to deal with the problems existing in the tropics. So that [travellers] feel comfortable in this tropical environment.*	Existing health promotion programs are only for the locals.	G4-02-AC	*[Health promotion] programs by pharmacists… The [Indonesian] pharmacists have not finished yet with their welfare, with their interests. So I think they have no idea [about health promotion for international travellers].*	A lack of availability of health promotion programs tailored for international travellers
52	Health promotion programs				Some existing health promotion programs can be expanded to reach international travellers.	G4-05-PO	*Health promotion [programs] in Indonesia, or in IAI, is Dagusibu. And then, the Gema Cermat, Gerakan Masyarakat Sadar Obat [Community Movement for Drug Awareness].*	

No	Theme	What Should Be	Participant	What Should Be Quote	What Is	Participant	What Is Quote	Gap/Need
53	Health promotion programs	Delivery of health promotion programs targeting international travellers should be effective.	G4-14-TO	*If [travellers] ask what we need to prepare, I [inform them] to bring their own medical kit. Bring your own medicines [and] equipment, such as clothes, glasses, hats, sun cream, and lotion, to prevent sunburn. Sunglasses. Bring medicines. Wear shoes. Bring slippers to change at the accommodation.*	The government's tourist information centers are underutilised.	G4-13-TO	*Tourist information here [Toraja] is empty. It is in Rantepao. The [information] centre is there. But, empty, there is no one. If it is activated, it is definitely able [to provide information]. The existing tourist information is only [providing information] on what [cultural] events exist, [such as] Rambu Solo' or Manene'.*	A paucity of recognition of tourism operators' strategic roles for delivering health promotion programs
54	Health promotion programs		G4-12-PH	*In my opinion, the [health promotion] programs [should] now [be through] social media, which are more often seen. For the [tourist] area, maybe their website should include a little bit of material, like education, for anything [felt important]. It can be collaborated with the tourism website for educational content about, for example, what tourists should prepare, what the possibility of frequent illness is, so that [the travellers] are more aware.*				A scarcity of digital media utilisation to combine tourism promotion and health promotion programs
55	Health promotion programs		G4-11-PM	*The Ministry of Tourism [could] collaborate with the Ministry of Health, with the FDA Agency, to create features, including self-care measures, treatment, information on hospitals, clinics or pharmacies that can be accessed in tourist destination cities to facilitate the tourists.*				A lack of collaboration between stakeholders

No	Theme	What Should Be	Participant	What Should Be Quote	What Is	Participant	What Is Quote	Gap/Need
56	Medication availability and accessibility	International travellers should have access to medications in travel destinations.	G4-01-PH	*In travel, the role of the pharmacist is to prepare for various self-care needs that travellers may encounter, as the first thing travellers look for when facing health problems is a pharmacy. So, as a pharmacist, I am responsible for preparing all kinds of self-care needs of the travellers, especially [...] because my area is a tourist destination.*	There is inconsistent availability of prophylaxis medications, especially in non-endemic travel destinations.	G1-10-PH	*Sometimes there are [travellers] who plan to go to malaria-endemic areas. So sometimes [they] ask for [anti]malaria drugs [for] prevention.*	A lack of a consistent pathway to access prophylaxis medications for international travellers
57	Medication availability and accessibility					G4-12-PH	*The malaria drugs in [Yogyakarta], at my own [pharmacy], are unavailable because malaria [medicine] is usually obtained from the Puskesmas [Community Health Centre].*	
58	Medication availability and accessibility					G4-05-PO	*Because it is the regulation, the SOP. Locals and domestic travellers can't do it either. They must have a recommendation letter. They must have a referral first. There must be a diagnosis, a laboratory check showing that they definitely have malaria, despite the fact that they want [malaria drugs for preventive medicine before leaving] for an endemic place.*	
59	Medication availability and accessibility					G4-03-PO	*In my place, there is Pulau Sembilan [Sembilan Island]. It's malaria endemic. So, everyone who wants to go there [needs] prophylaxis first. In my [pharmacy], it is available, although not much. We always set aside a little. This means that if anyone needs it, we have.*	

No	Theme	What Should Be	Participant	What Should Be Quote	What Is	Participant	What Is Quote	Gap/Need
60	Medication availability and accessibility				There are barriers to obtaining unregistered medications.	G4-07-TC	*Some travellers had complained about the difficulty of getting Malarone [and] the auto-injectable adrenaline drug, the EpiPen. [They] are unavailable. [Also], the drugs they use in their country are not on the BPOM's list. So, they do not exist [in Indonesia].*	A lack of familiarity among community pharmacies with the Special Access Scheme for unregistered medications
61	Medication availability and accessibility				Unregistered medications can be accessed through the Special Access Scheme, which is eligible for vertical hospitals.	G4-11-PM	*In Indonesia, there is a Special Access Scheme. There is a mechanism [if] a drug is needed, essential, but there is no manufacturer in Indonesia, [no] importers who want to register their distribution permits. There is access to schemes to be able to do it, especially through vertical hospitals [...] because, of course, these drugs need to be handled specially by the doctors. The medicines cannot be served by pharmacies. This means that the amount must be carefully controlled, according to the patient's needs.*	

No	Theme	What Should Be	Participant	What Should Be Quote	What Is	Participant	What Is Quote	Gap/Need
62	Medication availability and accessibility	Community pharmacies in travel destinations should be able to use epidemiology data and consumption patterns for inventory planning.	G4-03-PO	*We can see the list of countries of origin of the visitors. So we have the data. Perhaps, in addition to the country of origin, also the [information about] age groups, [because] they are influential and related to [inventory] planning. This informs us about the medicines we need to prepare. So, if something unwanted happens, meaning that the traveller needs help, we can provide assistance well because the availability of medicines can be fulfilled. So planning [pharmacy stock] is done with epidemiological methods, and also consumption. In tourist destination areas, [community pharmacies] usually already know that travellers from this country are looking for this [medicine].*	Some community pharmacies in travel destinations only use the consumption pattern for inventory planning.	G4-01-PH	*Thank God, we have provided some medicines that international travellers usually request, because so far we have data on everything they need. Sometimes we record it in books because we have never served [the medicine] before. Since the request, we also need to stock up.*	An insufficient access to epidemiology data for inventory planning by community pharmacies in travel destinations
63	Medication availability and accessibility	Community pharmacies in less-established travel destinations should be well supported by the supply chain system to avoid medicine shortages.	G4-01-PH	*The distribution chain must be [equal between regions], especially in the archipelagic [area]. [Moreover,] tourists from abroad are more likely to go to areas like this, which are remote, far from the city. Our hopes are very high there. So, [if] the distribution is good, the inventory planning is also convenient.*	Some community pharmacies in less-established travel destinations sometimes face medicine shortages.	G4-01-PH	*It indeed takes time for [the drug supply] to reach [the archipelagic areas].*	An insufficient supply chain system in supporting community pharmacies in less-established travel destinations

Appendix Q. Gap mapping to travellers' archetypes and El-Osta's Self-Care Matrix

No	Theme	Gap/Need	Key Term	Archetype 1*	Archetype 2‡	Archetype 3§	Self-Care Matrix Dimension
1	Travel health pharmacy service	A lack of recognition of travel health pharmacy services in Indonesia	Travel health recognition	+	++	+++	SC Context
2	Pharmacist recognisability	Inconsistent attributes for pharmacists in community pharmacies in travel destinations	Pharmacist attributes	+	++	+++	SC Context
3	Pharmacist accessibility	Inconsistent accessibility to community pharmacists during business hours	Pharmacist accessibility	+	++	+++	SC Context
4	Community pharmacy facilities, layout and display	Unclear signage for international travellers in community pharmacies in travel destinations	Bilingual signage	+	+++	+++	SC Context
5		A consultation that is consistently provided in a private, dedicated consultation area	Consultation space	+	++	+++	SC Context
6		A lack of convenient waiting space for international travellers in community pharmacies in travel destinations	Waiting space	+	+++	+++	SC Context
7		A lack of awareness of the importance of product display among community pharmacies in travel destinations	Product display	+	++	+++	SC Context

No	Theme	Gap/Need	Key Term	Archetype 1*	Archetype 2‡	Archetype 3§	Self-Care Matrix Dimension
8	Suboptimal services	A reduced number of services accessible from community pharmacies for international travellers	Reduced services	+	++	+++	SC Context
9		A perceived lack of competence of community pharmacies to handle symptom-based requests	Symptom-based request handling	+	+++	++	SC Context
10		A lack of identified effective strategies for finding substitutes, with the involvement of the home country's health professionals, if desired by international travellers	Substitute medication	+	+++	+++	SC Context
11	Trust in products provided by community pharmacies	A lack of trust among international travellers in the quality of domestic (Indonesian) pharmaceutical products	Trust in Indonesian products	+	+++	+++	SC Environment
12	Prescription dispensing	A lack of commitment to comply with current regulations in dispensing prescription medications among community pharmacies	Compliance to regulations	+	+	+++	SC Environment
13		A lack of awareness among international travellers to have a good pre-travel preparation, including securing a sufficient	Pre-travel preparation	+++	+++	+++	SC Activities

No	Theme	Gap/Need	Key Term	Archetype 1*	Archetype 2‡	Archetype 3§	Self-Care Matrix Dimension
		medicine supply and standby prescriptions					
14	Service outreach	A lack of utilisation of regulated digital technology by community pharmacies in travel destinations to enhance service outreach	Digital technology utilisation	+	+++	+	SC Environment
15	Language and communication	A lack of access among international travellers to community pharmacy staff members with foreign language proficiency in travel destinations	Foreign language proficiency	+	++	+++	SC Context
16		A lack of support for improving foreign language proficiency among staff members of community pharmacies in travel destinations	Support to improve language proficiency	+	+	+	SC Context
17		An inconsistency in job requirements for community pharmacy staff in travel destinations	Job requirements	+	+	+	SC Context
18		A confidence deficit among staff members of community pharmacies in travel destinations to communicate in a foreign language	Confidence in service	+	+	+++	SC Context

No	Theme	Gap/Need	Key Term	Archetype 1*	Archetype 2‡	Archetype 3§	Self-Care Matrix Dimension
19		A lack of identified strategic approaches to overcome language barriers among community pharmacy staff	Language barrier strategies	+	+	+++	SC Context
20		A lack of awareness of the benefits of having proficiency in Bahasa Indonesia among international travellers	Bahasa Indonesia proficiency	+++	+++	+++	SC Activities
21		A lack of awareness of the importance of tour guides in facilitating encounters between international travellers and pharmacy staff	Tour guide utilisation	+++	+++	+++	SC Activities
22	Professional development	Deficiencies in current knowledge, including about travel medicine, among staff members of community pharmacies in travel destinations.	Travel medicine CPD	+	+++	+++	SC Context
23		A lack of cultural competence among staff members of community pharmacies in travel destinations	Cultural competence	+	++	+++	SC Context
24		A lack of communication skills among staff members of community pharmacies in travel destinations	Communication skills	+	++	+++	SC Context

No	Theme	Gap/Need	Key Term	Archetype 1*	Archetype 2‡	Archetype 3§	Self-Care Matrix Dimension
25	Health promotion programs	A lack of availability of health promotion programs tailored for international travellers	Health promotion programs for travellers	+++	++	++	SC Behaviour
26		A paucity of recognition of tourism operators' strategic roles for delivering health promotion programs	Tour operator recognition in health promotion	+++	++	++	SC Behaviour
27		A scarcity of digital media utilisation to combine tourism promotion and health promotion programs	Digital media for health promotion	+++	++	++	SC Behaviour
28		A lack of collaboration between stakeholders	Stakeholder collaboration	+++	++	++	SC Behaviour
29	Medication availability and accessibility	A lack of a consistent pathway to access prophylaxis medications for international travellers	Chemoprophylaxis access	++	+	+++	SC Environment
30		A lack of familiarity among community pharmacies with the Special Access Scheme for unregistered medications	Special Access Scheme	+	+	+	SC Environment
31		An insufficient access to epidemiology data for inventory planning by community pharmacies in travel destinations	Epidemiology data	+	+	+	SC Environment
32		An insufficient supply chain system in supporting	Supply chain management	+	+	+	SC Environment

No	Theme	Gap/Need	Key Term	Archetype 1*	Archetype 2‡	Archetype 3§	Self-Care Matrix Dimension
		community pharmacies in less-established travel destinations					

*Archetype 1: Unfacilitated self-care travellers, ‡Archetype 2: Point-of-origin facilitated self-care travellers, §Archetype 3: Destination-facilitated self-care travellers