The Decision-Making Process Of Primary Care Doctors In Undertaking Health Check-Ups For Male Patients In Malaysia

(Volume I)

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Thesis submitted in fulfilment of the requirement for the degree of Doctor of Philosophy

Discipline of General Practice, Central Clinical School
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Statement of authentication

This thesis is submitted to the University of Sydney in fulfilment of the requirement for the Degree of Doctor of Philosophy.

The work presented in this thesis is, to the best of my knowledge and belief, original except as acknowledged in the text. I hereby declare that I have not submitted this material, either in full or in part, for a degree at this or any other institution.

10.10.2012

Signature: ............................................. Date: ...........................................
Seng Fah Tong
Preface
As a primary care doctor, I have always been fascinated by the role we can take in preventive care to improve the quality of our patients’ lives by averting illness as much as possible. More importantly, as opposed to a public health approach, I am able to tailor my preventive care approach to individual patients and personally see them staying healthy. However, engaging men in preventive health care has been a difficult task for me and for many of my colleagues in Malaysia. I believe we can do better than we currently are in offering preventive care, particularly in relation to health check-ups for our male patients. However, instead of studying male patients, I have turned my attention to the study of the primary care doctors’ perspective because, as detailed in the literature review later in this thesis, health care service factors are implicated as important reasons for men’s poor help-seeking behaviour. Indeed, the findings from this thesis show that the doctors’ practice behaviours concerning health check-ups contribute to low rates of preventive care in male patients. Therefore, many doctor-related factors need attention in order to improve men’s health.

During the three years of my PhD candidature, I have managed to publish two original articles and two reviews from my work. These publications were the result of encouragement provided by my supervisors and Adjunct Professor Hui Meng Tan, an honorary president of MSASAM*. MSASAM has given me the opportunity to both understand and contribute to men’s health in Malaysia since my membership in 2007. My membership also helps me to understand and network with men’s health activities globally. Although separate from MSASAM activities, this thesis represents my humble contribution to men’s health in Malaysia. I also hope it can shed some light on the understanding of doctors’ practice behaviour in relation to men’s health globally.

This thesis is written in (British) English, which is my second language. I have therefore sought the assistance of an English editing service in order to improve the written expression. I certainly hope that the thesis is enjoyable to read and that the arguments are as clear possible.

*Malaysian Society of Andrology and The Study of Aging Male (MSASAM) is a non-profit organisation registered under the Malaysian Registry of Society. The members of this group are from various disciplines with a shared interest in improving men’s health in Malaysia.
Acknowledgment

I would like to express my deep appreciation to the following individuals who have contributed to my success in completing this scholarly work.

I am most grateful to my supervisor, Professor Simon Willcock, for his patient and continuous support during the three year journey of my PhD candidature. Professor Willcock has guided me in the direction and overall methodology of my research project. His sharp and insightful comments and feedback on every aspect of this thesis have provided me with tremendous motivation. I would also like to thank my two associate supervisors, Associate Professor Lyndal Trevena and Professor Wah Yun Low, for their substantial input and constructive criticism of my project and the write-up of this thesis. Special thanks go to Professor Low for her guidance and advice on accomplishing my fieldwork and statistical analyses in Malaysia.

I must thank Dr. Stacey Carter for her teaching, advice and guidance in using grounded theory methodology. She has inspired me to appreciate the potential of grounded theory methods, which has led me to adopt it as my methodology of choice in phase I. I also owe a debt of gratitude to Dr. Raechelle Rubinstein, for accommodating me in her classes on research methodology and guiding me in initial qualitative data analysis.

I wish to thank Associate Professor Karuthan Chinna and Dr. Robyn Maddern for their time and consultation services in statistical analyses and in using NVivo® 8, respectively. I also wish to thank Mr. Ziyad Springborg for his services in proofreading this thesis.

I would like to thank the University of Malaya for funding this project and most importantly, I want to thank all the doctors who have participated in this study.

I would also like to express my appreciation to my colleagues Koshila Kumar, Syah Nur and Judith Amed, and my housemate Fiona O’beirne, for their support and company during my stay in Sydney.
Lastly, I must thank the most important person in my life, my wife, Dr. Cheong Ai Theng, who has provided enormous support by taking care of our three children, Eileen, Ian and Ervin during my period of absence in Sydney.
Abstract

Background: Many major causes of disease burden and health risk factors in men are lifestyle-related and amenable to early interventions. Male-specific morbidities such as sexual dysfunction are common but often under-reported by male patients during consultations. These health risk factors and male morbidities are prevalent in primary care settings, but they are rarely discussed. Yet, primary care doctors (PCDs) are well positioned to offer health check-ups during consultations. Therefore, there should be an effort to develop or improve the uptake of men’s health check-ups in primary care settings. An understanding of how PCDs negotiate this is crucial to this process as health care provider factors are implicated as one of the reasons for men’s poor engagement with preventive health care.

Objectives: The objective of this study was to explore the determinants and process of decision making by PCDs in undertaking health check-ups for male patients in Malaysia. This study also aimed to quantify the average impact of each determinant and rank its significance on the doctors’ decision-making processes in men’s health check-ups.

Methodology and methods: A mixed-method approach was adopted in this study. Phase I, an exploratory phase of the study, has utilised grounded theory methods to construct a theoretical framework in explaining the determinants and the decision-making process for initiating check-ups in men. This framework informed the conceptualisation of phase II, which has utilised a quantitative approach to identify the significant determinants from a representative sample of PCDs. In this phase, a cross-sectional survey with multiple regression analyses was undertaken to examine and quantify the relationship between the determinants and outcome variables – the doctors’ intention to undertake health check-ups for male patients. Fifteen regression models were constructed based on five topics concerning men’s health and three contexts (acute minor complaint, follow-up and health check-up visits) for each of the topics.
Results: Fifty-two PCDs from the private and public settings were interviewed in phase I and 198 doctors (a response rate of 70.4%) completed the questionnaire in phase II. The concept of men’s health was new to many PCDs, and yet many PCDs were already managing many illness concerns related to men. The concept was best depicted as an unresolved jigsaw puzzle, in which an understanding of the concept was fragmented. PCDs balanced the weight of perceived male patients’ receptivity versus medical importance before engaging male patients in health check-ups. If the patients were perceived to be receptive to health check-ups, PCDs would engage them. However, if PCDs felt a particular men’s health issue to be important, they placed less emphasis on their perceived patients’ receptivity to discuss that health issue in their decision making. However, the perception of receptivity relied mainly on assumptive and subjective assessments of the taboos surrounding the topics of men’s health and men’s help-seeking behaviour. From the overall results of regression analyses, the perception of receptivity was noted to be the most frequent significant determinant in the decision-making process among the 15 models, and it often has the highest regression coefficient in the models. The attitude towards the medical importance of men’s health check-ups ranked second in the list of frequent significant determinants. Other important determinants included perceived external barriers and personal competency in offering men’s health check-ups. However, these played a lesser role in the doctors’ decision making to engage male patients in undertaking health check-up.

Conclusions: The concept of men’s health is relatively new among Malaysian PCDs. The doctors’ decision making to engage male patients in health check-ups is a complex process. It is influenced by both their personal experience and societal perceptions about men’s help-seeking behaviour, and in particular their perception of male patients’ receptivity to health check-ups, which can be unfounded. This potentially creates miscommunication between PCDs and male patients in the clinics. Therefore, in addition to addressing knowledge deficiency and external barriers to men’s health check-ups, efforts should also be made to bridge this communication gap.
Publications arising from this thesis

Peer-reviewed Journals:


Conference presentations

1. **Authors:** Tong SF, Low WY, Ismail SB, Willcock S  
**Title:** Primary care doctors' views on men's health screening in Malaysia: a preliminary analysis of a qualitative study  
**Event:** 5th Congress of Asia Pacific Society for the Study of Aging Male 2009, Osaka, Japan  
**Published in:** Aging Male 2009; 12(51):31

2. **Authors:** Tong SF, Low WY, Ismail SB, Willcock S  
**Title:** Primary care doctors' intention to engage men in health assessment: Weighing the balance between men's receptivity and medical importance  
**Event:** The Inaugural Asia Pacific Primary Care Research conference 2009, Melaka, Malaysia  
**Published in:** Malaysian Family Physician 2009; 4(52): 52  
**Awarded best poster presentation**
3. Authors: Tong SF, Low WY, Ismail SB, Willcock S, Trevena L  
   Title: Primary care doctors decision making in discussing sexual health with men  
   Event: 12th Biennial Meeting of the Asia-Pacific Society for Sexual Medicine 2009, Singapore  
   Published in: J Sex Med 2010; 7(52):104

4. Authors: Tong SF, Low WY, Ismail SB, Trevena L, Willcock S  
   Title: Doctor’s Perception of Men’s Receptivity to Health Assessment Determines the Initiative to Engage Men in Health Assessment  
   Event: 7th International Congress of Men’s Health 2010: 28th to 30th October 2010, Nice, France  
   Published in: J Mens Health 2010; 7(3): 286

5. Authors: Tong SF, Trevena L, Willcock S, Low WY, Ismail SB  
   Title: Doctor’s Perception of Men’s Receptivity to Sexual Health Inquiry Determines Doctor’s Decision in Inquiring about Sexual Dysfunction  
   Event: The 6th International Shared decision Making Conference, 19th to 22nd June 2011, Maastricht, the Netherlands

6. Author: Tong SF (invited keynote speaker)  
   Title: Engaging men in health care: what other directions should we be taking?  
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Glossary

Health check-up
A health assessment which involves 1) screening for lifestyle risk factors such as smoking, nutritional status, excessive alcohol consumption and physical activity; 2) case finding of asymptomatic diseases such as hypertension, diabetes, hypercholesterolaemia and colon cancer; 3) case finding of symptomatic diseases that are unreported by patients such as erectile dysfunction and lower urinary tract symptoms; and 4) assessment of psycho-social well-being.(1) The assessments should result in the benefit of early intervention. It differs from health screening which is defined as the active identification of disease or pre-disease conditions in individuals who presume themselves to be healthy but may benefit from early treatment.(2)

Primary care doctor
Doctor who provides definitive care to the undifferentiated patient at the point of first contact and takes ongoing responsibility for providing the patient’s care.(3) In Malaysia, this care is provided by public and private family physicians, doctors serving in public health centres and private general practitioners.

Men’s health
A male health issue is one arising from physiological, psychological, social, cultural or environmental factors that have a specific impact on boys or men and/or where particular interventions are required for boys or men in order to achieve improvements in health and well-being at either the individual or the population level.(4)
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<td>A F P M</td>
<td>Academy of Family Physicians of Malaysia</td>
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<td>A I D S</td>
<td>Acquired Immune Deficiency Syndrome</td>
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<tr>
<td>B M I</td>
<td>Body mass index</td>
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<tr>
<td>C I</td>
<td>Confidence intervals</td>
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<tr>
<td>C O P D</td>
<td>Chronic obstructive pulmonary diseases</td>
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<td>C R</td>
<td>Composite reliability</td>
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<td>C V S</td>
<td>Cardiovascular</td>
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<td>D A L E</td>
<td>Disability-adjusted life expectancy</td>
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<tr>
<td>D A L Y</td>
<td>Disability-adjusted life year</td>
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<tr>
<td>E D</td>
<td>Erectile dysfunction</td>
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<td>E M H F</td>
<td>European Men’s Health Forum</td>
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<td>F G D</td>
<td>Focus group discussion</td>
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<td>F M S A</td>
<td>Family Medicine Specialists Association</td>
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<td>G H Q</td>
<td>General health questionnaire</td>
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<td>G T M</td>
<td>Grounded theory methods</td>
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<td>H I V</td>
<td>Human Immunodeficiency Virus</td>
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<td>I D I</td>
<td>In-depth interview</td>
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<td>I E L T</td>
<td>Intravaginal ejaculation latency time</td>
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<td>I G T</td>
<td>Impaired glucose tolerance</td>
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<td>I I E F - 5</td>
<td>International Index of Erectile Function-5</td>
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<td>I P S S</td>
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<td>K L / S e l</td>
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<td>K M O</td>
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<td>L U T S</td>
<td>Lower urinary tract symptoms</td>
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<td>N H M S</td>
<td>National Health and Morbidity Survey</td>
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<td>P C D</td>
<td>Primary care doctor</td>
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<td>P E</td>
<td>Premature ejaculation</td>
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<td>R M</td>
<td>Malaysian Ringgit</td>
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<td>U K M</td>
<td>Universiti Kebangsaan Malaysia</td>
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<td>U K M R C</td>
<td>United Kingdom Medical Research Council</td>
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<td>U M</td>
<td>University of Malaya</td>
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<td>U S P S T F</td>
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<td>W C</td>
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1 Introduction

This thesis presents a rationale to improve men's health check-up service delivery in Malaysia by analysing the decision-making processes of primary care doctors (PCDs) in engaging male patients in health check-ups, and then advocating measures that can be taken to facilitate these processes. In this introductory chapter, I wish to articulate the need to make men's health check-ups an important component of primary care service delivery. This is followed by an explanation of the thesis aim, a brief account of my overall research strategies, and an outline of this thesis presentation. I defer the discussion on the definition of men's health to the second chapter.
1.1 The agenda of men’s health check-ups in primary care settings

Preventive health check-ups for men deserve a stronger emphasis from PCDs. There are two specific points in this argument: the importance of preventive health check-ups for male patients and the need to focus specifically on men.

Preventive care is argued to be the key to improving men’s health status. Although direct evidence of benefit for health check-ups to men is not available, many components of health check-ups such as cardiovascular risk screening, (5, 6) colorectal cancer screening (7, 8) and detection of erectile dysfunction and followed by appropriate interventions respectively resulted in mortality or morbidity benefit. (9, 10) As early as 1984, men were noted to be disadvantaged in relation to mortality and morbidity patterns compared to women in the United States of America. (11) More recent reviews have confirmed the same concern around the world. (12-17) Men have poorer health profiles compared to women in almost all the vital statistics published by the World Health Organization (WHO), such as life expectancy at birth, mortality rates, disability-adjusted life years and non-sex specific disease death rates. (18-20) Chapter two will elaborate in detail on each of these issues from a global perspective before focusing on Malaysia. The striking point is that many of the causes of mortality and morbidities, such as cardiovascular disease, injuries and cancers, are lifestyle related and preventable or amenable to early intervention. (13, 14, 21) Furthermore, many male-specific morbidities such as sexual dysfunction and prostate disorders go under-reported, (22-28) and hence lack appropriate interventions. Preventive care is therefore one of the most significant strategies for improving men’s health. (29-31) Although it can be argued that the agenda of preventive care may not be of interest to most men, there is compelling data to show otherwise. Way back in 1991, an assay from Health Visitor, a periodical journal from the United Kingdom, reported an overwhelming and unexpected positive response among working class men to a men’s health campaign; so overwhelming that Jackson, the author, gave the report the title “opening the flood-gates”. (32) More recent evidence also supports the view that men are interested in health. (33-35) Hence, greater effort has to be directed towards measures to improve preventive health care for
male patients, as the 'demand' is clearly there. Health check-ups are one such measure in the primary care settings.

Some question the need to attend specifically to men. One may ask what the differences are between men and women's health check-ups besides the sex-specific tests or examinations, or what difference it makes if the agenda is adult health check-ups rather than men's health check-ups. One may also question what the differences are between men's health check-ups and male sexual health or male urological assessments. The problem with these questions is their gender insensitivity. Being a man, which is socially defined, (36, 37) is different to and more than simply having a male phenotype. (36) The focus is not the examinations or tests that we should be performing for male patients. These examinations or tests are best seen from a bio-medical perspective. Instead, the focus is to successfully deliver these preventive-focused examinations or tests, which will require an agreement between doctors and their male patients, an agreement resulting from a social interaction. How men negotiate preventive health care is likely influenced by their socio-cultural beliefs rather than just their being males. (37, 38) Moreover, how doctors negotiate preventive health care delivery is in part determined by their own personal socio-cultural beliefs. The poor health status of men is often not due to their sex-specific illnesses. Indeed, the main burden of male mortality and morbidities are non-sex specific. (13-15, 19) As the following chapter will outline, men's health-seeking behaviour and social determinants, which are socially constructed, are the key factors accounting for men's poor health. (38-44) Men should be understood not just as adults, but as men with unique health-seeking behaviour and social roles. Hence, health services need to be sensitive to the male gender instead of concentrating purely on the bio-medical matters. (29) For health practitioners, such an understanding of male patients in the context of their gender role is essential to creating the empathetic relationship necessary for the effective delivery of men's health services.
In the effort to improve men's health check-ups, the agenda of men's health check-up should be holistic and go beyond a bio-medical perspective or sex-specific orientation (4, 45). Therefore, PCDs, who provide holistic care and have the most contact with laymen compared to other disciplines, are in an optimal position to offer such health check-up services.

1.2 The aim and research strategies of this thesis

Given the importance of men's health check-ups in primary care settings, there should be an effort to develop or improve such services for male patients. The literature search reported in chapter two of this thesis found scant published evidence for any effective strategies that PCDs might be able to mobilise in dealing with men's health check-ups, although many recommendations have been put forward based on our best understanding of men's help-seeking behaviour and the epidemiology of men's health (15, 29, 31, 46-49). For the individual doctor who embraces the current understanding of men's health, these recommendations are invaluable guides and many of these may be easily integrated into his or her practice. However, to have an impact on men's health, all primary care doctors need to appreciate the unique features of men's health-seeking behaviour. The pressing issues are whether PCDs endorse the concept of men's health, and what the obstacles are PCDs face in engaging male patients in health check-ups. These issues are crucial to ensuring sustainable interventions to improve men's health check-up delivery by PCDs. The focus of this thesis is on health care providers, in particular, the PCDs. As detailed in the literature review in chapter two, extensive work has been done on men's health-seeking behaviour. Their apparent unfavourable health-seeking behaviour is noted to be the result of the interactions between them and health care providers (38, 50). On the other hand, work on doctors' practice behaviour in relation to men's health service is scarce. Therefore, this thesis aims to address these issues from the PCDs' perspective with the approach described below.

With an intervention strategy for PCDs in mind, I have adopted the framework for developing a complex intervention strategy pioneered and currently promoted by the United Kingdom Medical
Research Council (UKMRC). This thesis focuses on the development stage of the UKMRC framework (Figure 1.1).

The important tasks in the development stage are to identify a substantive theoretical framework that a logical intervention strategy can be based on, and to identify areas (or obstacles) that warrant most attention. A theoretical framework is needed to reflect the PCDs' decision-making process in engaging male patients in health check-ups. Understanding this decision-making process offers more than just the facts about PCDs' views on men's health and the obstacles to improving men's health check-ups. It can illustrate how their understanding influences their current practice and how they manoeuvre (successfully or unsuccessfully) through the obstacles of men's health check-ups. Hence, this framework can offer a template that renders the intervention strategies more logical and targeted. This framework should be explanatory (thus providing the logic for intervention) and be able to identify the weaknesses (targets for intervention) in engaging men in health check-ups.

Hence, the research question for this study was: "What are the determinants and process of
decision making by primary care doctors in undertaking health check-ups for male patients in
Malaysia? The results of this study formed the substantive theoretical framework for the decision-
making process.

Since nothing has yet been written about such a substantive theoretical framework, I have
embarked on an exploratory approach with a sequential mixed methods design. In phase I,
which adopted grounded theory methods (GTM), I have constructed the substantive theoretical
framework. In phase II, a cross-sectional survey with multivariate analysis, I have identified the
components in the framework that warrant attention. The framework derived from phase I was used
instead of existing framework for behavioural change because phase II tapped into the substantive
concepts derived from phase I. The methods and results of phase I will be presented before the
methods and results of phase II, as the findings in phase I directed the study design of phase II.
However, the findings for phase I and II will be discussed together as they illuminate each other in
answering the research question.
1.3 Overview of my thesis

This thesis is written in two volumes, with the references and appendixes forming the bulk of volume II. I have adopted this approach since the thesis may otherwise appear particularly long due to the preference for space, charts and tables to ensure clarity, over page limits. The thesis is divided into nine chapters, including this chapter, the introduction.

Chapter 2 provides the background and objectives of this thesis. It includes the discussion of the current definition of men’s health and the significance of men’s health from a global perspective, before focusing on Malaysia. This section also reviews the reasons underlying men’s poor health and briefly describes the overall strategies to improve men’s health. It then outlines the importance of focusing on men’s health check-ups at primary care settings and the potential challenges in engaging PCDs in promoting men’s health check-ups. It also highlights the paucity of empirical evidence on the strategies we can adopt to improve men’s health check-ups, and hence the need to understand the doctors’ current decision-making process in relation to men’s health check-ups so as to develop intervention strategies. This chapter ends by providing the aims, justification and objectives of this thesis.

Chapter 3 – methodology, provides the justification for using a mixed method design to explore the doctors’ decision-making process in engaging male patients in health check-ups. This chapter also outlines my philosophical position on research and the theoretical assumptions in adopting both GTM and a quantitative survey.

Chapters 4 and 5 – methods and results of phase I, provide a detailed account of the steps taken using GTM and the findings of phase I. The findings of phase I are illustrated as a theoretical framework of the doctors’ decision-making process in engaging male patients in health check-ups.

Chapters 6 and 7 – methods and results of phase II, provide a detailed account of the steps taken and findings based on the conceptual framework derived from phase I. The results section has two
segments: 1) the findings from the questionnaire development; and 2) the findings from probabilistic sampling survey of PCDs.

Chapter 8 – discussion and conclusion, provides the meaning and implication of the findings from both phase I and II. The findings are discussed in relation to the literature on decision making and health check-ups. The strengths and limitations of the study are outlined to set the limits of the finding’s implications.

Chapter 9 – recommendations, provides suggestions for practice and future directions for research from the findings of this study.

Some sections of this thesis are quoted verbatim from certain parts of the following published papers:

1. Malaysian primary care doctors’ view on men’s health: An unresolved jigsaw puzzle
2. Physician’s intention to initiate health check-up discussions with men: A qualitative study
3. The profile of men’s health in Malaysia: Problems and challenges
4. Managing aging men in Asia: A review

The first two papers are original contributions and their contents are quoted in some parts of sections 5.3, 5.4, 5.5 and 5.6 (Phase I results) and 8 (Discussion). The third paper is quoted in some parts of section 2.5, and the fourth paper is quoted in some parts of section 2.6. The statement of contributions by the authors for all papers is appended in Appendix 1.

I end the thesis with an afterword retracing my experience through my PhD candidature.
2  Background and the study objectives

2.1 Introduction

This chapter outlines the background and rationale for this thesis. The men’s health discourse started in the early 1990s in a few European countries, Australia and the United States of America.\(^{53, 54}\) Since then, the definition of men’s health has consolidated. However, in many other countries, including Malaysia, men’s health is a relatively new discipline. In this chapter, the current definition of men’s health is discussed, and the significance of men’s health issues is outlined from a global perspective before focusing on the Malaysian context specifically. The reasons underpinning the present state of men’s health and strategies to address these are also reviewed, highlighting gaps in the knowledge-base for improving men’s health. The final two sections show how this thesis attempts to address these gaps. However, before discussing the issues of men’s health, an introduction to Malaysia is provided as background to the setting where this study was carried out.
2.2 The study setting: Malaysia and its health care system

Malaysia, constituting 13 states and three federal territories, is one of the more developed countries in South-East Asia. The states of Sabah, Sarawak and the Federal Territory of Labuan are separated by the South China Sea from Peninsular Malaysia, which comprises all the other states (Figure 2.1 – edited figure taken originally from a web source: http://rj-gundam.blogspot.com/2010/08/merdeka-independence-day_14.html). The total estimated population in 2010 was 28.3 million people, with a male to female ratio of 1.04. Malaysia is a multi-ethnic country, with Malays being the majority (60%), followed by the Chinese (23%), Indigenous (10%) and Indians (7%). In 2010, the crude birth rate was 18.8/1,000 population, and the crude death rate was 4.9/1,000 population. The adult literacy rate in 2008 was 92% and the gross national income per capita in the same year was US$13,740. (56)

![Figure 2.1 Malaysia and its surrounding countries](image)

Overall, the coverage of basic health needs is excellent, with more than 99% of the Malaysian population receiving improved drinking water and 96% having access to improved sanitation facilities. (56) The majority of the population have access to health care facilities, and in the 2006 National Health and Morbidity Survey, the mean distance to a nearest health care facility was 5.7 kilometres. (57) However, there are a few remote areas in Sabah and Sarawak where access to health facilities is still a challenge. The infant mortality and maternal mortality rates have improved
dramatically to 6/1,000 live births and 28/100,000 live births respectively in 2007. (56, 58, 59) These statistics put Malaysia in the 39th and 76th positions respectively in rankings from 193 countries around the world. (56)

Health services in Malaysia are provided by the public and private sectors. (60) The public sector has a well established system where the first point of contact is primary health facilities which are either maternity and child health centres or government polyclinics. The public primary health facilities act as the gate keeper where subsequent referral to secondary or tertiary care is made. However, patients can also access secondary and tertiary care directly via the emergency services available in the hospitals. The well established maternal and child health services are the main reason for the improved women’s and children’s health status in Malaysia. (58) The private sector also comprises primary care clinics (general practice) and hospitals. They are mainly located in urban settings. (60)

Patients can access private health care at any entry point. In other words, primary care services are offered in private secondary or even tertiary hospitals via their outpatient services. Therefore, most private hospitals provide one stop centre services covering primary to tertiary care. Health screening or health check-up services are readily available in all private facilities but only available in government primary care facilities at government polyclinics as well as maternal and child health centres; not at government hospital. There are also substantial differences between public and private facilities in terms of the choices of medications, cost to the patients, (61) doctors’ workload, patients’ socio-economic profile, practice infrastructure, and support facilities. (62, 63) Health services in the public clinics are heavily subsidised by the government, with all patients only paying RM1 to RM5 (RM = Malaysian ringgit; US$ 0.30-1.50) for a clinic visit that includes consultation, investigations and medications. By contrast, the cost of visits to private clinics are borne by patients either out-of-pocket or via a third-party payer, which may range from RM30 to RM150 (US$10-50). Therefore, the cost to a patient of a health check-up in public facilities is much cheaper. However, waiting times for a health check-up is longer than in the private facilities.
2.3 The definition of men's health

There is considerable debate about the definition of men's health. Men's health is easily mistaken as an issue of mere differences between men and women, as appears self-evident from the term used. This idea of difference is perhaps too simplistic; the only universal difference between men and women is probably the biological sex difference. Women's health is generally confined to female genito-urinary and reproductive health, which also includes healthy motherhood, reproductive rights and family planning. Taken from this perspective, men's health would then involve issues about healthy fatherhood, and male genito-urinary and reproductive health. Hence, focusing the discussion on this distinction implies that all men and all women are homogenous in their own group. However, most would disagree with this definition, and would argue that men's health should go beyond sexual and reproductive health; it should also encompass illnesses predominant or specific to men. Many significant mortalities and morbidities in men are non-sexual, organ-related illnesses like cardiovascular diseases, bowel cancer and unnatural death (suicide and accidental injuries). However, concentrating on illnesses common or specific to men is insufficient. Closer examination of the data reveals that the mortality and morbidity burden of men are related to their gender roles in society and social status. Amongst men, health is not homogenous; there are differences in men's mortality and morbidity patterns across different socio-cultural and economic strata. Hence gender issues and social determinants need to be considered in the definition of men's health. With this in mind, the definition of men's health is complex and needs to be inclusive of men's health concerns and to differentiate between men and women.

The World Health Organization defined health in 1948, as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity". This high standard of health is difficult to attain for many of us. Inferring it to men, it implies achieving a high standard of complete well-being for men. This broad concept of health is highly inclusive of many issues related to men, but at the same time, it creates many interpretations of what actually constitutes complete
well-being for men. Some authors have advocated also considering a layman’s view of health and well-being in the definition. At present, many men’s health forums and organisations have defined men’s health more explicitly. For example, the European Men’s Health Forum (EMHF) has provided a more precise definition of men’s health:

A male health issue is one arising from physiological, psychological, social, cultural or environmental factors that have a specific impact on boys or men and/or where particular interventions are required for boys or men in order to achieve improvements in health and well-being at either the individual or the population level. (4)

Another definition of men’s health proposed by Porche et al. is:

Men’s health is a holistic, comprehensive approach that addresses the physical, mental, emotional, social, and spiritual life experiences and health needs of men throughout their lifespan. (53)

Across the board, all definitions recognise a gender sensitive approach by highlighting the physical, psychological, spiritual, social, cultural or environmental needs of men, and they emphasise the unique interventions needed to address men’s health issues. (45) Clarifying what constitutes psychosocial-cultural and environmental needs is important for practicing health care providers. For example, recently evidence has emerged showing that the psychology of men is complex and that the traditional masculinity role of men is being challenged by newer concepts of multiple masculinities underpinning the psychology of men. (70-72) These concepts of multiple masculinities, which will be described in section 2.6.1, have to be explained and clarified to practicing health care providers. Additionally, social factors that are relevant to men’s health need to be highlighted. (44) These practical clarifications are important for better targeted and more effective measures to improve men’s health. Therefore, in my opinion, men’s health should be holistic including the physical, mental, emotional and spiritual life experiences and take the consideration of layman’s need in deciding the focus as well as the strategies in the process of interventions.
The definition of men's health has consolidated throughout the years but the understanding of this complex definition is also important and deserves more emphasis. Certainly, PCDs, who have significant contact with the community(73) and are potentially the main care providers to men(47, 74), need to understand and be aware of this complex definition. Although many personal opinions and reviews have been written to educate PCDs on what men’s health is and how to go about administering it,(30, 46-48, 75) there are very few published studies identifying the doctors’ perspectives and understanding of men's health.(76) Instead, most studies have addressed doctors’ views on male patients’ help-seeking behaviour.(77-79) In a survey of Asian physicians’ attitudes to the concept of men’s health in Singapore, Korea and Taiwan, Yates et al. concluded that doctors from various disciplines of medicine, which included general practitioners, cardiologists, endocrinologists and urologists, may not have as clear an understanding of men’s health as they do women’s health.(76) Many of them had divergent opinions. (76) However, having only three Asian countries involved and some degree of convenient sampling in this study has limited the representativeness of the data. Furthermore, the quantitative approach used in the study to measure knowledge, attitude and practice risks missing important constructs in men’s health from the doctors’ perspective.

Although the study by Yates et al. did suggest differences of opinion over men’s health, no further conclusions were drawn. The interpretation of results was itself hampered by inherent methodological flaws. We are still unable to conclude what the current understanding of men’s health among doctors is. In conclusion, the concept and definition of men’s health is most likely not clear to many practicing doctors.
2.4 The significance of men’s health: a global picture

Men’s health has attracted the attention of various disciplines of health science and medical care because of the substantial disparity in the health statistics between men and women. The disparity is apparent if we compare their life-expectancy at birth (life-expectancy in short), disability adjusted life expectancy (DALE) and mortality rates. The significance of men’s health problems is also noticeable in the causes of death in men and their morbidity patterns.

Although life-expectancy for men and women around the world has improved over the last few decades (Table 2.1), (56) the life-expectancy of men has almost always been shorter than women by an average of 3.9 years. (80) A similar pattern is also seen in a more detailed analysis among developed countries and Europe. (13, 68, 81, 82) However, the magnitude of the disparity between men and women varied in different countries. (13, 15, 68, 80) For example, men’s life expectancy in Russia is about 10 years shorter than women, but in several Middle Eastern countries the life expectancy for men is 1.5 years longer than women. (80)

DALE also shows a disadvantageous trend in men compared to women. In 1999, DALE, which indicates healthy life expectancy, was shown to be 1.4 years shorter for men compared to women. (80) In 2007, the healthy life expectancy for men was still shorter by an average of 2.9 years than women. (56)
Table 2.1 Life expectancy at birth in year 1990, 2000 and 2008 for selected member states of World Health Organization (56)

<table>
<thead>
<tr>
<th></th>
<th>Men (years)</th>
<th>Women (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global</td>
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<td>Singapore</td>
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</tr>
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<td>New Zealand</td>
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<td>Netherlands</td>
<td>74</td>
<td>76</td>
</tr>
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</tr>
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</tr>
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</tr>
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<tr>
<td>Brazil</td>
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<tr>
<td>Thailand</td>
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<td>63</td>
</tr>
<tr>
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<tr>
<td>Bangladesh</td>
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<td>61</td>
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<tr>
<td>India</td>
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<td>60</td>
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<tr>
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<td>Uganda</td>
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<td>44</td>
</tr>
<tr>
<td>Afghanistan</td>
<td>42</td>
<td>41</td>
</tr>
</tbody>
</table>

Note: Only selected countries are presented because of space constraints. These selected countries provide a global representative picture.

The death rates for adult men (probability of dying between 15 to 60 years old per 1,000 population) across all regions in the world are also higher than for women. In 2008, the ratios for adult male to female mortality rates in all countries in the world were more than 1.0, except in three countries (Tonga, Tuvalu and the Central African Republic). The ratios were more than 1.5 for more than half of the member countries of the World Health Organization. The adult male mortality rates for selected countries ranged from 78-543/100,000 population compared to 57-398 for their female counterparts (Figure 2.2).
In the analysis of the causes of death, adult men have higher mortality rates than women in all categories, including communicable diseases, non-communicable diseases and injuries (Table 2.2). Although infectious diseases are still a major cause of death in developing countries such as Tanzania and Afghanistan, the major burden is non-communicable diseases (Table 2.2). The common causes of death (in descending order) in men are cardiovascular diseases, injuries, road traffic accidents, cancers, violence, war, infectious diseases (including HIV/AIDS) and chronic obstructive pulmonary diseases (COPD). Although the causes of death and their ranking varied in different regions of the world and according to differing socioeconomic status, the WHO statistics published in 2008 indicate that almost all age-standardised death rates per 100,000 population for common causes of death were higher in men than in women, with only very few exceptions (Table 2.3). A further analysis of six of these by White et al. involving accidents and their adverse effects, suicide, cancers, cardiovascular diseases, injuries, and chronic liver diseases among middle age adults in the major continents of the world, has also noted that men stood a higher risk.
of premature death than women. Data from the United States showed similar findings that the leading five causes of death for men were heart diseases, cancer, unintentional injuries, stroke and chronic obstructive pulmonary disease, all of which are potentially preventable or amenable to early intervention.

Table 2.2 Age-standardised death rates per 1000,000 people by category of causes, sex and selected countries

<table>
<thead>
<tr>
<th>Selected countries</th>
<th>All Causes</th>
<th>Infectious and parasitic diseases</th>
<th>Noncommunicable diseases</th>
<th>Injuries</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Men</td>
<td>women</td>
<td>Men</td>
<td>women</td>
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<tr>
<td>Japan</td>
<td>488.8</td>
<td>261.4</td>
<td>10.6</td>
<td>6.2</td>
</tr>
<tr>
<td>Australia</td>
<td>499.3</td>
<td>327.8</td>
<td>7.2</td>
<td>4.6</td>
</tr>
<tr>
<td>Singapore</td>
<td>545.2</td>
<td>368.3</td>
<td>11.8</td>
<td>6.0</td>
</tr>
<tr>
<td>UK</td>
<td>605.2</td>
<td>420.2</td>
<td>6.4</td>
<td>5.5</td>
</tr>
<tr>
<td>USA</td>
<td>641.5</td>
<td>447.7</td>
<td>19.9</td>
<td>13.1</td>
</tr>
<tr>
<td>China</td>
<td>880.3</td>
<td>692.9</td>
<td>46.9</td>
<td>24.7</td>
</tr>
<tr>
<td>Malaysia</td>
<td>952.1</td>
<td>719.5</td>
<td>112.5</td>
<td>62.1</td>
</tr>
<tr>
<td>India</td>
<td>1,303.9</td>
<td>1,111.3</td>
<td>198.5</td>
<td>151.0</td>
</tr>
<tr>
<td>Russia</td>
<td>1,605.7</td>
<td>844.6</td>
<td>63.6</td>
<td>14.3</td>
</tr>
<tr>
<td>Tanzania</td>
<td>2,117.2</td>
<td>1,929.6</td>
<td>729.7</td>
<td>752.5</td>
</tr>
<tr>
<td>Afghanistan</td>
<td>2,498.4</td>
<td>2,383.8</td>
<td>448.3</td>
<td>438.5</td>
</tr>
</tbody>
</table>

*United States of America

Note: Only selected countries are presented because of space constraints. These selected countries provide a globally representative picture.
Table 2.3: Age-standardised death rates per 100,000 by selected diseases, sex and selected countries (84)

<table>
<thead>
<tr>
<th>Selected countries</th>
<th>Cardiovascular diseases</th>
<th>Chronic obstructive pulmonary disease</th>
<th>Trachea, bronchus, lung cancers</th>
<th>Colon and rectum cancers</th>
<th>Respiratory infections</th>
<th>Tuberculosis</th>
<th>HIV/AIDS</th>
<th>Unintentional injuries</th>
<th>Self-inflicted injuries (suicide)</th>
<th>Violence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>122.5</td>
<td>80.8</td>
<td>8.3</td>
<td>3.7</td>
<td>96.9</td>
<td>9.8</td>
<td>19.8</td>
<td>11.9</td>
<td>42.1</td>
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<td>Australia</td>
<td>163.5</td>
<td>110.9</td>
<td>21.8</td>
<td>11.6</td>
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<td>18.6</td>
<td>13.1</td>
<td>10.8</td>
<td>6.6</td>
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<td>Singapore</td>
<td>191.9</td>
<td>137.7</td>
<td>22.0</td>
<td>6.9</td>
<td>38.9</td>
<td>14.5</td>
<td>23.4</td>
<td>14.4</td>
<td>80.3</td>
<td>59.7</td>
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<tr>
<td>USA*</td>
<td>214.3</td>
<td>148.6</td>
<td>29.8</td>
<td>22.1</td>
<td>50.0</td>
<td>16.2</td>
<td>11.6</td>
<td>13.7</td>
<td>10.3</td>
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<tr>
<td>UK†</td>
<td>216.5</td>
<td>159.2</td>
<td>28.7</td>
<td>17.6</td>
<td>45.0</td>
<td>23.9</td>
<td>21.4</td>
<td>13.5</td>
<td>27.0</td>
<td>24.0</td>
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<td>67.7</td>
<td>54.9</td>
<td>60.4</td>
<td>13.8</td>
<td>20.0</td>
<td>17.0</td>
<td>63.3</td>
<td>55.7</td>
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<tr>
<td>China</td>
<td>297.3</td>
<td>260.4</td>
<td>131.5</td>
<td>117.7</td>
<td>42.9</td>
<td>19.0</td>
<td>10.7</td>
<td>7.0</td>
<td>22.7</td>
<td>21.6</td>
</tr>
<tr>
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<td>50.8</td>
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<td>11.5</td>
<td>1.5</td>
<td>4.9</td>
<td>5.0</td>
<td>195.7</td>
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<tr>
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<td>409.7</td>
<td>393.0</td>
<td>102.3</td>
<td>79.0</td>
<td>16.6</td>
<td>6.4</td>
<td>5.9</td>
<td>4.4</td>
<td>121.6</td>
<td>49.8</td>
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<td>Russia</td>
<td>773.4</td>
<td>529.3</td>
<td>24.0</td>
<td>5.8</td>
<td>51.9</td>
<td>7.1</td>
<td>23.1</td>
<td>17.5</td>
<td>34.1</td>
<td>9.6</td>
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<td>Afghanistan</td>
<td>820.5</td>
<td>631.7</td>
<td>46.8</td>
<td>35.1</td>
<td>27.4</td>
<td>6.1</td>
<td>13.8</td>
<td>6.3</td>
<td>270.1</td>
<td>292.6</td>
</tr>
</tbody>
</table>

*United States of America  
†United Kingdom  
§Women

Note: Only selected countries are presented because of space constraints. These selected countries provide a globally representative picture. The numbers in italics denote higher mortality rates for women compared to men.
When analysing disease burden, disability-adjusted life year (DALY) provides a better measurement than death rates. DALY takes into account fatal and non-fatal outcomes, which makes the comparison of the burden of diseases with different mortality rates possible. One DALY in a disease is equivalent to one lost year of health due to premature death or disability caused by the disease. Similar to the pattern seen in age-standardised death rates, in 2009, the age-standardised DALYs per 100,000 population for common diseases in men were higher than in women (Table 2.4). The only exceptions were COPD (women have higher DALYs in Australia, Japan and the United Kingdom), respiratory infection (women have higher DALYs in Afghanistan), HIV/AIDS (women have higher DALYs in Tanzania) and self-inflicted injuries (women have higher DALYs in China and Afghanistan). In the categories of unintentional injuries and violence, the age-standardised DALYs for men are a few times higher than women (Table 2.4).
### Table 2.4 Age-standardised disability-adjusted life years (DALYs) per 100,000 by disease, sex and selected countries (84)

<table>
<thead>
<tr>
<th>Selected countries</th>
<th>Cardiovascular diseases (M)</th>
<th>Cardiovascular diseases (W)</th>
<th>Chronic obstructive pulmonary disease (M)</th>
<th>Chronic obstructive pulmonary disease (W)</th>
<th>Trachea, bronchus and lung cancers (M)</th>
<th>Trachea, bronchus and lung cancers (W)</th>
<th>Colon and rectum cancers (M)</th>
<th>Colon and rectum cancers (W)</th>
<th>Respiratory infections (M)</th>
<th>Respiratory infections (W)</th>
<th>Tuberculosis (M)</th>
<th>Tuberculosis (W)</th>
<th>Unintentional injuries (M)</th>
<th>Unintentional injuries (W)</th>
<th>Self-inflicted injuries (M)</th>
<th>Self-inflicted injuries (W)</th>
<th>Violence (M)</th>
<th>Violence (W)</th>
</tr>
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<tbody>
<tr>
<td>Australia</td>
<td>1,236</td>
<td>714</td>
<td>490</td>
<td>780</td>
<td>249</td>
<td>145</td>
<td>189</td>
<td>189</td>
<td>75</td>
<td>60</td>
<td>9</td>
<td>1</td>
<td>9</td>
<td>9</td>
<td>1,179</td>
<td>449</td>
<td>388</td>
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<td>137</td>
<td>257</td>
<td>80</td>
<td>189</td>
<td>189</td>
<td>195</td>
<td>100</td>
<td>24</td>
<td>9</td>
<td>9</td>
<td>1</td>
<td>700</td>
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<td>22</td>
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<td>181</td>
<td>96</td>
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<td>1,296</td>
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<td>46</td>
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<td>2,894</td>
<td>2,197</td>
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<td>779</td>
<td>139</td>
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<td>528</td>
<td>73</td>
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<td>7,185</td>
<td>1,870</td>
<td>1,900</td>
<td>206</td>
</tr>
<tr>
<td>Afghanistan</td>
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<td>6,261</td>
<td>998</td>
<td>325</td>
<td>832</td>
<td>92</td>
<td>194</td>
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<td>9,870</td>
<td>9,899</td>
<td>1,681</td>
<td>1,492</td>
<td>2</td>
<td>0</td>
<td>4,240</td>
<td>2,941</td>
<td>183</td>
<td>392</td>
</tr>
</tbody>
</table>

*United Kingdom  
*United States of America  
†Men  
§Women  

Note: Only selected countries are presented because of space constraints. These selected countries provide a globally representative picture.
Furthermore, men's relatively poor health status is not only reflected in the mortality and disease burden statistics, but is also reflected in the high prevalence of risk factors for common causes of death and male-specific illnesses.

The main diseases that cause death in men share many common risk factors, such as smoking, alcohol, hypertension, hypercholesterolaemia, obesity, diabetes, sedentary lifestyles, unhealthy dietary habits and high risk behaviour such as violence and addictions. These risk factors are on the rise globally, especially in developing countries, as peoples are aging and changing to more sedentary lifestyles. In developed countries, all these risk factors rank in the top seven risk factors contributing to DALYs. In developing countries, these risk factors are also in the top-ten list along with nutritional deficiency and communicable diseases. Although the increase in prevalence for these risk factors is occurring in both men and women, it indicates a particular concern for men.

High alcohol consumption and smoking are predominantly men's concerns. Even though the prevalence of men who smoke in some countries (Australia, Sweden and Brazil) is decreasing, it is still increasing in many low and middle income countries. The global prevalence of adult (≥15 years old) male smokers in 2006 was 41.1% with a range of 9.0% (in Ethiopia) to 70.1% (in Russia), whereas the prevalence of smoking amongst females in the same period was 8.9% with a range of 0.2% (in Morocco and Algeria) to 54.0% (in Nauru). Men account for four fifths of all smokers. Furthermore, smoking is more detrimental to men than women. On the issue of alcohol consumption, in all regions of the world men drink more alcohol than women. In a review by Rehm et al., 45% of men practised total abstinence from alcohol compared to 65% of women. In 2004, 6.3% of total deaths in men globally were attributable to alcohol intake, compared to only 1.1% in women. Also in the same year, 7.6% of all DALYs in men globally were attributable to alcohol intake compared to 1.4% in women.
Other risk factors such as hypertension, hypercholesterolaemia, unhealthy diet, obesity and diabetes are also prevalent. In 2000, the estimated global prevalence of hypertension for men was 26.6%. It was projected that by 2025, 29% of men will have hypertension. The statistics for women were 26.1% and 29.5% respectively. Obesity is also an increasingly major health risk factor. Although obesity (overweight and obese) is more prevalent in women, in 2000, the prevalence of obesity in men was over 20% across different regions of the world except Africa. In some parts of America and Europe, the prevalence in men was >60%. A more recent review from data taken in the years 2005-2008 indicates that the prevalence for both men and women is increasing. Besides China, India and Indonesia, the prevalence of obesity exceeded 30% for most countries. The global average for obesity was 66% (50% overweight and 16% obese). On the other hand, the estimated prevalence of diabetes in 2000 was about 10% in the 55-59 age group. Diabetes increases with aging and the prevalence rates across different age groups are also on the rise because of more sedentary lifestyles, unhealthy diet and obesity. Globally, the prevalence of diabetes in men is similar to women but it is slightly higher for men less than 60 years old.

Male specific disorders such as sexual dysfunction and prostate disorders are also increasingly acknowledged to have a significant impact on men’s morbidity. Erectile dysfunction is a common male sexual disorder. The prevalence of erectile dysfunction increases with aging. In a review published in 2002 and a multinational study in 2004, the prevalence ranged from 2% for men younger than 40 years to 71% for men older than 70. More importantly, it is associated with cardiovascular risk factors and predicts future events of cardiovascular related diseases such as diabetes, hypertension, hyperlipidaemia and angina. Unfortunately, although prevalent and having a significant impact on health, erectile dysfunction is often under-reported by patients. Premature ejaculation is another common sexual dysfunction in men that has a significant impact on men's health. In contrast to erectile dysfunction, the prevalence of premature ejaculation does not increase with aging. In a few reviews and multinational studies between 2005 and 2010, 20% to 30% of men across age groups and countries were reported to suffer from premature ejaculation.
The prevalence was noted to be as high as 66% in primary care settings in Germany. The prevalence could range from 31% in the United Kingdom to 40.6% in Malaysia. Even with such high prevalence, very few patients (an estimated 9% of men with premature ejaculation) seek help. These two common sexual dysfunctions have a substantial impact on men’s quality of life, with men who suffer from these sexual dysfunctions having significant psychosocial morbidities and relationship problems. Prostate disorders are also common but often under-reported in men. Lower urinary tract symptoms (LUTS) is the most common prostate disorder, with a reported prevalence of 13% to 69% depending on age group. However, only 11-18% of men with symptoms of LUTS were noted to seek treatment. Men with LUTS have a lower quality of life and the symptoms of LUTS limit men’s daily activities.

From a global perspective, men are disadvantaged in many aspects of health compared to women. They have shorter life-expectancy at birth, shorter healthy life-expectancy and higher mortality rates in the common causes of death. The disturbing fact is that the causes of death are overwhelmingly lifestyle related and hence preventable or amenable to intervention. Also, many of the morbidities in men such as sexual dysfunctions and lower urinary tract symptoms are not reported to health care providers, and hence they are deprived the opportunity of effective treatment. It would be interesting to examine what men’s health is like in the local context in Malaysia.
2.5 Profile of men's health in Malaysia

The overall health status of Malaysia is in between developed and developing countries as described in section 2.4. The life expectancy of men at birth (life expectancy) also conforms to the global pattern, with a difference of 4.8 years between men and women. Life expectancy in Malaysia was 71.7 years for men and 76.6 years for women in 2010. Healthy life-expectancy, defined as the period of life without significant disability, is 62 years for men compared to 66 for women. This section will provide a more detailed account of Malaysian men's health profile.

2.5.1 Mortality rate and causes of death in Malaysian men

The adult mortality rate reported by the WHO in 2007 for men aged 15 to 60 years old was almost double that of women (Figure 2.3). Compared to the data in 1990 and 2007, the decline in mortality rate for females was 30 per 1000 population since 1990 compared to only 25 per 1000 for males.

![Figure 2.3 Adult mortality rates in Malaysia from 1990 to 2007](image-url)
Local published data from the Malaysian Department of Statistics in 2008 showed that the number of deaths in men was higher in all age groups compared to women (Figure 2.4). The discrepancy in total number of deaths was particularly high in the 15-64 age group (Figure 2.4), which indicated that a great proportion of men died at a younger age than women. With the overall improvement in socioeconomic status in Malaysia since independence in 1957, the major causes of death in Malaysia have shifted from communicable diseases to chronic non-communicable diseases such as cardiovascular disease. Hypertension was noted to be an important health risk as early as 1975. In 2004, non-communicable diseases contributed to 55% of years of life lost compared to 28% from communicable diseases and 17% from injuries. In 2008, the most common cause of death in men was ischaemic heart disease (Table 2.5), which constituted 14.4% of total certified deaths. Other important causes of death in men were transport accidents, pneumonia, cerebrovascular disease, septicemia and chronic lower respiratory diseases (Table 2.5). Transport accidents have never been in the top five causes of death among Malaysian women. Overall, cancer was the seventh most common cause of medically certified death and the second most common cause of non-medically certified death in Malaysia. In 2004 and 2005, the most common male cancer in peninsular Malaysia (data from East Malaysia were incomplete) was colorectal cancer, which comprised 14.5% of overall cancer incidence. This was followed closely by respiratory (trachea, bronchus and lung cancer) (12.2%) and nasopharyngeal cancer (7.8%). However, respiratory cancer was the leading cause of death involving cancer. Besides septicemia and pneumonia, all the other important causes of death are lifestyle related. Thus, the male morbidities leading to these causes of death warrant further review.
Figure 2.4 Total number of deaths in Malaysia in 2008
(From the Department of Statistic, Malaysia)(116)

Table 2.5 Five principal causes of death (medically certified) in different age groups of men in Malaysia, 2008(121)

<table>
<thead>
<tr>
<th>Category of causes of death</th>
<th>Aged 15-64</th>
<th>%</th>
<th>Category of causes of death</th>
<th>Aged ≥ 65</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ischaemic heart disease</td>
<td>14.4</td>
<td></td>
<td>Ischaemic heart disease</td>
<td>16.3</td>
<td></td>
</tr>
<tr>
<td>Transport accident</td>
<td>7.9</td>
<td></td>
<td>Pneumonia</td>
<td>8.9</td>
<td></td>
</tr>
<tr>
<td>Pneumonia</td>
<td>6.6</td>
<td></td>
<td>Cerebrovascular disease</td>
<td>7.7</td>
<td></td>
</tr>
<tr>
<td>Cerebrovascular disease</td>
<td>5.8</td>
<td></td>
<td>Septicaemia</td>
<td>5.8</td>
<td></td>
</tr>
<tr>
<td>Septicaemia</td>
<td>5.6</td>
<td></td>
<td>Chronic lower respiratory</td>
<td>4.6</td>
<td></td>
</tr>
<tr>
<td>diseases</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2.5 Five principal causes of death (medically certified) in different age groups of men in Malaysia, 2008(121)
2.5.2 Male morbidity patterns in Malaysia

According to the Malaysian Burden of Disease and Injuries Study 2000, the disease accounting for the largest share of disease burden in men was cardiovascular disease, which contributed to 20% of the total DALYs in men (Figure 2.4). Therefore, modifiable cardiovascular risk factors are among the most important morbidities in men. The top five categories of illness (excluding respiratory disorders) that contributed to DALYs will be reviewed in turn. Although respiratory disorders were an important disease burden in men, the main contributing disease was lower respiratory tract infection and COPD. Lower respiratory tract infection is reviewed under the category of infection while COPD is primarily as a result of smoking, and thus the burden of smoking is reviewed instead. Besides these non-sex specific disorders, prostate disorders and sexual health also constitute major morbidities in Malaysian men.

![Figure 2.5 Disability-adjusted life years (DALYs) by disease categories in males in Malaysia, 2000](image)

2.5.2.1 Cardiovascular risk factors

The prevalence of modifiable cardiovascular risk factors in men has escalated compared to the findings of the first National Health and Morbidity Survey (NHMS) conducted in 1986. In the NHMS III 2006, besides lifestyle risks, hypertension was...
found to be the most prevalent modifiable risk factor among men aged 18 years and older (33.2%). (57) This was followed by hypercholesterolaemia, defined by fasting total serum cholesterol of ≥5.2 mmol/L (18.6%), and diabetes (11.9%). Among men who were diagnosed with hypertension and hypercholesterolaemia, only 31.5% and 21.3% respectively, were aware of their condition. Of the 11.9% of men who were diagnosed with diabetes, up to 5.1% were newly diagnosed at the time of the survey based on a modified glucose tolerance test. The prevalence of impaired glucose tolerance (IGT) in men was 5.2%. It was likely that men with IGT would not have known their glucose tolerance status prior to the survey. Abdominal obesity and general obesity, which were defined as a waist circumference (WC) of more than 90 cm and a body mass index (BMI) of ≥30, were noted in 7.3% and 10.0% respectively of the male respondents. The lifestyle risks related to cardiovascular disease were more prevalent than hypertension. The prevalence of current adult male smokers was 46.6%, and the prevalence of physical inactivity was 35.3%. In addition to the NHMS III, there were other smaller community studies that also investigated cardiovascular risk in urban or rural settings (Table 2.6). (99, 125-130) Although the prevalence of hypertension and hypercholesterolaemia in men was similar in urban and rural settings, the prevalence of obesity and diabetes in urban settings was more than twice those in rural settings. In contrast, smoking was more common in rural settings (Table 2.6). The prevalence of hypercholesterolaemia in local and regional studies was higher than that reported in the NHMS III because the men in the smaller studies were older. Nevertheless, the prevalence of all cardiovascular risk factors was high. Except for smoking, the prevalence of cardiovascular risk factors increased with age. (57)
Table 2.6. Prevalence of male cardiovascular risk factors in urban and rural settings

<table>
<thead>
<tr>
<th>Cardiovascular risk factors</th>
<th>Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Urban settings(99)</td>
</tr>
<tr>
<td>Hypercholesterolaemia (TC &gt;5.2 mmol/L)</td>
<td>70.1</td>
</tr>
<tr>
<td>Obesity (BMI&gt;25)</td>
<td>65.8</td>
</tr>
<tr>
<td>Hypertension</td>
<td>30.2</td>
</tr>
<tr>
<td>Diabetes</td>
<td>21.4</td>
</tr>
<tr>
<td>Smoking</td>
<td>19.1</td>
</tr>
</tbody>
</table>

High prevalence of cardiovascular risk factors among men is of concern to primary care services as almost all these risks can be readily identified in the clinics, and effective interventions for these risk factors have been proven to reduce cardiovascular mortality.

2.5.2.2 Unintentional injuries

In the Malaysian Burden of Disease and Injuries Study 2000, injuries contributed to 13% of total DALYs in men.(124) This was considerably higher than for women, in whom injuries only contributed to 5% of their total DALYs.(124) The types of injuries included injuries from transport, occupational and other social activities. In men, road traffic accidents accounted for approximately 62% of the total burden of injuries. The DALYs due to road traffic accidents was approximately five times higher in men than in women.(124) In the more recent NHMS 2006, the incidence of non-fatal unintentional injuries within the last year was 16.2%. Compared to females, males accounted for the majority of the injuries sustained in schools (7.0% versus 6.0%), at work (4.8% versus 3.1%), on the road (4.4% versus 2.5%) and during recreational activities (1.7% versus 0.7%). The only exception was injuries sustained at home (6.5% versus 6.8%).(57) The high incidence of unintentional injuries in men is also a concern as most of these injuries are preventable. Although men can be
advised on safety and avoidance of injuries in primary care consultations, effective strategies to reduce the incidence of unintentional injuries is best implemented from a public health perspective.

2.5.2.3 Infectious disease

Although communicable diseases may not be the most important disease burden in men, they nonetheless contributed to 10% of the total DALYs compared to 8% in women. The majority of the burden in men (62%) is due to septicaemia, followed by lower respiratory infections and HIV/AIDS. The majority of septicaemia and lower respiratory infections occurred in old age. For most infectious diseases, men have higher DALYs compared to women, particularly for tuberculosis and HIV infection (Figure 2.6). (124) While prevention of septicaemia and lower respiratory infection is difficult, prevention of HIV infection and tuberculosis is feasible and necessary. Again, prevention of HIV and tuberculosis is more effectively carried out from a public health perspective.
2.5.2.4 Mental health

Based on the Malaysian Burden of Disease and Injury study 2000, mental disorders accounted for 8% of the total DALYs in men. (124) DALY is a better indicator of the burden of mental disorders as only 3% of the burden is due to mortality. Overall, the main disorders contributing to the burden of mental health were major depression, drug abuse, self-inflicted injuries, alcohol, anxiety and violence. Besides major depression and anxiety, the other mental disorders were predominantly male problems, especially drug and alcohol abuse (Figure 2.7). Even then, major depression accounted for 45% of the burden of mental disorders in men. (124)

Intentional injuries accounted for 1.7% of DALYs for the total population. Up to 98% of the burden from intentional injuries was due to mortality from the injuries. The main causes for intentional injuries were self-inflicted injuries (suicide) and violence.
(including homicide). For both causes, the DALYs for men were two to three times higher than those for women (Figure 2.7).

![Bar chart showing the burden of mental disorders by sex in Malaysia in 2000.](image)

**Figure 2.7** The burden of mental disorders by sex in Malaysia in 2000 (From the Malaysian burden of disease and injury study 2000) (119)

In the more recent 2006 NHMS III, the overall prevalence of psychiatric morbidity, as measured by the General Health Questionnaire (GHQ-28), was 11.2% (men: 10.4%, women: 12.1%). The overall prevalence of acute suicidal ideation was 6.4%, and the prevalence of chronic suicidal ideation was 26%. Among those with acute suicidal ideation, the prevalence in men was 5.9%, whereas the prevalence in women was 6.7%. As for chronic suicidal ideation, the prevalence in women was also slightly higher (25.8%) than in men (25.0%). The overall prevalence of acute insomnia was 14% (men: 13.1%, women: 15.1%). In terms of chronic insomnia, the overall prevalence was 47.8% (men: 45.5%, women: 50.1%). In addition to the above data, other sub-scales measured by the GHQ-28 include depression, anxiety, and social dysfunction. In terms of the depression sub-scale, females had a significantly higher depression score (mean of 1.2, 95% CI 1.2-1.3) compared to males (mean of 1.1, 95% CI 1.0-1.1).
Similarly, females had a significantly higher anxiety subscale score at a mean of 3.3 (95% CI 3.2-3.4) compared to males, with a mean of 3.0 (95% CI 2.9-3.1). However, no gender differences were observed in the social dysfunction subscale scores.

In summary, the proportion of men who suffer from mental disorders was significantly lower than that of women. However, men contributed to the majority of deaths caused by suicide and the high DALYs due to drug and alcohol dependence. The low prevalence of mental disorder but high suicidal rate may imply that men delay seeking help for mental disorders. Therefore, early identification of mental problems is an important step to improving men’s mental health.

2.5.2.5 Cancer

In the Malaysian Burden of Disease and Injuries Study 2000, cancer was responsible for 6% of the total DALYs in men. According to the national cancer registry, over a period of three years from 2003 to 2005, the age-standardised male cancer incidence was 136.9/100,000 population compared to the female incidence of 156.9/100,000 population in Peninsular Malaysia. However, excluding sex-specific cancer types, the incidence rates of common cancers were higher in men than in women (Figure 2.8). The most common cancer in men was colorectal cancer, which accounted for 14.5% of the total incidence of cancer. This was followed by lung cancer (12.2%), nasopharyngeal cancer (7.8%; mainly among Chinese), prostate cancer (7.3%) and leukemia (6.5%). The age-standardised incidence of prostate cancer was 12.0/100,000 population in 2005, which was higher than the incidence of 10.3/100,000 population in 2003. Testicular and penile cancers were relatively uncommon, and the age-standardised rates were only 1.1 and 0.3/100,000 population, respectively. The epidemiology of cancers is changing. In 1985, the three most common sites of male cancers in East Malaysia were the lymph nodes, nasopharynx and skin. Similarly, in 1994, a regional survey and a local registry in
Peninsular Malaysia documented that the five most common male cancers were lung, nasopharynx, stomach, urinary bladder and rectum. (133) Colorectal and prostate cancers were not on the list of the five most common cancers. However, a more recent audit of cancer cases treated at a tertiary referral centre in 2008 found a four-fold increase in the numbers of colorectal cancer treated at the hospital since 2000. The number of prostate cancer treated also increased from fewer than four cases treated in 2000 to 25 cases in 2007. (134) Therefore, cancer screening is a legitimate agenda if there is mortality or morbidity benefit to be had from the screening.

Figure 2.8 Age standardised incidence of cancer per 100,000 population by sex in Peninsular Malaysia, 2003-2005
(From the National Cancer Registry, 2005) (126)

2.5.2.6 Prostate and male lower urinary tract syndrome (LUTS)

To date, there have been no large-scale national studies on prostate disorders in Malaysia. However, there have been several local studies on the prevalence of prostate disorders. Two studies involved men who were randomly selected from the community: the Subang men’s health study (99, 135) and the Penang study. (136) In
the study on urban men older than 40 from Subang, the prevalence of a self-reported ‘prostate problem’ in 2003 was 11.4%. However, the prevalence of LUTS in the same study, as defined by the International Prostate Symptoms Score (IPSS) scale of >8, was 29.0%. (99, 135) In 2006, the Penang study, which included both urban and rural respondents from the same age group, revealed that the prevalence of LUTS with the same definition was 6.2%. Two other community studies that used convenience sampling methods documented prevalence of 34% (137) and 58.5% (115). The higher of these two rates is most likely an over-estimation as they recruited men above the age of 50, compared to 40 in the two former community surveys. In an attempt to assess public awareness of benign prostate hypertrophy, Zainal et al. (22) recruited 200 men aged 40 years and above, who were admitted to a district hospital in 2005 in order to assess their level of awareness. Despite 76% of the men being symptomatic for LUTS, 90% of the respondents were unaware of their condition. (22)

Prostatitis was another prostate disorder in which the epidemiology of the disease was studied. In a survey of randomly selected men aged 20-50 years from Penang, the prevalence of chronic prostatitis was 8.7%. (138) Prostatitis was believed to be under-diagnosed as less than 1% of the men treated in primary care settings in the same location were diagnosed with chronic prostatitis. (139)

2.5.2.7 Male sexual health

The Global Study of Sexual Attitudes and Behaviours, (140) which surveyed men aged 40 years and above, showed that 91.1% of Malaysian men had been sexually active within the last 12 months. Erectile dysfunction (ED) is the most commonly studied male sexual health condition in Malaysia. A total of five large-scale community surveys on the epidemiology of ED were identified. One of the studies was part of a multi-national study on sexual health. (140) The reported prevalence of erectile dysfunction ranged from 17.2% (140) to 53.6% (99, 136, 141, 142). The lowest
prevalence rate was reported by Nicolosi et al. (141) in a multi-national study. However, that study had a low response rate of 16% in Malaysia. The findings from the other three local studies were more consistent and showed that the prevalence of moderate to severe ED, which was defined as an IIEF-5 (International Index of Erectile Function-5) score less than 17, ranged from 37.3% to 53.6% (99, 136, 142). The prevalence of ED increased with age. In the 40-49-year age group, the prevalence was 4.8%, followed by 22.2%, 40.3%, 79.5% in the 50-59, 60-69 and ≥70-year age groups, respectively (136). There was no association between ED and ethnicity (Malay, Chinese, Indian) (99, 142). However, there were significant associations between ED and obesity (99, 136), smoking (136), diabetes (136, 142), hypertension (136, 142), and depression (99). Despite the high prevalence of ED, it was often not self-reported. A community survey involving 1046 men aged 40 and above in an urban area found that only 21% of men self-reported ED, despite 65.5% of them having been noted to have some form of ED from a more objective assessment using an IIEF-5 questionnaire (28).

Premature ejaculation (PE) is another male sexual health condition that has been studied (142). In a study by Quek et al. on PE that involved men older than 20 years in an urban setting, the prevalence was 22.3%. The study used a self-reported intravaginal ejaculation latency time (IELT) of ≤2 min as the definition of PE. Its prevalence was found to be the highest (17%) among men aged 20-29 years, followed by 13%, 9%, 1% and 0% for the 30-39, 40-49, 50-59 and ≥60-year age groups, respectively (142). A more recent study using a questionnaire (Premature Ejaculation Diagnostic Tool) in a primary outpatient setting noted a prevalence of 40.6% (106).
In summary, the status of men’s health compared to women’s health in Malaysia is similar to the pattern observed worldwide. The main causes of death in men are non-communicable diseases. The prevalence of modifiable risk factors contributing to the cause of death is high. The main causes of death are cardiovascular disease and injuries (including traffic accidents). These disorders and their associated risk factors are preventable or amenable to early interventions. Risk factors, such as smoking, hypertension, hypercholesterolaemia, diabetes and risk-taking behaviour, can be managed using effective interventions (for example, death from injuries could be reduced with modifications of risk-taking behaviour). Cancer-related death is also becoming a major health problem among Malaysian men, with an increasing incidence of colorectal, lung, laryngeal and prostate cancers. Many of these risk factors and cancer incidences are increasing at an alarming rate. (12) Male urological conditions and sexual health problems are also prevalent. What is more worrisome is that many of these risk factors or disorders such as hypertension, diabetes, IGT, hypercholesterolaemia, LUTS, and ED are under-detected. Even though there is no objective evidence of under detection of PE, the formal diagnosis rate of PE in the clinics is far from the prevalence noted in the survey. Although women have a higher self-reported prevalence of mental disorders compared to men, men have higher death rates due to suicide. This suggests that men may not recognise or report their mental problems but rather may allow their illness to progress before seeking help, although men also tend to use more lethal means than women. The shorter life expectancy and the high prevalence of modifiable health risks among men will continue to be important health issues as long as they remain undetected or under-reported. These problems will escalate as Malaysia develops due to increasingly sedentary lifestyles and a rapidly aging population. (143) Therefore, preventive measures and early diagnosis of the issues faced by men are needed both from public health and primary care perspectives.
2.6 Reasons for men's poor health: a global and Malaysian perspective

The differences in mortality and health status between men and women have prompted studies to identify the causes of these differences. Since most of the data establishing these differences are from epidemiological studies which compared biological sex factors, it would be logical to begin looking at biological explanations. (144) Certainly, the sex hormone oestrogen and the genetic make-up of 46+XX may confer some protection to women's health. (82, 144, 145) However, there are many pointers in the evidence that the underlying causes could be more than just biological sex differences. For example, although the life-expectancy of men is generally shorter than women, the magnitude of these differences varies significantly from country to country. (80, 120) This can be clearly demonstrated from the data above where men from countries with higher socioeconomic status have longer life expectancies than those from countries with lower socioeconomic status. The plausible explanation for this variation would be environmental differences between these countries. (43, 80) These environmental differences are not limited to built surroundings but also the sociocultural norms. Also, the main risk factors of the common causes of death among men such as cardiovascular diseases, lung cancers, COPD, accidents and injuries are lifestyle and behaviour related, which are non-sex specific, such as smoking, alcohol, high risk occupations and high risk behaviours. (68, 82) These causes of death are environmental in origin. Hence, many reviewers have agreed on the complex interactions between biological factors and the psychosocial characteristics of men underpinning men's poor health status. (37, 40, 43, 44, 82, 144, 146-149) In fact, biological factors contribute minimally to the differences in mortality and morbidity patterns in male and female health. (40)

The relationship between the psychosocial characteristics of men and men's poor health status has been reviewed and studied. The psychology of men relating to health, which includes men's masculine behaviour and poor engagement with health services, has been implicated in their poor health status. (37, 82, 150) The social determinants of health, which include the gender relations between men and women and the adverse social conditions surrounding the life of men, have also
been suggested to have adverse effects on men’s health. (40, 42, 44) These two sets of factors are often inseparable and exert influence on each other. (37, 43) A third factor, the delivery of health services, has also been suggested to play an important role in contributing to men’s poor health status. (40, 48, 50) Indeed, health service delivery is one of the components in the social structure of our life. Each of these factors will be reviewed below.

2.6.1 Men’s health-seeking behaviour

Men’s health-seeking behaviour is greatly influenced by the society and culture surrounding them. (37, 42, 43) As argued by Courtenay, society shapes how men conceptualise health and hence their health-seeking behaviors. Men adopt a set of masculine health behaviors, such as being stoic, tough and able to take care of themselves, in order to demonstrate their manliness in the society because society expects this of men. In so doing, men also contribute to the construction of the masculine image in society. (37) The image of manliness in society is reflected through engaging in risk taking behaviour, (151) violence, (39, 151) poor health promotional behaviour (40, 151) and poor health care utilisation. (38, 150, 152-154) Men with illnesses and psychological ailments are considered weak. Hence, men try hard to portray a healthy and strong image. (37) Men will only engage in health promotion within the boundaries accepted by society. (155) For example, a physically challenged man was noted to take care of his health earnestly because, to him, being health-conscious was expected of him in his society. (156)

Delay in seeking help is one of the undesired health behaviours in men which has a socio-cultural influence. Seeking help for health issues is within the boundaries of health-seeking. Seeking help occurs when there are unmet needs. Men engaging with health services (including preventive services) are a reflection of their help-seeking. This differs to the wider concept of health seeking where men take initiatives to keep healthy by various means including adopting healthy life-styles and appropriate engagement with health services. Data in the past has shown that men consulted health services mainly for physical symptoms as
opposed to psychosocial complaints (150, 152) and had fewer visits for health preventive and educational services compared to women (40, 153). However, the rates of hospitalisation, excluding child birth related admission, were the same for men and women (154) and in some instances were even higher among men than women (157). This evidence apparently pointed to men being ‘serious users’ of health services and that they probably delayed seeking help (79). The reasons for such delay have been attributed to men’s socialisation to be independent and to conceal vulnerability (150, 158). Men’s delay in help-seeking, when they encounter chest pain for example, was also noted to be a result of them rationalising chest pain to other trivial causes and their poor preparedness for the illness role (159). Men were also noted to overestimate their subjective health despite the contrary evidence of clinical measurements (160). These characteristics of invulnerability, delay in help-seeking and denial of serious illness were related to the traditional hegemonic model of masculinity.

The socially constructed hegemonic model of masculinity, which stated that men are expected to be strong, unemotional, physically competent, aggressive and competitive, were thought to have compromised men’s health (43).

However, a review of men and their health help-seeking behaviour by Galdas et al. noted conflicting findings regarding men’s help-seeking behaviour. Although many studies reported that men seek help less frequently than women do when they experience illness, the findings are not consistent in some other studies (150). Galdas et al. attributed the difference in help-seeking behaviour to the differences in socioeconomic status of men rather than the mere gender difference. Hence, men are not a homogenous group. The traditional concept of the hegemonic model of masculinity as an underlying cause of men’s poor help-seeking behaviour is too simplistic (150). Furthermore, another meta-analysis comparing the consultation rates between men and women for headache and back pain showed that the association between gender and consultation was weak (161). Lee et al.’s review provided similar evidence that men were not necessarily poor users of health.
services. Several studies in Scotland revealed that men were as likely to report their symptoms to health care workers as women. (43, 162, 163) Lee et al. argued that these discrepancies in the evidence could be explained by socio-cultural influence rather than just a set of men’s stereotypical behaviours. (43) Health-seeking behaviour is a result of the interaction between men and society. Although men have an active role in determining their health-seeking behaviour, this behaviour is also shaped by the male gender role expected from society. (37) The expected gender roles, or so-called masculine traits, differed from one society to another. (71) These differences argue for different masculinities rather than a single stereotypical masculinity. (71) These multiple masculinities contribute to the different patterns of health-seeking behaviour noted in different cultures and societies both between men and women, and within different groups of men. (33, 42) Men with symptoms, a family history of illness, disabilities and gay men often make the justification to engage in health care. (33, 156, 164) More recent evidence studying men’s help-seeking behaviour has supported the view that men do care about their health, but that they need to find good reasons and a context to act within the accepted concept of masculinity among their peers (35, 156, 165, 166) and culture. (167, 168) These influences are likely to shape men’s attitudes and beliefs towards health. Positive attitudes and beliefs towards health are consistently shown to predict their engagement in health promotional activities like health check-ups (169, 170), prostate cancer screening (171) and engagement in health programs. (172) These views of multiple masculinities call for addressing men’s health-seeking behaviour in a wider context than just ‘men behaving badly’. (173) Furthermore, men’s help-seeking behaviour is a dynamic process that is not just different between men but also within an individual man depending on the context and situation. (38, 174, 175) It is a process of interaction between help seekers (men), help providers (health care providers), types of help (health problems) and situations where the issue of help arises. (38) It also depends on the stages of life, disease and treatment course. (174, 175) Therefore, men
exhibit different traits of masculinities, and hence different help-seeking behaviour depending on the contexts they find themselves in.

The concepts of multiple masculinities and their relation to health-seeking behaviour discussed so far are mainly derived from Western studies. Similar evidence from Asian countries (including Malaysia) is scant. Nevertheless, there have been some studies from Asian countries and cultures that support such claims while also exhibiting some differences in the concept of masculinities from the Western data. Similar to the Western data, studies involving Chinese and South Asian men in the United Kingdom demonstrated that men fear loss of control more than their health and it was unmanly to self-report psychosocial issues. Loss of control is a dominant feature in the model of hegemonic masculinity.

In Malaysia, a qualitative study investigating men’s views of health-seeking behaviour was conducted in 2006. It involved six focus groups from a total 52 urban male dweller aged over 40. Men in this study expressed the importance of health in their life and thought that they should take care of their health. One of the reasons for medical check-ups was just to keep healthy. However, their intention to attend medical services is often triggered by a strong message, which could be an experience of symptoms, deteriorating functions, perceived vulnerability to sickness from the illness episodes of significant others, or as instructed by rules and regulations such as for purposes of insurance and employment. These findings emphasised their interest in health and a heterogeneous set of health-seeking behaviours.

The Asian Men’s Attitudes To Life Events And Sexuality Study (Asian M.A.L.E.S) attempted to explore the correlations between masculinity traits and health behavior among Asian men with a survey method. It highlighted some differences. More than 10 000 men from China, Japan, Korea, Malaysia and Taiwan were asked about 13 attributes of masculine traits relating to social life and the manly image. First, the study demonstrated differences in the
perception of important masculine traits between countries. Having lots of money was seen as most important in China, but being seen as a man of honor, a family man, having a good job and being in control were seen as most important in Japan, Korea, Malaysia and Taiwan, respectively. (178) Second, men who placed importance on being a family man sought medical help more readily than those who did not. (179) The qualitative study from Malaysia described above also found that urban men placed a high importance on health and valued family responsibility, and that these had motivated them to stay healthy. (34) A study in the UK of Asian immigrants also demonstrated a significant difference in how cultural values have shaped the way men seek help for chest pain. (167) Men from South Asia were noted to place a high value on family responsibility, and hence they sought help for chest pain more readily than Westerners. Wisdom, education and responsibility for family and their own health were much valued masculine attributes, and these contributed to a greater willingness to seek medical help. (167) Placing family values above their own image is somewhat different from the findings of the Western data.

The evidence so far has revealed that men do have poor health-seeking behaviours including help-seeking behaviour, and that these contribute to men’s poor health. However, they do care about their health, (35, 155, 166) and their health behaviours are not simply the product of a fixed set of constructed masculine traits but are rather the product of multiple masculinities. (71) Health-seeking behaviours are one of the ways to demonstrate their multiple masculinities (156, 180, 181) and these depend on their socio-cultural values and the context surrounding them. (35, 38) This concept of multiple masculinities has implications for primary care service delivery; unsupportive or unconducive environments are likely to hinder men from seeking help and thus adversely affect the uptake of preventive health services and curative service.
2.6.2 Social determinants of men's health

To a large extent, socio-cultural beliefs and societal expectations of men's behaviour have influenced men's health-seeking behaviour as alluded to above. Besides exerting their effect on men's health-seeking behaviour, the social structure surrounding men also has a substantial impact on men's health. The World Health Organization has listed 10 social determinants of health (Figure 2.9), some of which are argued to be relevant to men such as poor socioeconomic status, stress, high risk occupations, unemployment and poor social support.(40, 44)

<table>
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<tr>
<th>Social determinants of health</th>
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<td>1. Social gradient</td>
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<td>2. Stress</td>
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<td>3. Health of early life</td>
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Figure 2.9 Ten social determinants of health

Supporting evidence can easily be drawn from comparing the health statistics across different countries published by the WHO. The mortality rates for all three categories of cause of death (communicable, non-communicable and injuries) among men aged 15-59 years in low and middle income countries were much higher than high income countries. The total men's mortality rate in 2004 was about 10/1,000 adults in Africa, 8/1,000 in Europe (excluding high income countries), 5/1,000 in the Eastern Mediterranean and South-East Asia, 4/1,000 in the Americas (excluding high income countries) and 3/1,000 in the Western Pacific. This compared to 2/1,000 in high income countries. (18) Similar patterns were seen with DALYS for adult men in these regions. (18)
Additional empirical evidence from high income countries such as Canada, Germany, the United Kingdom and the United States has also demonstrated the importance of social determinants to men’s health. A study by Denton et al. from Canada confirmed that social structure, which included family structure, socioeconomic status, main activity and social support, had a more adverse impact on men’s health than behavioural factors, such as smoking, alcohol and physical activity. Denton et al. used data from the 1994 Canadian National Health Survey involving more than 65,000 individuals to study the impact of psychosocial determinants on self-perceived health, employing the Health Utility Index as a measurement of overall health status. (183) Men having social support and living with family were associated with a better health status. (183) In another study by Kandler et al. from Germany using a prospective cohort design, living alone was shown to be an independent risk factor for overall cause and cardiovascular mortality in men but not women. In fact, the risk of dying was double in men living alone compared to men not living alone. (184) Similarly, in a review by Courtenay et al. from the USA, being an unmarried man was a risk factor for poorer health behaviours such as smoking, drinking alcohol, poor dietary habits, greater risk of sexually transmitted disease and engaging less with medical services. (39) Findings from a qualitative study in the United Kingdom also showed the negative impact of social factors. Increasing responsibility at work and in the family as men approached middle age resulted in men’s inability to adopt healthy lifestyles despite adequate knowledge about healthy lifestyles. (185)

Men are also exposed to occupational hazards. (182) High risk occupations such as mining, construction, timber cutting, law enforcement and firefighting are dominated by men. These contributed to a high injury-related mortality rate among men compared to women in all regions of the world. (18) By the same token, unemployment is associated with a greater negative impact on men than women. (39, 186) Mathers et al. demonstrated that higher mortality, incidences of mental health and higher morbidities were associated with
unemployment even after allowing for the effects of socioeconomic factors, health risk
factors and prior ill-health. This is a logical consequence, as men are traditionally the
family breadwinner and thus unemployment places tremendous stress upon them.

Although adverse social determinants have adverse impacts on the health of men and
women, certain social determinants have greater impact on men than women, such as living
alone, unmarried, unemployment and occupational hazard.

2.6.3 Men's health service delivery

As argued above, health service delivery is part of the social structure in our life. An optimal
health system, particularly primary care, improves people's health status. Likewise, the
quality of health services provided to men is reflected in the status of men's health. Experts
in men's health have called for reviews to determine whether present health care services
meet the needs of men. They noted that one of the reasons for men's poor
utilisation of health services is that the services are generally not orientated to the needs of
men. Among the 'man unfriendly' health services are:

1) General practices might not be accessible enough for working men. Most clinics operate within working hours, complicating their accessibility to working men,

2) the environment and staffing composition are more suited to women and children. With much of the health information related to maternal and child health, men would not feel welcomed in such environment,

3) men generally receive less consultation time and less discussion about health promotional activities than women, hence, many men's health promotional issues may not be discussed adequately,
4) there is greater communication between women and health care providers than between men and health care providers. (191) Hence, health concerns in men may not be attended to adequately.

5) formal health promotional activities are predominantly geared towards women’s health such as breast cancer screening, contraception services, maternal and child health services. (48) Health promotional activities closely related to men such as work stress, awareness of prostate disorders and male sexual health are seemingly not given similar attention.

6) the lack of a multidisciplinary approach to targeting social and male gender issues. (194) Services for male gender role issues such as fatherhood and domestic violence are scant. Hence, such supports when needed are often inaccessible to men.

7) men’s health services are stigmatised as services for men’s sexual health problems (50) and this may deter men from attending health services, and

8) inadequate medical coverage for disadvantaged men in the community. (67, 195) Men would then need to juggle between health care cost and expenses for his family. They may not make health care their priority if they cannot provide sufficiently for their family.

At the level of primary care clinics, a questionnaire survey in the state of New South Wales, Australia, by Monaem et al. revealed that a considerable proportion (79%) of services are not specifically designed for men or boys and that there was no differentiation between services for men and women. (196) About 80% of the surveyed primary care providers thought that men and boys were not utilising primary care services adequately due to the unfriendly services. (196) A recent qualitative inquiry from the United Kingdom, which investigated male general practitioners’ views about male patients’ help-seeking behaviour, noted that male general practitioners have ambivalent attitudes toward male patients. (77, 189) Although the
male doctors agreed that men should make use of health services better, they perceived
men who attended clinics frequently as less masculine. If men feel they are negatively judged
when they attend health services, they are unlikely to make the best use of health
services. (77) These findings confirmed an earlier qualitative study conducted in New Zealand
and published in 2009, which found that there was general unwillingness among primary
care doctors to engage with men’s health care in general practice. (189) The doctors felt that
some measures could be taken to improve men’s health status, but they were skeptical
about the benefit of such initiatives in the clinics. They also expressed negative stereotypes
about men and their health. (189)

From the patients’ perspective, interviews with men about their experience of using health
services found men faced numerous challenges and felt dissatisfied with the services
provided. (35, 189, 197) In the Australian study, the participants felt that their primary care
providers may not be equipped with sufficient skills to help them with their lifestyle
issues. (197) The UK study found that men complained about a lack of health screening
offered to them compared to women. (35) They also complained about the unfriendly
opening hours, high cost, complicated appointment system and promotion services, to the
extent that some felt as though they had been abandoned. (35) In yet another study, men in
New Zealand also felt that general practice focused more on women’s and children’s needs
than men’s needs. (189) Despite being from three different countries, these findings are
consistent.

In Malaysia, public health services for men are generally included under general outpatient
services, (60) making it less likely that the care will be tailored to the needs of men. Women
and children’s health has been a priority with special sections devoted to these services in
the premises of primary care centres. (60) In private settings, service deliveries are also
seldom streamlined to the needs of men. Therefore, many of the issues related to men’s
health in public and private settings, such as cardiovascular diseases, lifestyle risks, metabolic diseases and occupational health are addressed as general issues covering both women and men. These include cardiovascular risk factor screening programs, healthy lifestyles campaigns, workplace health promotion and so on. Even reproductive health is addressed under the Family Health Development Unit. As a result, there is no special section for male reproductive health or andrology besides those offered by tertiary referral centres. Men are involved in reproductive health services as a consequence of fertility problems in a couple rather than as a specific men’s sexual health need. Thus, health care for men is fragmented rather than holistic in nature.

From a Malaysian men’s perspective, the qualitative study described earlier asking 52 urban men about their health-seeking behaviour showed that they viewed medical check-ups as one of the measures to promote health. The main reason for not going for health checks was cost constraint. Other important hindrances were a lack of medical information, a paucity of guidelines, intimidating tests and unmet needs while seeing doctors. The Malaysian men expressed the wish for doctors to be more competent in listening to their concerns. Hence the study determined that the barriers to health check-ups were not the result of ignorance about health, but were rather due to the failings of current health services delivery.

On more sensitive issues such as sexual health, three studies among Malaysian men also demonstrated the unmet needs of men in relation to erectile dysfunction. Two surveys, one in a community setting and one from a public outpatient setting, demonstrated a high prevalence of erectile dysfunction among men, with a prevalence of 38.7% (among age >50) and 36.4% (age >40). Among men with erectile dysfunction, only 14% and 10% of the men in each study respectively reported sexual health issues being raised by the doctors during their last consultation. Despite this, a majority of them (53.2%) were
comfortable discussing sexual health if the doctors were to raise the issue. The in-depth understanding of the issue provided by a qualitative approach indicates that, besides social-cultural influences, a majority of men were unaware of where and who to seek help from despite their opportunity to consult doctors. (199)

The findings from Malaysia generally conformed to the findings in other parts of the world that while men value the importance of health, adopting positive health behaviours and seeking health check-ups appears challenging.

Although direct evidence linking poor men’s health service delivery to poor men’s health status is scarce, this link is likely to exist, due to the number of commentaries and published studies involving the perceptions of health care providers and laymen that point in this direction.

Figure 2.10 complex interplay between factors resulting in poor men’s health status

In summary, the evidence to date has revealed the underlying reasons for men’s poor health status with some degree of certainty. The reasons are the complex interplay between multiple factors (Figure 2.10). These factors include: poor health-seeking behaviour, societal concepts of multiple...
masculinities, adverse social contexts surrounding men, and men-unfriendly health services. These factors jointly explain a significant proportion of poor men’s health; a far greater proportion than biological factors alone can explain. It is believed that social structures and functions (including health services), which operate through the social construct of masculinities, contribute significantly to men’s poor health-seeking behaviours. This interplay is dynamic and health-seeking behaviours change even within an individual depending on the context and life cycle they are in. (175) Men play both an active role by maintaining and constructing these sets of health behaviours, and a passive role by conforming to the expectation of society. (37) On one hand, they are interested in health, on the other they are noted to under-utilise health services. Most men do care about their health, (136, 200) but find taking care of their health a struggle. (50) Often to men, their resulting health behaviour involves a rational consideration of all these factors. Thus, men are not entirely to blame for their poor health-seeking behaviour. (50, 173, 201)
2.7 Strategies to improve the health status of men

Having indentified the probable underpinnings of men’s poor health, it has been suggested that strategies to improve the status of men’s health should then adopt both a gender streamlined (29, 36, 194) and multidisciplinary approach. Gender streamlining is an approach where specific measures are taken relating to men’s needs. (36, 194) This approach should provide a safe social environment for men to deliver their social roles and responsibilities, acknowledge men’s desire to conform to a set of masculinities, and provide a health system that encourages men to engage in health care. A multidisciplinary approach means drawing upon the expertise and resources across all disciplines related to men’s health, such as relevant governmental organisations, social workers, educationalists, psychologists, public health, allied health, specialist care and general practice. (148, 202) Such a multidisciplinary approach to improving men’s health requires political will (12, 175, 203) and community involvement. (204) To operationalise these principles, the strategy has to involve both interventions targeting men and interventions to optimise health care delivery for men. (15)

2.7.1 Interventions targeting men

Theoretically, targeting the underpinnings of men’s health issues, i.e. implementing programs acknowledging multiple masculinities and supporting the social needs of men, should result in the positive engagement of men in health and an improvement in men’s health status. There have been numerous reports of positive responses to community intervention programs, especially in the United Kingdom, (202, 203, 205-207) Ireland, (208) Australia, (70, 202, 209, 210) and many more. (195, 203, 211, 212) The MOT (206), Men’s Sheds, (213) Men’s Education Group Appointment (MEGA) (214) and PIT-STOP (209) are a few examples. However, many of these programs have not been subjected to a formal evaluation (either by clinical trial or quasi-experiment) of their impact on men’s health. (47, 207) A recent systematic review of studies between 1990 and 2006 on health intervention targeting men (excluding sexual health) by Robertson et al. in 2008 identified only 27 studies with...
some form of formal evaluation. (215) The majority (17 out of 27) of the studies involved prostate and testicular cancer screening, with other studies concentrating on specific medical conditions such as smoking, cardiovascular risks, diet and physical activities and skin cancer screening. The review showed that most studies reported some positive effects of intervention, but that most of the studies related to male-specific diseases rather than studies specifically designed with the male gender in mind. Hence, the evidence was insufficient to conclude that male gender streamlined care is better than care for all people regardless of gender.(215) However, Robertson et al. acknowledged the potential difficulty in demonstrating the effectiveness of an intervention because of heterogeneity in men’s health-seeking behaviour.(215) Hence, a more complex intervention with multiple intervention strategies may be needed to demonstrate a substantial impact on men’s health.(47) Furthermore, health promotion programs targeting men require a prolonged engagement with the community before any significant impact on morbidity and mortality rates can be observed through changes in health statistics.

Although there are limited numbers of formal intervention studies on men’s health, it does not follow that the proposed gender streamlined approach should be halted. For some of the interventions, such as advocating changes through social policy and educational programs targeting boys and young men, evaluation through clinical trial or experimental design(47) may be inappropriate due to the complex multifactorial nature of the reasons underlying poor men’s health. Currently, potentially effective strategies are best based upon our understanding of men’s health-seeking behaviour. The suggested multidisciplinary approaches are many, and include the following:

1. Empowering men and boys with personal skills to deal with life issues such as fatherhood and to become smart consumers of health services(29, 31, 204)

2. Advocating a holistic approach to men’s health care to dispel the myth equating men’s health with sexual health. Sexual health should not be seen as merely fulfilling sexual
performance, but rather as an “integration of the somatic, emotional, intellectual and social aspect of sexual wellbeing”. (216) It should be part of cardiovascular and psychosocial health. Men’s health care needs to be repackaged into holistic health care, rather than a disease-based entity (15)

3. Outreaching health promotion programs to locations where men and/or boys congregate(29, 31, 48)

4. Emphasising social justice in community health programs(204)

5. Employing social marketing strategies to create awareness(74)

6. Correcting public and private healthcare professionals’ myths about stereotypical men(29, 31)

7. Addressing unfavorable male social circumstances through men’s health policies and improved working conditions(44)

The greatest challenge to successful interventions targeting men is the diverse social expectations and cultural pressure on men’s health (and help) seeking behavior.(203)

Multiple strategies, as outlined above, tailored to the different needs of different groups of men would be the optimal approach.(175) While direct evidence from experimental designs may not be the best way to identify the optimum strategies in addressing men’s health, ongoing evaluation of men’s health programs as they are implemented is likely to provide the answer.

2.7.2 Optimising health care delivery for men

Having understood that health care delivery is one of the reasons for men not engaging in health care, re-organising health care delivery for men seems to be an appropriate step. This is as important as interventions targeting laymen because eventually contacts between men and health care need to be established. These contacts should be tailored to their needs and made man-friendly. As noted above, men rarely make contact with health care providers until it is perceived as absolutely necessary. Giving men a good experience in these interactions will keep them engaged in health care. Any one of these contacts should be seen
as an opportunity for health promotion, health risk identification and effective early intervention. Therefore, besides making health care services appealing to men, we should seize any possible opportunity for health promotion in every contact with men in health care settings.

Broadly, health care delivery to men can occur at the primary, secondary or tertiary levels. The primary care approach concerns health promotional and curative roles, whereas secondary or tertiary care involves curative and management of men’s illnesses that require specialist input. Treatment and management of illnesses concerning men have advanced so much that mortality and morbidity related to these illnesses can be improved. For example, the effective management of cardiovascular disease, which is the main cause of death in men, has considerably reduced cardiovascular mortality rates, at least in developed countries. (217)

Effective smoking cessation strategies are available, as well as advances in the management of erectile dysfunction, (218, 219) testosterone deficiency syndrome (220) and premature ejaculation (107) to improve men’s quality of life. The challenge for health care providers is to engage men in the provision of these services. There are two strategies specific to this challenge: 1) adopting effective strategies to engage men, and 2) advocating opportunistic health promotion in primary care settings. These strategies will be examined in turn.

2.7.2.1 Adopting effective strategies to engage men

In principle, at the point of contact with men, we need to work on strategies to engage men in health care effectively and in a smart partnership venture. As stated above, such strategies are possible by developing a man-friendly environment and discarding the attitude of blaming men for their poor help-seeking behavior. (50, 173, 201) We should acknowledge the tight schedule of working men and consider having a special appointment system for men or extend clinic opening times after office hours. (46, 47) We could also provide relevant information on men’s health in waiting areas, (46, 47) rather than the current predominance of maternal and child
health information. Privacy in the clinic, which is a major issue in guarding the
manly image, should include not only confidentiality of health information but also
include privacy of obtaining health information in the waiting room. (15) The
communication techniques used while dealing with male patients in the clinic
should not be judgmental, (47) and the traditional paternalistic approach of advising
what is best should be avoided. (15) Taking up such health advice is often seen by
men as giving up control of their body. Instead, men should be empowered to work
out the best option for them and should be made to feel in control. (15, 46) Men
value a frank approach, demonstrable competence, thoughtful use of humour,
empathy and the prompt resolution of health issues when communicating with
doctors. (49) Most of the strategies presented are part of sound professionalism in
clinical practice. The additional strategies are mainly to improve doctors’
competency in addressing men’s health issues, (30, 31, 46) and to acknowledge and
accommodate men’s specific needs, such as the way they make decisions, acquire
health information, prioritise life issues and utilise time efficiently.

Putting these principles aside, similar to the evidence on interventions targeting
men, the evidence for the effectiveness of these strategies aimed at optimising
health care delivery is scarce. In the review by Robertson et al. (described above),
only two out of the 27 studies targeted health care providers. Both were
randomised control trials at primary care settings. (215) The first study, by Holland
et al., focused on providing reminders for male patients and health care providers
on health check-ups. (221) The authors claimed a significant improvement to 20.6%
in the uptake of overall preventive service visits, with 25.9% for cholesterol testing
and 32.2% for any of the screening tests (colorectal cancer, prostate cancer,
cholesterol or general health visits) compared to control. However, no screening
rates for the control group were stated. (221) The screening rates in the
intervention group were rather moderate. The second study, by Hammond et al.,
focused on educational intervention aimed at both men and their primary care
physicians about prostate-related conditions. The results did not show any
significant impact of intervention on prostate-related care. (222) Both studies
assumed a knowledge deficient model about health screening and prostate cancer.
Strictly speaking, they did not target the underpinnings of men’s poor help-seeking
behaviour. From the current understanding of men’s poor health, knowledge
deficiency is not the key reason for their poor health status.

Further research into the post-2006 literature found a small non-randomised
control, pre-post observational study, which enrolled 91 men. Harding et al.
showed that using a short checklist distributed to men in clinic waiting rooms
resulted in 63% of the participants returning to discuss health risk assessment. (211)
Harding et al. attempted to inform the male patients in the study about the
potential health assessments offered in the clinic. This might have triggered some
men who held an interest in health assessment to return for it.

The lack of direct evidence for effective intervention by health care providers
should not deter recommendations to improve the practice of men’s health care.
Nevertheless, the recommendations need to be based on the principles and
understanding of men’s health issues. Many expert primary care authors have
already done so in the medical literature as outlined above. (30, 31, 46) It would be
ideal if direct evidence was available, so as to make the justification for the
interventions stronger.
2.7.2.2 Advocating opportunistic health promotion in primary care

Improving men’s health is a concern of all disciplines of health care provision, especially primary care. Traditionally, andrology and urology services were directly related to men’s health as men’s health was closely linked to sexual and urological disorders. However, men’s health is best dealt with in a holistic manner by primary care doctors who are able to assess the full context of each male patient’s health risks and problems. The primary care doctors have a ‘global’ perspective of the patient’s health issues, (1, 3, 223) and can then engage specialists from other disciplines as required for expert advice and management. Furthermore, primary care is the entry point for the lay public to health care and also has the most contact with the public (including men) compared to other specialties. (73) Primary carers, as generalists, are also in a unique position to offer health promotion services and address health-seeking behaviour besides addressing acute and ongoing illnesses. (224) It is in the primary care setting where health risks can be opportunistically identified and treated early. A visit specifically for health promotional activities is also part of the agenda in many primary care consultations.

Extending from this principle of opportunistic assessment to men’s health, health risk assessment, such as assessing smoking status, nutrition, alcohol and sedentary lifestyle, the ‘SNAP’ risk factors (6), is not the only potential. It should also include the following three assessments: (1)

1. case finding of asymptomatic diseases such as hypertension, diabetes, hypercholesterolaemia, colon cancer, prostate cancer in at-risk male patients,
2. case finding of symptomatic diseases that are under-reported by patients such as erectile dysfunction and lower urinary tract symptoms, and
3. assessment of psycho-social well-being, which is often not proactively reported by men.
These assessments, which constitute health check-ups, are in keeping with the need for holistic care, health risk detection and early intervention to improve men's health status. Hence proactive health check-ups should be considered essential alongside treatment of men's illnesses. Primary care also provides for long-term follow-up and ensures continuity of care. This allows rapport to develop over time, enables counseling on various lifestyle-related problems and makes health care a joint venture with male patients.

Thus, health check-ups in primary care settings offer great potential in improving men's health status. However, there is a concern as to whether primary care is ready to deal with men's health issues due to a lack of training. Monaem et al. showed that only 31.4% of primary care doctors felt that they had 80-100% dealt successfully with the concerns expressed by boys or men. Besides the possibility of incompetency, this may be due to the uncertainty about what men's health actually means to primary care doctors as highlighted in section 2.3.

In an attempt to address the seemingly inadequate exposure of doctors to men's health, several authors have provided guides to the appropriate practice of men's health service in primary care settings. These recommendations are based on sound evidence from epidemiological data, general preventive health care, barriers to men's health practice, understanding of men's health-seeking behavior, or adapted from the evidence on adolescent health care such as using the 'HEADSS SNAP' template (H-home; E-Education; A-Activities; D-Depression; S-Safety; S-Sexuality; S-Smoking; N-Nutrition; A-Alcohol; P-Physical activity). Consistent with the principal roles of primary care, these authors also advocate proactive men's health risk assessments and check-ups in areas that
impact on the mortality and morbidity of men. (31, 46) Besides these recommendations, there were also other evidence-based preventive guidelines on diseases relevant to male patients long before the discipline of men’s health took off the ground. (6, 227, 228) All these recommendations and guidelines address what should be done in primary settings with regard to health promotion for men. Besides written guidelines and recommendation, the Royal Australian College of General Practice has gone a step further by establishing a curriculum to teach primary care doctors about men’s health in 2007. (229) All these measures are aimed at making the role of primary care in men’s health clearer and thus improving men’s health service delivery.

In summary, to improve men’s health status, many strategies targeting both men and health care providers are recommended based on the current understanding of the reasons underpinning men’s poor health status. Many successful community intervention programs targeting men have been reported, but the effectiveness of these programs in terms of health outcomes is not yet apparent. There are also guidelines and recommendations for health care providers to engage men in health care and to promote preventive health care to them. One of the key areas is preventive health check-ups in order to identify health risk factors and early stage illnesses for early intervention.

Theoretically, preventive health check-ups for men are best delivered through opportunistic strategies with a gender-streamlined approach in primary care settings. However, improving preventive men’s health check-ups following these guidelines and recommendation may pose many obstacles for primary care doctors. These obstacles need to be explored. This issue will be discussed next.
2.8 Challenges in promoting men's health check-ups in primary care settings

Promoting preventive health care for men in primary care settings is a complex issue. There have been various recommendations and continuous education programs mainly aimed at improving doctors' competency in the delivery of preventive health care. However, in a health care setting, primary care doctors are part of a larger health care system. Primary care doctors' practice with regards to preventive health care varies in different contexts of consultation for various reasons such as the competing interests of doctors and patients, the organisational structure and external barriers. In men's health check-ups, there are three major concerns.

First, even general preventive care or health check-ups are insufficiently delivered by health care providers for various reasons. Second, changing health care providers' behaviour is challenging. Third, men's health check-ups involve issues beyond mere 'check-ups'. As alluded to in the earlier argument, doctors are part of the society in which masculinities are defined. Preconceptions about men's poor health-seeking behaviour among doctors cannot therefore be avoided. These preconceptions may influence doctors' personal judgment about men's health check-ups. Thus, improving men's health check-ups in primary care clinics needs to consider issues beyond the competency of doctors. The challenge is to engage primary care doctors in addressing men's health issues. The following sections elaborate further on these three issues.

2.8.1 Low rate of general preventive health service delivery and its reasons

Many studies had demonstrated that the delivery of health promotion and preventive services were suboptimal. Guidelines for preventive care in Canada were introduced in the 1980s and were closely followed by the US Preventive Service Task Force guidelines. These guidelines have been well received by many countries outside North America. Studies during the early 1990s in Canada and the United States consistently showed poor adherence to these guidelines.
Although the principle of preventive practice in general practice settings is noble, and primary care doctors see the importance of preventive care, they confront many challenges in practicing it (240, 241). The challenges of implementing general preventive services cover a wide range of factors including patient, doctor and system-related factors. Among the prominent patient-related factors are patient refusal and disinterest in screening. The rates of patient refusal or disinterest in screening ranged from 25% to 85% in Canada (237), Europe (241) and Saudi Arabia (242). In a survey of 480 Canadian doctors in 1996, up to 85% of them thought that patients were not receptive to preventive care (237). In a 2005 survey covering 11 European countries and involving 2082 primary care doctors, the doctors reported that 25% of their patients thought preventive service was ineffective (241). In a 2007 survey of 164 randomly selected primary care doctors in Saudi Arabia, lack of patient interest was likewise reported as the main obstacle to preventive intervention by 76% of the doctors (242).

Doctor related factors include lack of competence and training. In the large European survey, around 20% of the general practitioners attributed the obstacle to lack of training (241). Similar findings were noted from Saudi Arabia (242). Forgetfulness (237), unclear responsibility (241) and logistic difficulty in implementing guidelines (237, 241) were among other important obstacles identified. By contrast, the doctors’ attitudes toward preventive care were not noted to be a major issue. The survey among 128 primary care doctors from the United States noted that while doctors had a high regard for preventive care, this did not necessarily translate into effective delivery of preventive care (240). The European survey also showed similar results relating to the perceived importance of preventive care but the difficulty faced in implementing it. These observations of positive attitudes toward preventive service simultaneous with doubts about its feasibility are reinforced by other evidence demonstrating no or weak correlation between attitude and actual delivery of preventive services (240, 243).
System related factors include time constraints, having other health priorities and heavy workloads.\(^{(237, 241, 242)}\) The European survey strongly manifested the issues of heavy workload and lack of time for preventive care service in primary care settings.\(^{(241)}\) Around two thirds of participants in the study agreed that heavy workload and lack of time were the main barriers. It is interesting to note that the estimated time required for the optimal implementation of preventive activities recommended by the US Preventive Service Task Force was 7.4 hours per working day,\(^{(244)}\) which is difficult to achieve in a primary care consultation. Poor financial reward for preventive care services was also cited as a major obstacle.\(^{(241, 245)}\)

There has also been an attempt to study the issue of poor preventive health service delivery using qualitative approaches in order to gain an in-depth understanding of the challenges doctors face. These studies also identified patient related challenges such as a lack of motivation and unjustified expectation from patients.\(^{(246-248)}\) The doctor related challenges were reported as being the lack of a clear role,\(^{(249)}\) motivation and competency in preventive care.\(^{(247, 248, 250)}\) Primary care doctors were unclear about their responsibility in preventive health care and unsure of the concepts of health promotion in the primary care setting.\(^{(249)}\) The organisational system related challenges were lack of time, poor remuneration for doctors,\(^{(245, 246, 248)}\) and the validity of guidelines.\(^{(246-249)}\) Guidelines were found to be contradictory in some of the recommendations.\(^{(246)}\) Hudon et al. argued that the lack of motivation among patients discouraged doctors from offering preventive services as it was seen as a worthless investment.\(^{(246)}\)

Besides the descriptive quantitative and qualitative data, a study using multivariate analysis of the responses of 417 randomly selected doctors in Finland demonstrated the strong effect of organisational values and network opportunity on the degree of engagement in health preventive practices. Highly competent personnel in an organisation were also
independently associated with a high degree of engagement in health preventive practices. (251) These findings emphasised the importance of a supportive environment for doctors to deliver preventive care.

In Malaysia, preventive health care is sub-optimally carried out. In 1991, a retrospective chart review of public clinic encounters revealed that there was an attempt to measure blood pressure in only 13% of outpatient encounters. (252) In 1992, the practice of preventive service delivery was studied in five selected areas, using a rating scale performed by simulated patients visiting 322 outpatient settings. The selected areas were smoking cessation advice in chronic cough patients, weight reduction counseling in obese patients, immunisation advice in children with diarrhoea, dietary advice in diabetic patients, and screening anaemia in pregnant mothers. This was then followed by a questionnaire survey of a subsample of 100 doctors who were then asked to rate the importance of the preventive activities in the five selected areas. The results were similar to findings in other countries. While doctors gave high ratings to the importance of preventive activities, health advice was only given in 49% of instances. (253) Lack of time, high workload, lack of educational material, and lack of interest on the part of patients were cited as the main constraints both by the public and private sector doctors. (253) In a more recent audit carried out among nine private primary care clinics in Malaysia, where the audit target rate of cardiovascular risk assessment among outpatient attendees was set at 70%, the audit targets for four main cardiovascular risk factors (weight, smoking status, blood glucose and serum lipid profile) were achieved in less than 50% of acute problem visits and in 46% to 81% of chronic problem visits. (254)

It is interesting to note that the results were consistent despite the differences in the questionnaires used in the quantitative studies (237, 240-242, 245, 252-254) and the differences in the methodological approach in the qualitative studies. (246-248, 255) Moreover, these studies were from different countries: the United States, (240, 248)
Canada,(237, 245-247) New Zealand,(249) Europe,(241) Saudi Arabia(242) and
Malaysia.(252-254)

Therefore, the evidence so far indicates that while primary care doctors are supportive in
providing preventive services in primary care settings, their good intentions are
compromised by numerous obstacles to the successful delivery of preventive services. These
result in poor rates of preventive service delivery, of which health check-ups constitute a
major component. The identified obstacles emphasise the importance of having an effective
system design for health preventive practices. Other major obstacles include patient
unwillingness to be involved in preventive activities, time constraints in discussing preventive
services, and lack of supports (organisational, rewards, educational material) and skills for
primary care doctors. Although acknowledging the obstacles to practicing preventive care
has endorsed the notion of moving beyond a knowledge deficit model, all of the above
studies have treated obstacles and barriers as discrete entities. The interactions between
these barriers (factors), which are highly possible, are often not explored even in the
qualitative studies. The practice behaviours of doctors are influenced by many factors as
illustrated. The resulting practice behaviours in an individual doctor are not simply a
probabilistic summation of all the factors, but an interactive process between these factors.
The doctor considers these factors during a process of decision making for every individual
patient. It is argued that the understanding of this decision-making process offers better
strategies in attempting to address the barriers and improve preventive health care
delivery.(256) In the literature, gender comparison in assessing the rate of health check-ups
is often not made. As a result, the reasons for the low rates of preventive health care
delivery for men are also unlikely to be being explored.
2.8.2 Changing health care providers' behaviour

Changing health care providers’ practices is challenging. There has been voluminous evidence on such interventions not related to men’s health issues. (231, 257-260) An overview of systematic reviews in 2001 had already identified 41 reviews from 1966 to 1998 on changing providers’ behaviour. (231) A classification system for these interventions was then developed by the Cochrane Effective Practice and Organisation of Care (EPOC) to facilitate reviews of the intervention strategies. (231, 260) The strategies are classified as follow:

1. Educational materials
2. Conferences
3. Local consensus process
4. Educational outreach visits
5. Local opinion leaders
6. Patient-mediated interventions
7. Audit and feedback
8. Reminders
9. Marketing

These intervention strategies often have modest positive effects. Strategies that have demonstrated effectiveness, more so if in combination, include: (231, 257, 258, 260-262)

1. Analysis of need followed by implementation which include audit and feedback
2. Guidelines that undertook local context
3. Various forms of reminders
4. Social influence strategies
5. System-orientated strategies

Passive dissemination of information is unlikely to result in desired change in clinical practice. Single strategy approach often produces no or modest effect. (231) Audit and feedback
related intervention are at best only having a modest effect. Multifaceted interventions are generally more effective compared to single intervention strategies because they are able to address multiple factors determining the practice behaviours of doctors. (231) In addition, tailored approaches, which not only address multiple factors but allowed flexibility of intervention suited to the needs of provider, might be more effective (257).

In the areas of preventive health care service deliveries, the Canadian studies and the Put Prevention into Practice (PPIP) program from Texas had employed multifaceted interventions program. The Canadian studies that employed this approach with tailored multifaceted intervention resulted in significant improvement in overall index of prevention. (263) The intervention included active involvement of clinic staffs in deciding the optimal strategies. A detailed study on the process involved noted that the most effective process was the combination of audit, feedback, consensus on action plan and reminder to health care providers. (264) Physicians in these studies had shown high degree of satisfaction with this intervention and continue to have positive perception after 17 months into the trial. (264) Whereas, another multifaceted intervention studies on preventive care in US, the PPIP program, documented mixed outcomes. (265-267) Positive outcomes in residency program were associated with presence of technical supports that facilitated implementation of program. Clinics that did not receive technical supports showed no sustainable effort in implementing PPIP. (265, 268) compared to clinics which had technical support and research funding. (269) Furthermore, an understanding of how the recipient clinic functions was thought to be important in order to have successful integration of the preventive program. (267) Those institutions that had successful adoption of the program (as measured by LoIn scale) (270) often showed high institution strength, where the institutions had stable organizational structure in supporting and adopting the programs. Success was also seen if there were good integration of the program into their existing routines (271), strong effort in promoting the program in the clinics and presence of a program champion in mid- to upper-
Practices that did not see the benefit of PPIP program did not benefit from it. Both data from Canada and Texas supported the importance of tailored multifaceted intervention program.

However, although multifaceted and tailored interventions have been proven effective in improving quality of care in various areas of service deliveries, there are many challenges in implementing them. The cost of implementation is high because of the nature of multiple strategies involved in one intervention. There are also variations in their effectiveness depending on the local context. These variations in effectiveness were argued to be attributed to variation in the needs and characteristics for each clinic. The modest benefit from some interventions was also attributed to the lack of using theoretical framework in their developmental stage. Clearly a particular intervention strategy would not fit all settings. Therefore, flexible intervention strategies which allow some degree of tailoring to the needs in clinics during their implementation would best suit primary care settings. Therefore, understanding the local needs, their resources and process of service delivery are important in designing effective interventions strategies.

2.8.3 Foreseen difficulty in engaging primary care doctors in addressing men's health issues

As argued in section 2.3, the concept of men's health is relatively new compared to other disciplines of medicine. Hence, doctors, as part of the society and having grown up in the society, may share many similar ideas about men's health-seeking behaviour to the lay public. Given the relative lack of training of primary care doctors in the care for men at both the undergraduate and postgraduate levels, primary care doctors may be unclear about what men's health is and may not acknowledge the problems underpinnings men's health and their health-seeking behaviour. Section 2.6.3 has highlighted the often ambiguous attitudes
of primary care doctors to men’s health-seeking behaviour. These ambiguous attitudes do not help in the effort to engage male patients in health care.

Two early studies of primary care doctors’ perspectives on men’s help-seeking behaviour revealed that primary care doctors thought men were reluctant to accept and present to health care services unless absolutely necessary. (78, 79) The first study in 1999 involved 18 primary care doctors from Canada being invited to participate in four focus group discussions. The doctors in the study perceived men as being lacking in health consciousness, difficult in negotiating preventive activities, uninterested in health prevention, stoic, and having a sense of immunity and immortality in relation to illness. This set of help-seeking behaviours was noted to be unacceptable. (78) Similar findings were found in a later study in 2002 which used a different approach; discursive analysis involving six primary care doctors, a consultant and two nurses. (79) The study also found that the stereotyping of men’s help-seeking behaviour by primary care doctors and nurses was apparent, and in keeping with the socio-cultural beliefs about men’s help-seeking behaviour. Furthermore, this commonly held help-seeking behaviour was condoned and applauded. (79) Clearly, this makes changing these attitudes difficult.

Having an accurate understanding of men’s health-seeking behaviour is particularly important for primary care doctors in order to avoid the ‘blaming attitude’ that they may unintentionally impose on male patients as a result of societal influences. The challenge is to help doctors adopt an appropriate attitude towards men’s health.

Although general practitioners are overwhelmingly positive about providing preventive health care to the general population, it remains a challenge for general practitioners to deliver this care effectively. It can be even more difficult in men’s health check-ups due to the existence of preconceived ideas about men’s health-seeking behaviour. Although there has been little direct evidence supporting the association between doctors’ negative perceptions of men’s health-seeking
behaviour and poor health service delivery, it is likely that, reasoning from behavioural theory about perception, negative perceptions of men’s health-seeking behaviour may render doctors unwilling to engage them in preventive care as it would be seen as futile and pointless to offer health promotional activities to men. This negative perception compounds the challenge to develop strategies to improve men’s health check-ups in primary care settings.
2.9 Developing a framework for delivering men’s health check-ups

A strategy is clearly needed to help primary care doctors improve the rate of health check-ups for male patients. Given the complexity of the challenges to promoting men’s health check-ups, the intervention strategy should be multifaceted,(231, 277) and it should be preceded by a good understanding of the current obstacles and issues faced by primary care doctors in relation to men’s check-ups. Single strategy approaches often produce no or only modest effects,(231) whereas a good understanding of the issues allows for a tailored intervention, which is likely to be more effective than a blanket approach such as the passive dissemination of information.(257, 261, 272, 278)

A guideline to developing such a complex intervention is provided by the United Kingdom Medical Research Council (UKMRC).(51) A 'complex intervention' is an intervention that has the following characteristics(51):

1. Interacting components within the intervention
2. Multiple behaviours of differing difficulties as required by those delivering or receiving the intervention
3. Multiple groups or organizational levels targeted by the intervention
4. Multiple and variability of outcomes from the intervention
5. Varying degree of flexibility or tailoring of the intervention

These characteristics make the complex intervention model appealing due to the potential complexities of promoting men's health check-up as stated above. The development of these complex interventions involves a few stages and the process may not follow a linear order (Figure 2.11 – the diagram is taken from the published work of Craig et al.). (278)
The first step in developing an effective intervention includes identifying the current evidence surrounding the intervention (if available), developing or identifying an appropriate theory in order to understand the likely process of change, and modeling the process of intervention before piloting and full scale evaluation. (278)

The evidence surrounding intervention to improve men’s health check-ups is scarce and an appropriate theoretical framework for delivering men’s health check-ups is yet to be identified. All three studies related to improving the service delivery of men’s health presented above (211, 221, 222) (Holland et al.—reminders for patients and doctors; Harding et al.—checklist for male patients in waiting room; Hammond et al.—education intervention for patients and doctors) utilised single intervention approaches. Besides the study by Harding et al., no substantial positive effect was seen. Harding et al.’s study documented a positive outcome as the needs in the clinic (to keep patients occupied while waiting for consultation) were addressed. In their review, Robertson et al. also acknowledged the need...
to have multiple intervention strategies to improve the delivery of men's health services. (215)

So far, there have not been any published studies using complex interventions to improve preventive health care for men. It would be a challenge to design such interventions due to the paucity of empirical information about effective gender sensitive strategies and substantive theoretical frameworks in relation to implementing men's health check-ups.

Furthermore, an understanding of the current practice behaviours of doctors in men's health check-ups is unavailable. While findings from studies of the challenges of implementing general preventive care and studies of doctors' views and opinions about men’s help-seeking behaviour are helpful in providing a general understanding, they do not provide a framework to understand the process of men's health check-up practice. As outlined in the final paragraph of section 2.8.1, the listing of barriers and motivators does not indicate the process – i.e. the complex interaction between barriers, motivators and intended practice behaviours of doctors. In order to develop an intervention that is likely to yield positive outcomes, an appropriate theoretical framework is needed. (275) Employing the relevant theoretical frameworks promotes an understanding of the processes involved, which should be context and topic specific, and makes the intervention more targeted. (51, 256, 275, 279)

While many social psychological theories (279, 280) or frameworks (230, 232) are suggested for developing intervention strategies, they do not provide substantive guidance on what to address or the domains to be emphasized in improving men's health check-ups. Applying them in improving the delivery of men's health check-ups may therefore run the risk of failure. In other words, we need a substantive theoretical framework that can provide an understanding of how current men's health check-ups are carried out during encounters with men and the factors affecting doctors' decisions to discuss health check-ups. Although the ultimate aim is to understand the doctors’ practice behaviours, understanding their decision making in relation to their practice behaviours should take priority because decision precede behavioural changes; decision is an important determinant to behavioural changes. (281)
Therefore, many determinants of decision making and the related behavioural changes are common between the two. (281) The substantive framework explaining doctors’ practice and their decisions making process are largely unavailable at present.

Thus, following the UKMRC framework for developing a complex intervention to promote men’s health check-ups, the first stage is to develop a substantive theoretical framework. This framework should reflect the process of primary care doctors’ decision making in relation to offering men’s health check-ups. Understanding these fundamental processes will undoubtedly assist in designing strategies to address the weak links in the process of offering men’s health check-ups.
2.10 Summary and the knowledge gaps

In recent years, men’s health has come to mean a global approach to the physical, mental, emotional, social and spiritual health of men throughout their lives, rather than the traditional focus on sexual and urological health. However, the scope of men’s health may not be well understood by many health care providers. The health status of men is consistently shown to be disadvantaged compared to women’s health. Men have a shorter life expectancy at birth and a higher mortality rate in almost all non-sex specific diseases. The main causes of death in men are noncommunicable diseases and injuries. Many of these causes of death are lifestyle related, such as smoking, unhealthy diet, high consumption of alcohol, risk-taking behaviours and violence, and are preventable or amenable to early intervention. Furthermore, many male-specific disorders which adversely impact men’s quality of life such as erectile dysfunction, premature ejaculation, and androgen deficiency syndrome go under-reported to health care providers. Silent diseases such as hypertension, hypercholesterolaemia and diabetes are also under-detected. Hence, improving the health status of men should be an important agenda in health care delivery.

The reasons underpinning men’s poor health status are numerous and complex. The biological sex difference between men and women contributes minimally to men’s poor health. By contrast, men’s health behaviour, adverse social conditions, and current men’s health service delivery all explain a greater extent of their poor health status. One of men’s negative health behaviours is their reluctance to seek health check-ups. Many factors have been put forward to account for this phenomenon, prominent among which is that their reluctance is attributable to the attitude that not seeking health care reflects a masculine image. It is argued that this masculine image is partly prescribed to men by their society. Additionally, many social factors such as poverty and low social class affect their health-seeking behaviour and health. However, more recent evidence suggests that men do care about their health and believe in the benefit of health check-ups, but that they often have difficulty in finding good reasons and appropriate contexts to access health care services. Men’s under-utilisation of preventive health services (including health check-ups) has also been attributed
to man-unfriendly health care. Therefore, their undesirable health-seeking behaviour is not just a matter of ‘men behaving badly’, but rather is a complex interplay between them, the health care system and society as a whole. The health-seeking behaviour of men during their visits to doctors is a dynamic process which varies depending on the health care providers, the context, and the content of encounters.

Hence, there is a need to consider ways to address men’s health needs and their expectations from the health care perspective. The principles are to adopt a gender streamlined and multidisciplinary approach acknowledging men’s needs. Men desire man-orientated health care which includes clear men’s health information and guidelines, extended clinic hours, doctors competent in men’s health issues, doctors who empathise with their needs, clear and simple appointment systems, affordable health care, and frank styles of communication. Strategies should target both men in the community as well as improving health care delivery tailored to their needs. The ultimate goal is to engage more men in health care. Although direct evidence in relation to effective strategies targeting men is scarce, many anecdotally successful men’s health promotion programs have been reported in counties such as Ireland, the United Kingdom, Australia and the United States. Similarly, while evidence for effective strategies to improve men’s health care delivery is largely lacking, the experts in men’s health provide sound recommendations based on the current understanding of men’s health problems. These recommendations include providing man-friendly health care and focusing on health promotion and preventive health care. Primary care is identified as the key player. Doctors at the primary care level are encouraged to be proactive in raising the issue of preventive care and health check-ups for discussion during clinic encounters with men.

However, implementing these recommendations remains complex. At present, disease-based preventive care and general health check-up guidelines (including sections relevant to men) are available to help primary care doctors deliver preventive care for men. Although these guidelines are evidence-based, their implementation is challenging for two reasons. First, preventive care is
generally insuffic iently delivered, and the reasons for the inadequate delivery are not strictly related to doctors’ competence. Lack of organisational supports for preventive care is among other main reasons identified. Therefore, the effort to improve preventive care has to address all related factors concurrently. Second, improving preventive care for male patients is even more challenging due to preconceived ideas about men’s health-seeking behaviour. Doctors may have ambivalent attitudes about the benefit of engaging men in health care. Hence, an effective strategy is clearly needed to assist primary care doctors in successfully engaging men in preventive healthcare.

This global scenario in relation to men’s health is also reflected in Malaysia. The status of Malaysian men’s health is worse than women’s health, and many silent chronic diseases and male-specific disorders go under-detected. There is also evidence showing the similar impact of the concept of masculinity on Malaysian men’s health-seeking behaviour. Malaysian men are noted to value health but find that the present health care system fails to meet their needs. Preventive health care and health check-ups are inadequately delivered. The barriers described in a study looking at poor preventive health care delivery revealed similar findings to those noted in the West. At present, no organised men’s health program or gender streamlined care is available for men, and no attempt has yet been made to study the optimal strategies in implementing preventive health care or men’s preventive health care. Hence, there is a similar need in Malaysia for an intervention program to help primary care doctors deliver effective preventive care and health check-ups for men.

Strategies to improve preventive care for male patients have to take a multifaceted approach covering a few barriers simultaneously. These strategies must also be tailored to the local needs of the practice and the subject matter. As noted above, the Medical Research Council of the United Kingdom provides a framework to systematically develop such strategies. The first stage is to develop a theoretical framework from available evidence so as to guide the targets of intervention in order to ensure that the desired effect will be achieved. However, the available evidence only focuses on possible barriers to doctors implementing preventive health care and fails to provide a framework.
explaining the current process of how these barriers interact. Furthermore, evidence about the specific barriers related to men’s health check-ups is unavailable. While there are studies on doctors’ understanding of men’s health-seeking behaviour which possibly influence the practice behaviours of doctors delivering men’s health check-ups, they do not provide sufficient understanding of the process whereby doctors manage preventive care delivery to male patients. Understanding this process is crucial as it will help to identify weak links in the process, and hence will inform the design of intervention strategies to improve the uptake of men’s health check-ups in primary care settings.

Research into men’s health has taken off the ground in the past 20 years, and while important advances have been made, more needs to be done to develop optimal strategies to improve the health status of men. We have come to a better understand men’s health-seeking behaviour and their expectations of health care. We are likewise now more aware of doctors’ perceptions of men’s health-seeking behaviour. Preventive health care and health check-ups are understood as important elements in improving men’s health status. However, despite having guidelines and recommendations to improve our preventive health services for men, we are yet to grasp the appropriate strategies to implement these guidelines to assist primary care doctors. In Malaysia, where effective preventive health care for men is not yet available, we have uncovered men’s expectations and acknowledge our deficiency in health care delivery for men. Given that this framework is unavailable at present both in Malaysia and globally, we need to start from scratch in exploring the current process of care and developing a substantive theoretical framework covering the practice behaviour of doctors in relation to preventive men’s health care.
2.11 Aims and justification for this study

The overarching aim is to improve the practice of proactive men's health check-ups by Malaysian primary care doctors. This necessitates development of an intervention strategy to help them effectively implement men's health check-ups. The intervention strategy should address the underlying obstacles to men's health check-ups, and is likely to be most effective if we have a better understanding of how these obstacles interact in the process of doctors' decision making and hence determining doctors' practice behaviour. Therefore, to reiterate from the introduction, the specific question asked in this study was:

"What are the determinants and process of decision making by primary care doctors in undertaking health check-ups for male patients in Malaysia?"

The term 'determinants' is used instead of 'obstacles' in order to be objective about 'obstacles'. Obstacles in one situation may be motivators in others, whereas the term 'determinants' has a neutral value judgment.

This question will lead to a model illustrating the process of how primary care doctors make the decision to undertake men's health check-ups in Malaysia. The model is intended to provide a theoretical framework explaining the weak links in the effort to improve the delivery of men's health check-ups in Malaysian primary care settings. It aims to identify the determinants that are most important relative to the others, so that a concerted effort can be targeted on in a resource constrained health system.
2.12 Reflections from the literature review – developing the study objectives

With the need to develop a theoretical framework to understand the current process of men’s health check-ups and hence answer the research question, the following objectives were set for this thesis.

2.12.1 General objective

To explore the determinants and process of decision making by primary care doctors in undertaking health check-ups for male patients in Malaysia

2.12.2 Specific objectives

1) To identify the determinants of doctors’ intentions to undertake health check-ups in male patients and to construct a substantive theoretical framework explaining the relationships between the determinants in the process of doctors’ decision making in initiating men’s health check-ups.

2) To quantify the average impact of each determinant, and rank its significance on the doctors’ decision-making processes in different contexts and topics of men’s health check-ups.
3 Methodology

3.1 Introduction

This chapter justifies the methods used in this study. It outlines in sequence the rationale and philosophical underpinnings for using a sequential mixed methods design, grounded theory in the first phase and quantitative survey in the second phase. The final section delineates where the 'mixing' of the two methods has occurred. Details of the steps involved in phase I and II are provided in chapters 4 and 6 respectively.
3.2 Justification for sequential exploratory mixed method design

The purpose of this study was to develop an explanatory model of the process of how PCDs make the decision to undertake men's health check-ups in Malaysia. The explanatory model is intended to provide a theoretical framework for the development of an intervention program aimed at improving the quality of men's health check-ups in primary care settings. With the design of an intervention as its ultimate aim, this study has adopted pragmatism as an overarching philosophy, in which knowledge is viewed as arising from the relationship between actions and consequences. (282) Thus, the researcher’s emphasis should be placed on the solution to a problem rather than just learning about people and their world. (52, 282, 283)

Pragmatism as the overarching philosophical underpinning for mixed method designs deserves further discussion in order to position myself, as the principal investigator in this project, in the discourse of the research paradigm. However, the pragmatic aims of the study are not served by arguing about traditional research paradigms, such as the epistemological worldview of positivism (or post-positivism) and interpretivism, or the ontological worldview of objectivism and constructionism. (282-284) The essence of pragmatism is the purpose of the research and its practicality (282-285), issues that are not often raised in the discussion of traditional dimensions of epistemology and ontology. (282, 283) Pragmatism takes on another dimension to epistemology. (283) It is built partly on Dewey’s theory of knowing; i.e. “knowing as a way of doing”. (282, 285) Knowing therefore relates to actions and consequences. Knowing comes from the experience (past actions and consequences) of a person and such knowing influences their actions. Hence, knowledge acquired from the process of knowing arises from the relationships between actions and consequences. The experience of any person and the meaning attached to it, be it objective or subjective as one wishes to depict it, is as real as any other person’s experience. Thus, knowledge is constructed by us for the purposes of using it in attempting to address the problems we face.
Definition of terminology in research paradigm(52, 287, 288):

**Pragmatism:** A philosophical stance wherein knowledge is regarded both as constructed and as a function of a people environment interaction. Knowledge is meaningful if there is a practical consequence to it.(282, 289)

**Positivism (post-positivism):** An epistemology that subscribes to the belief that knowledge comes from systematic and objective observation or experimentation with the aim of identifying a general explanation for a phenomenon which allows for predictions and intervention strategies. It assumes a single reality.

**Interpretivism:** An epistemology that denotes an alternative to positivism wherein knowledge comes from the subjective interpretation of phenomena. It emphasises the understanding of the phenomena, and assumes the existence of multiple realities and that the truth is tentative. Knowledge is co-constructed by the researchers and the “researched”.

**Objectivism:** An ontological position wherein objective reality exists. Phenomena and their meanings exist independently of researchers. Observers can and should distance themselves in order to avoid bias in their interpretation.

**Constructionism:** An ontological position wherein realities are made. Phenomena and their meanings are continuously constructed and reconstructed from the interaction between people (including researchers) and their subjective world.

Although Dewey’s theory of knowing inclines towards interpretivism, the important point is not which is more correct,(284, 290, 291) as the paradigm debate focus on, but whether it is meaningful in relation to our aim of solving a problem.(282, 290) Any research to solve a problem falls within an inductive-deductive cycle.(52, 283) The research may start from inductive logic of observation without a priori theory or from deductive logic of testing a hypothesis or theory. However, most research has to engage in this inductive-deductive cycle before it ends.(283) Inductive logic involves systematic observation and interpretation of grounded data to generate theory or abstraction, which then inform the hypothesis or prediction used in deductive logic. Therefore, at some point during this process, different
methods are needed to satisfy the different types of research questions asked in this cycle, all with the aim of solving a problem. This is the basis of mixed method design(283) and it sits well under the philosophy of pragmatism.(52, 282, 283) With this pragmatic philosophical underpinning, the following sections explain how it (pragmatism) shapes the design of the study.

Finding solutions to the inadequacies existing within health checkups for male patients by PCDs could take an interventionalist instead of non-interventionalist (observational) design. However, a trial of intervention without a proper theoretical framework would likely result in failure.(51, 275, 289) Furthermore, a trial of intervention aimed at identifying solutions would be expensive and time consuming as many trials may be needed just to identify an optimal strategy.(292) As a consequence, an exploratory strategy would be more appropriate at this early stage,(51) and in particular a sequential exploratory mixed method design.(52) The sequential exploratory mixed method design taps into the strength of both qualitative and quantitative approaches,(285, 293-295) and would be well suited to the objectives of the study for the reasons outlined below.

The general objective is to develop a framework of a decision-making process on the issue of men’s health check-ups. Essentially there are two specific objectives to this. First, it aims to identify the determinants and how they would interact with each other in the process of individual doctors deciding whether to initiate a health check-up or not. The second specific objective aims to quantify the average impact of each determinant, and rank its significance on the decision-making processes of Malaysian PCDs.

In sequential exploratory mixed methods design, the first phase is a qualitative approach, followed by a quantitative approach.(52) Since little empirical evidence is available about the determinants and the process of decision making in undertaking men’s health check-ups, the first step is to explore the issue with an approach that does not require a pre-determined set

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of hypotheses. The qualitative approach, which allows the inductive development of an empirically based theory, (52, 296) is appropriate. In contrast, the quantitative stage requires an a priori theory as a starting point. There is no clear empirical data to provide substantive concepts for the development of the hypotheses or theories for the quantitative approach, and although generic theories proposed for medical decision making such as the theory of reasoned action, (297) fuzzy trace theory (298) and transtheoretical model (291) are empirically derived, they are not sufficiently specific to the context of this study. A useful theory for the subsequent planned intervention should be explanatory and predictive of this specific process, (51, 256) and it has to be empirically based to provide important substantive concepts, (256) Therefore, the first part of the objective necessitates a qualitative approach. Its findings will direct the design of a questionnaire and conceptual framework in the second phase of the study, which in turn utilizes a quantitative approach to achieve the second objective.
3.3 Phase I: Qualitative approach

In phase I, grounded theory methods (GTM) were chosen as the methodological process that would achieve the objective of developing a useful theory to base an intervention on. GTM provides systematic guidelines on data collection, analysis and producing an inductively derived theoretical framework. It has its basis in symbolic interactionism which assumes humans act on the meaning they assign to an object (people or things) they interact with. Symbolic interactionism arises from the earlier thought of pragmatism. Given the overarching issue being studied—decision making as a result of a series of actions based on how doctors perceive or assign meanings to the issues at hand—this theoretical underpinning suits the study of social psychological processes within the context of PCDS initiating men’s health check-ups.

However, GTM has evolved since its inception in 1967. Glaserian grounded theory, often located in an objectivist paradigm, emphasises the process in the emergence of theory from the data, as opposed to using preconceived questions and categories to illuminate possible theoretical concepts, as proposed by Strauss and Corbin. Glaserian GTM offers flexible procedures in the data collection and analysis. This is in contrast to the more prescriptive and didactic procedures proffered by Strauss and Corbin. Although Strauss and Corbin’s procedures in GTM are easier for novices to follow, in their version of GTM there is a potential risk of forcing the data into preconceived ideas. Meanwhile, a third version of GTM popularised by Charmaz is built on the constructivist paradigm with the aim of understanding a social phenomena. Constructivist grounded theory emphasises the co-construction of knowledge between the researcher and the researched. The theoretical concepts arising from constructivist grounded theory seek to make sense of social phenomena rather than to explain causal relationships and predict a course of social behaviour, as in objectivist grounded theory. Among these variations of GTM, Glaserian grounded theory methods are appealing as they align with the purpose of this study. The
Intention of the study was to be inductive, to minimise preconceived ideas and to seek not only understanding but the explanation of decisions made by the doctors. Although objectivist in its paradigm, it blends well with pragmatism where the aim of the study is to explain and predict human behaviour and to enable intervention to resolve a social problem. (287, 306)
3.4 Phase II: quantitative approach

In line with pragmatism (to allow optimal planning of intervention strategies), the second specific objective demands quantifying the average impact of each determinant and discerning its significance on doctors' decisions to undertake health check-ups for their male patients.

The impact is examined from two perspectives: 1) the average impact of each determinant on doctors' decision making in undertaking men's health checks, and 2) the prevalence of the determinants and hence their relevance to Malaysian PCDs. It is expected that there will be a number of related determinants. The process of quantifying the impact of each determinant is expected to require a multivariate analysis. By quantifying the average impacts, it should be possible to rank the determinants according to their importance in the sample of PCDs, and thereby direct the efforts of improving the service delivery of men's health check-ups (See chapter 6 for the details of statistical analysis).

It is clear that the deterministic nature and need to quantify the relationships of phase II in this project requires a quantitative design. With an a priori theoretical framework developed from Phase I, it permits the use of regression analysis to identify the significant determinants (explanatory variables) on the doctors' intentions and examines the relationship between them. In its philosophy, quantitative methodology tries to establish an “average” for the parameters measured, and hence the findings aim to be generalisable to the Malaysian PCDs. This fits well with the purpose and objective of phase II. Furthermore, the necessary theoretical framework can be developed from phase I. Utilising the concepts in the theoretical framework derived from Phase I, measurement scales can be developed and the resulting measurements will form the variables for further statistical analysis (See chapter 6 for the details of scales development).

As Phase II is also exploratory in its aim of trying to identify the significant determinants, a non-experimental survey design is the most appropriate method. This is predominantly...
because survey methods provide the ability to collect data from a large targeted population, and hence provide sufficient statistical power to generalise the findings to the population. (311)

In summary, although experimental design, which involves manipulation of determinants, is powerful in establishing causal relationships, (52, 309) choosing the appropriate determinants for an intervention is not possible at the current stage. There are many possible determinants and the significance of those on the doctors’ intentions regarding decision making is yet to be established. Furthermore, establishing the ‘prevalence’ of determinants on PCDs is not possible with experimental design. (309) Consequently, an observational quantitative survey is an optimal methodological design for the second objective outlined above.
3.5 The mixing: Reconciliation of the two phases

The discussion so far has put forward the utility of developing a practical theoretical framework to guide intervention as the underlying justification of a mixed methods design. Consistent with sequential exploratory mixed method designs, the initial 'mixing' occurs during the phase II development where findings from phase I will inform both the theoretical framework and scale development in phase II (Figure 3.1). The subsequent 'mixing' occurs during the interpretation of the findings. The reconciliation of the findings takes a partially synergistic approach. In the concept of synergism proposed by Hall and Howard, the qualitative and quantitative components complement each other and hence provide an understanding of an issue that is greater than the understandings provided by each approach on its own. It emphasises equal value and acknowledges the different strengths provided by each approach. These concepts were kept in mind while interpreting and discussing the findings from both studies. It is not a fully integrated synergistic approach as the integration occurs only at the two investigative stages as described above. A fully integrated mixed method, which embraces synergism, would involve integration at all stages of the research process from conceptualisation to implementation, inference and application.
The methods and analyses were kept separate because both phases have different philosophical assumptions. Their differences are valued and acknowledged (the concept of synergism). They were designed to answer different parts of the question. Phase I is an inductive and later deductive strategy in order to develop a substantive theory relevant to the doctors at an individual level. It aims to be parsimonious but comprehensive enough to explain doctors' intention in undertaking men's health check-ups. It also aims to be fit, relevant and adaptable to each case studied. This is in contrast with phase II where it aims to establish an overall pattern of the doctors' intention and their determinants at the population level and therefore uses a statistical approach to establish an 'average'. After all, what is relevant at the individual level may not be relevant at the population level and vice versa. Furthermore, both methods stand on their own criteria of rigour in phase I and validity in phase II. The procedures in ensuring the rigour in phase I are constant comparison, memoing, reflexive notes and theoretical sampling, while validity in phase II is by establishing scale validity and employing optimal sampling strategy.
3.6 Conclusion

This study takes pragmatism as the overarching philosophical approach. Sequential exploratory mixed methods proposed by Creswell[52] achieves the overall purpose of this study; discover determinants of the decision-making process and design an intervention based on them. The mixing of methods occurs at the development stage of phase II and the interpretation of the findings at the end of both phases I and II. Because mixed methods designs are still evolving,[285] many types of mixed methods (particularly fully integrated designs) are yet to be tested for their optimal application. At this juncture however, there is sufficient rationale to adopt the design described above.
4 Phase I: Methods

4.1 Introduction

This chapter provides a detailed description of the procedures carried out in phase I. Glaserian grounded theory methods informed the overall study design in phase I. There are seven sections to this chapter (including the introduction). The first section delineates how I position myself as the principal investigator in executing phase I. The subsequent five sections describe the methods in sourcing the data, data collection, data analysis, and establishing rigour. Section 4.2 is written in the first person to elaborate on my engagement in the project. The subsequent sections, however, are presented in third person. The final section discusses ethical issues.
4.2 The role of principal investigator (a reflexive note)

In qualitative design, the researcher acts as a tool for the purposes of data collection and analysis. Researchers are active participants in the processes (299, 306) and have considerable influence over the quality of data collected and the output of analysis (287). As such, it is important for me to clarify my stance in these processes.

Preventive health care has been my interest since undergraduate training as a medical doctor. I was inspired by the great benefit of cost-saving and old sayings "prevention is better than cure". This interest is my main reason for pursuing the specialty of general practice. General practice offers greatest potential and opportunity in the delivery of individualised preventive health care. On the other hand, preventive health care for men is chosen as my field of interest because of the awareness of poor health status of men. Since my exposure to men's health research as a member of MSASAM in 2007, (refer to the "Preface" of this thesis), my interest grew deeper. I believe the effective delivery of preventive men's health service is the crucial point to the betterment of men's health.

As the principal researcher I conducted all interview sessions and moderated all group discussions. Throughout these processes I kept myself as objective as possible by adopting an objective attitude towards data collection and memoing, which acted as reflexive notes (see below for further elaboration). I introduced myself as a PhD student, a practicing family physician in a university clinic and a lecturer in an academic centre prior to all in-depth interviews or focus group discussions. I also made it clear at the beginning of the sessions that I was there to learn from participants' views and experiences. The data obtained from them were viewed as unbiased and correct. Their views were not judged and I took a neutral stance in the debates during the focus group discussions. To be non-judgmental and willing to learn from people's experiences and stories were necessary parts of the communication skills acquired during my training as a family physician. I excluded PCDS working in my institution or with whom I had regular contact in order to minimise the influence of my
relationship on the quality of data collected. During the interviews or focus group discussions, I was actively analysing the conversation to come up with questions and prompts that would facilitate in-depth exploration of the data.

Transcribing of all audio-records was done verbatim by four transcribers and I verified all transcripts by listening to all audio-records while checking on the transcripts prior to formal analysis. During the formal analysis, I maintained a high degree of sensitivity through active participation in men's health and primary care health system research. This has helped me to foster a greater understanding of the data and hence make greater sense from the data. This was also a required strategy for maintaining a high degree of theoretical sensitivity when attempting to theorise from the data. However, I noted the potential influence of my prior knowledge and assumptions about men's health check-ups in primary care settings.

I acknowledge that some components of men's health check-ups are poorly delivered to male patients in primary care settings. One of the reasons is that PCDs face many challenges while providing health services to male patients. Inadequate knowledge of men's health may be an obstacle but the problems are likely more than that. I also believe that the society and current health system in Malaysia, including PCDs' beliefs and perceptions, play a major role in the poor quality of men's health services. Therefore, in this study I pay particular attention to the PCDs' perspective on men's health issues.
4.3 Source of recruitment

The data was sourced from interviews and focus group discussions with participants who were practicing PCDs. The recruitment of participants was done in multiple stages. Stage 1 followed the principle of maximum variation in the background of participants with the intention of collecting sufficient data to develop a preliminary theoretical framework. In stage 2, further data collection was informed by the concepts emerging from the initial analysis, and in stage 3, group and individual sessions were conducted to obtain feedback from the doctors who participated in stages 1 or 2.

The sampling frame targeted a range of PCDs in Malaysia, including a diversity of genders, age groups, qualifications, locations of practice (urban or rural) and nature of practice (private or public). Klang Valley and the state of Kelantan were selected because of their extreme cultural and socio-economic profiles (Figure 4.1). Klang valley, encompassing Kuala Lumpur, Petaling Jaya, Shah Alam and Klang, is a metropolitan area which is economically advanced and has a multi-racial community. The racial composition is roughly 60% Malay, 30% Chinese and 10% Indian. The state of Kelantan has a lower socioeconomic status and is less industrialised than Klang Valley. Almost 95% of residents in the state of Kelantan are Malays. It represents a more conservative community.(55)
The only inclusion criterion for selecting the participants was that they had to be fulltime practicing PCDs. Doctors practicing in academic settings, whose main portfolios were teaching and research, were excluded.

The participants were invited through several channels to fulfill the sampling matrix. The strategies employed were as follows:

1. In inviting doctors from private clinics (private doctors), invitation letters (Appendix 4.1) were sent to 200 private PCDs who were members of the Academy of Family Physicians of Malaysia (AFPM). These 200 private primary doctors were derived from the list of AFPM members practicing in Klang Valley. Members of AFPM have varying levels of qualifications from basic undergraduate degrees to diplomas, professional memberships of AFPM or masters in family medicine. The services provided are paid either by out-of-pocket or via a
third-party payer. Members are practicing predominantly in urban settings and there are a good mix of age range and gender among the members.

2. In inviting doctors from public clinics, contacts were sought through the Chair of the Selangor division of Family Medicine Specialists Association (FMSA). All 25 members of FMSA in the Selangor division were invited. All members of FMSA had received post-graduate training in family medicine.

3. To recruit public clinic doctors with basic degrees, the heads of two primary care centres (a public clinic in Petaling Jaya and the other one, an academic primary care centre in Kelantan) were contacted to help recruit doctors in their respective clinics.

4. Finally, personal invitations were sent to three key opinion leaders who hold important positions in various professional health bodies related to primary care in Malaysia.

All invitations were accompanied by a participant’s information sheet (Appendix 4.2) and a consent form (Appendix 4.3). The recruitment strategies above resulted in 20 PCDs from AFPM, 10 from FMSA, 19 from contacts via heads of clinics and all three key opinion leaders accepting the invitation.

In all, a total of 52 doctors agreed to participate in stage 1 and 2 (Table 4.1).

Table 4.1 Arrangement for focus group discussions (FGDs) and in-depth interviews (IDIs)

<table>
<thead>
<tr>
<th>Stage of methods</th>
<th>Methods of data collection</th>
<th>Number of doctors involved</th>
<th>Period of data collection</th>
<th>Venue for data collection</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8 FGDs</td>
<td>38</td>
<td>January – March 2009</td>
<td>3 in the Department of FM, USM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(range: 3-10; group; median: 4)</td>
<td></td>
<td>1 in the Department of PCM, UM</td>
</tr>
<tr>
<td></td>
<td>10 IDIs</td>
<td>10</td>
<td>January – March 2009</td>
<td>Participants’ clinics</td>
</tr>
<tr>
<td>2</td>
<td>4 IDIs</td>
<td>4</td>
<td>September 2009</td>
<td>Participants’ clinics</td>
</tr>
<tr>
<td>Feedback</td>
<td>1 group</td>
<td>5</td>
<td>November 2009</td>
<td>Department of FM, USM</td>
</tr>
<tr>
<td></td>
<td>2 individuals</td>
<td>2</td>
<td></td>
<td>Participants’ clinics</td>
</tr>
</tbody>
</table>

FM= Family medicine; PCM=Primary care medicine; USM=University of Science Malaysia; UM=University of Malaya; AFPM=Academy of Family Physicians of Malaysia; FGD=Focus group discussion; IDI=In-depth interview
Seven doctors from these initial stages accepted further invitation for feedback sessions. There was a good representation from both male and female doctors, and a wide diversity in ages, qualifications and nature of practices (Table 4.2). (Refer to appendix 4.6 for detailed descriptions of participants involved)

Table 4.2 Demographic and practice characteristics of participants

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Number of participants (n = 52)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age range (years)</td>
<td>30–69</td>
</tr>
<tr>
<td>Male to female ratio</td>
<td>1 : 1.74</td>
</tr>
<tr>
<td>Postgraduate to basic degree ratio</td>
<td>1 : 1.88</td>
</tr>
<tr>
<td>Rural to urban practice ratio</td>
<td>1 : 3.73</td>
</tr>
</tbody>
</table>
4.4 Data collection

In-depth interviews (IDIs) and focus group discussions (FGDs) were chosen as the data collection methods. FGDs provided an opportunity for doctors to exchange ideas and debate issues relating to men’s health. This process was also likely to stimulate thoughts beyond their original ideas. (314) IDIs on the other hand, allowed the expression of views that the participants may not normally want to reveal in the presence of their peers. (315)

The venue and time for IDIs and FGDs were arranged to suit participants’ preferences. As far as possible, participants were encouraged to attend the FGDs. More private doctors were involved in IDIs because they were not able to accommodate the timing of the FGDs. Eight FGDs were conducted with participants arranged into groups with similar backgrounds. This step was taken to avoid a potentially intimidating situation between doctors with post-graduate training and junior doctors.

Three key opinion leaders were interviewed individually as a precaution against exerting a significant influence on the group dynamics in FGDs. There was no segregation of male and female doctors in the FGDs as the interaction and stimulus within focus groups from different genders was thought likely to yield richer data on the topic of men’s health. (314)

During data collection, four of the doctors were theoretically sampled based on their characteristics matching the emerging concepts during the initial analysis of the data. They were:

1. A 40 year-old female PCD who had a practice in an affluent community. The cost constraint of health care was presumed not to be an issue. (The concept of external barriers)

2. A 50 year-old male PCD who was interested in preventive care. He was certified to practise anti-aging medicine and hormonal therapy. He represented a doctor who highly regarded male preventive care. (The concept of medical importance)

3. A 45 year-old female PCD who practised in a conservative rural community in Selangor. Receptivity to discuss preventive health care for male patients in her clinic was presumed to be a challenge. (The concept of perceived receptivity)
4. A 44-year-old male PCD who practised within a commercial office building where his patients were mainly male employees. (The concept of doctor-patient relationships)

In the feedback sessions, one group feedback and two individual feedback sessions were held (Table 4.1).

All IDIs and FGDs were conducted in English, as English is the lingua franca within the Malaysian medical fraternity. Appointments were set and reminders were sent to the participants one day prior to the sessions.

4.4.1 Conducting focus group discussions
The appointments for FGDs were made half an hour earlier than the formal sessions. The initial half hour was allocated for participant registration, for gathering their basic demographic information (Appendix 4.4), and to welcome them with a tea reception and informal chatting. These processes helped build rapport and broke the ice for more formal discussion. Participants in FGDs were given a name tag each with their preferred nicknames to facilitate note taking later. Formal FGDs started with an introduction after the participants were acquainted with each other.

The content of the introduction included the background of the moderator, the objectives of the study and the ground rules of the session. (Appendix 4.5) A free flowing discussion and expression of views was encouraged. A series of questions guided by a semi-structured questionnaire (Appendix 4.5) were used to trigger discussion. However, complete adherence to the sequence of the questionnaire was unnecessary. Participants were assured about the confidentiality of their statements and views. It was emphasised that the discussion was not meant for assessment purposes. Permission was then sought to audio-record the session and written informed consent was obtained after the briefing. A note taker assisted only in the FGDs to help with audio-recording and to document who was conversing.
The sessions started with a broad question “What do you understand about men’s health?”
This was followed by exploring the practices related to engaging male patients in health check-ups. I also explored their rationales, views, barriers and motivations for their decisions to engage their male patients. Probing, asking for elaboration, paraphrasing their opinions and redirecting questions raised by participants to other focus group members were techniques used to advance the discussions. The average length of the FGDs was 62 minutes, ranging from 46 to 77 minutes. All sessions were audio-recorded and transcribed verbatim.

Debriefing was done after each session by acknowledging each participant’s contribution and clarifying any queries or issues raised during the sessions. All participants were reimbursed RM100 (USD 30) to partially compensate for the cost of transport and time lost while attending the sessions.

4.4.2 Conducting in-depth interviews
The IDIs began with an introduction to the session. The content of the introduction was similar to the focus group discussions. The IDIs were conducted in a similar manner to the FGDs except that they were done with the absence of a note taker. The interviewer took an active listening role and explored the participant’s views in-depth. IDIs lasted an average of 49 minutes, ranging from 31 to 74 minutes.
4.5 Data analysis

Each of the IDIs and FGDs were analysed as one unit of analysis. The procedure involved was as follows:

1. Substantive coding

Substantive coding started with open coding before moving on to selective coding. In open coding, transcripts were read carefully and analysed line by line to produce as many codes as possible. No preconceived code or code-book was used. The coding process was an interpretive process, where sentences or phrases were studied for the processes discussed and what actions they implied. Gerunds were used as much as possible to code pieces of relevant texts. Gerunds are nouns formed from verbs that typically end with “-ing”. Glaser viewed this as an effort to answer “What is actually happening in the data?” This coding process reflects the theory of symbolic interactionism, where actions are based on the meaning the actor assigns to the objects he/she acts upon. The following two examples illustrate how open coding was carried out:

I guess when we talk about men’s health, we always go back to what is women’s health—IDI 1, coded as “comparing men’s and women’s health”

I think they feel very... they are shy—FGD 5, coded as “perceiving men as shy”

Open coding generated many concepts (356 concepts from initial analysis of three transcripts). These concepts were consolidated into categories and subcategories through constant comparison, memoing and clustering (described below) to form a preliminary framework. During these processes, renaming and revision of categories occurred iteratively until a point of theoretical saturation occurred, where no new categories or subcategories emerged to contribute to the framework. The analysis then moved on to selective coding.
Selective coding started after a core category was identified following the point of theoretical saturation. The core category was selected based on its ability to subsume and relate to all other categories. The process of coding was then aimed at verifying the fit or adequacy of the emergent theoretical framework on the subsequent transcripts.

Adjustment to the theoretical framework was still open at this stage. The earlier data were also re-examined to establish the 'fit' of the framework. The following were examples of selective coding assigned to the core category of “balancing men’s receptivity and medical importance”. The core category represented the link between “weighing the medical importance” and “weighing men’s receptivity” to health check-ups.

<table>
<thead>
<tr>
<th>Sections from one of the transcripts</th>
<th>codes</th>
</tr>
</thead>
<tbody>
<tr>
<td>I had the experience during diabetic clinic. I think I inform Dr. X that I make every man that comes for the diabetic clinic [follow up]. I ask, if they are married, I ask about sexual dysfunction and this one patient was very mad on me hahahah..... and scolded me because he so call religious man, ‘ustaz’ (a religious teacher) em...and..... I was scolded by the patient because I bring up the thing, by asking you know about “the diabetic patient they often has this problem... do you have any problem with your wife regarding sexual relationship?” So he was very angry. Now not every patient I go and ask that hahah... thing to men, say... even this is diabetic clinic. I could, I don’t, because of that very bad experience... his stood up and really scolded me in front of all patients and everyone can hear.</td>
<td>Weighing the medical importance Weighing the receptivity of men balancing men’s receptivity and medical importance</td>
</tr>
</tbody>
</table>
2. Constant comparison

Constant comparison is one of the core interpretive methods in arriving at meaningful codes and categories.\(^{287, 306}\) The initial codes, generated from open coding, were compared with each other to examine the substantive similarities and differences. The substantive similarities discerned from this comparison were consolidated into a higher level of concepts, called categories. These categories were constantly compared again with the subsequent data, other categories and the codes they subsumed. Through this process of comparing, emergent meaningful categories representing 'higher order' abstraction was possible. For example, the category "Weighing the receptivity of men" emerged from comparison of the following codes:
- Depending on agenda of consultations
- Depending on perceived men's comfort with doctors
- Discouraged by negative perception on men's receptivity to health check-ups
- Motivated by men showing eagerness for health check-ups

3. Memoing

Memoing is simply a process documenting, or recording and tracing, streams of thoughts throughout the entire process of data analysis.\(^{287, 306}\) It also provided reflexive notes to examine and check on my pre-conceived ideas and assumptions that may have been unintentionally embedded in the analysis. Memos also served as a tool to facilitate the process of reflecting and critiquing my ideas, thus allowing synthesis of a higher level of abstraction and the emergence of core category and sub-categories. It helped in understanding the relationship between one category and another. Memo writing commenced soon after the coding and analysis began and was used throughout the entire analysis. At the conclusion of coding for each transcript, a memo was written to capture an overall impression of each interview in order to provide a distant view of what the participants' opinions were, as opposed to the detailed analysis of open coding.
4. Clustering

Clustering was used along with memoing as a way to work out all possible relationships between codes and categories.(287) Codes with similar concepts were grouped and the sketching of a conceptual map began. The early conceptual map formed a tentative theoretical framework. It was refined and adjusted in an iterative manner following the analysis of further transcripts, thus allowing the emergence of ideas from all transcripts to inform and influence the outcomes.

5. Theorising

The techniques described above constituted the process of forming a theoretical framework. It was an iterative process moving back and forth from open coding to selective coding, constant comparison, memoing and clustering. These techniques facilitated the establishment of relationships between categories, which was essentially the analysis from which theorising arose. The use of gerunds in coding also helped in this process.(287) By adding 'actions' and a sense of 'process' in the codes, they fostered a relationship between the codes.(287, 306)

6. Theoretical coding

The final step in the formation of the theoretical framework was attempting to apply deductively established theoretical concepts to determining whether these existing theoretical concepts would illuminate the findings further. The causal model (or the 6 C's model) (306) and theory of reasoned action(297) were exploited to sensitise the process of theoretical coding.

However, the sequence of analysis did not take the order listed above. It started as soon as data collection commenced. Memos were written after each FGDs/IDIs to capture an overall impression and the themes that had emerged. Theoretical sampling of data took place where the early memos directed additional questions asked in the subsequent FGDs or IDIs, in order to delve deeper into areas which were not spoken about in the earlier sessions. Formal analysis started with the reading
of the first three transcripts (two IDIs and one FGD) repeatedly to gain an overall understanding of the interviews. This was followed by open coding to identify in detail the concepts expressed by participants. The initial open coding generated 356 concepts, which were consolidated into categories, subcategories and an initial theoretical framework by using the techniques of constant comparison and clustering described above. The emergent theoretical framework was refined and adjusted following re-analysis on the earlier transcripts and analysis of subsequent transcripts in an iterative manner (Figure 4.2). The processes of coding, constant comparison and clustering were often interrupted by moments of thought. These were moments where memos were written to help deepen the analysis. Tentative theoretical saturation was achieved in the analysis of the 11th transcript (eight IDIs and three FGDs) when no new categories or subcategories emerged from further analysis of seven other transcripts. Having completed the initial analysis of 18 transcripts, four more IDIs were conducted to validate and confirm the saturation of the theoretical framework.

The questions asked during these four IDIs focused on the concepts in the core category and its subcategories. The analysis was aided by the qualitative data management software, QSR Nvivo 8.(316) All codes are listed in appendix 4.7.

Figure 4.2 The iterative process of data analysis
4.6 Rigour in grounded theory

Rigour of analysis was achieved in two ways. First, the summary of concepts that emerged through open coding was read and examined together with my supervisors for their appropriateness of coding. Second, all participants were invited to group feedback sessions where the main findings and tentative theoretical framework were presented. The participants were encouraged to provide feedback on whether the findings matched their decision-making process on the issue of men’s health check-ups. Seven participants provided feedback; five attended a group feedback session and two provided feedback via individual sessions (Table 4.2).
4.7 Ethical issues and confidentiality

The study was approved by the Ethics and Medical Research Committee, the Ministry of Health Malaysia (NMRR-08-1516-3079), the Medical Ethics Committee, University Malaya Medical Centre (679.28) and the Human Research Ethics Committee, the University of Sydney (03-2009/11490). (See appendix 4.8 for all approval letters)

The interviews and focus group discussions revealed doctors' experiences in encountering men and expressing their personal attitudes towards men's health issues. The doctors might have felt vulnerable to judgment and evaluation by colleagues during FGDs. This feeling of vulnerability could also happen in IDIs due to the presence of an interviewer. Hence, confidentiality of the information was assured and the grouping of doctors in focus groups was done in such a way as to minimise intimidating situations. All participants were assured of confidentiality by

1. Allowing participants to use names that they were comfortable with;
2. Using pseudonyms in the notes taken by the note taker;
3. De-identifying all people and places mentioned in the transcripts;
4. Not collecting names in the socio-demographic information sheet;
5. Holding all audio-recording data by one researcher and storing it in a locked cabinet. The data were coded without participants' particulars being traceable by others;
6. Erasing all audio-records after transcription.

Consent (Appendix 4.3) was taken after all participants were given appropriate information as stated in the participant information statement (Appendix 4.2). They were allowed to raise any questions about the study before consenting to participate. Participation was entirely voluntary. Consent was for the permission to audio-record and to use the information for answering the research objectives. Debriefing was done at the end of all in-depth interviews or focus group discussions and any ethical issue raised during the sessions was attended to.
5 Phase I: Results

5.1 Introduction

This chapter outlines the findings from the analysis of phase I data. Phase I aims to develop an explanatory model of how PCDs decide to undertake men's health check-ups in Malaysia. Due to the exploratory nature of qualitative study, many meaningful categories emerged from the analysis. However, in order to stay focused on developing a parsimonious theoretical framework, only the core category and related sub-categories are presented here. The following section presents an overview of the findings to provide an orientation of the details that follow.
5.2 An overview of the findings

In engaging male patients in health check-ups, PCDs were required to weigh many considerations before deciding to proceed. The intention to initiate health check-ups started with a mental act of balancing the perceived degree of male patients' receptivity with the importance of a range of potential medical issues facing men (Figure 5.1).

The level of receptivity of male patients to health check-ups was determined by doctors based on: their perception of their image in the eyes of male patients, the agenda for visits, their perception of men's help-seeking behavior, and the topic of men's health at hand. The importance of medical issues was determined by doctors based mainly on two factors: their philosophical stance on health promotional activities and their understanding of men's health issues. However, even with a strong intention to initiate health check-ups, the actualization of health check-ups could be modified by...
perceived external factors and doctors' personal competency in negotiating health check-ups with patients.

Section 5.3 features an account of what PCDs understood about men's health in order to provide background and put the theoretical framework in context before describing each of the concepts affecting their decision making. The PCDs' understanding of men's health determined the importance they attached to men's health checks and the perception of their patients' receptivity to health check-ups. These two determinants are elaborated in section 5.4 (weighing medical importance) and 5.5 (weighing men's receptivity). Section 5.6 (balancing men's receptivity and medical importance) provides an account of the relationship between these determinants and how the decision to initiate health check-ups was reached. The subsequent chapters describe other factors that modified this decision and which lead to the negotiation of the health check-ups. Section 5.11 describes the results from the feedback sessions, while the final chapter provides the conclusion of the theoretical framework.
5.3 Primary care doctors' understanding of men's health: a poorly defined concept

The concept of 'men's health' was new and poorly defined to many PCDs. Hence, there was much debate over the scope of men's health with doctors holding opposing views about it.

5.3.1 A new concept and an unresolved jigsaw

Men's health was often cited in IDIs and FGDs as a new term and concept. When asked about men's health, PCDs referred to the definition of health by the WHO, which described health as complete physical, psychological, spiritual and social well-being.

Men's health would be the health issues of men relating to these areas. However, defining men's health in this way often appeared unthought-of by the participants.

...looking at the chapter itself, men's health is a new chapter to me.

-IDI 2

What we currently see this, men's health a new terminology...and it has not been identified as having certain specific issues in men's health compared to women's health.

-2R3

Okay. Men's health is actually, er, as erm...If you look at WHO definition, er...health actually should encompass, not only the physical, it should include the mental of a person but you are focusing among the males.
While PCDs described the provision of many services such as cardiovascular risk screening, opportunistic screening and treatment of chronic disease for male patients, these services were performed without the awareness that it could be part of a men’s health service. They were perceived as services rendered to any patient and therefore not gender-specific.

Until lately, our questions were just, you know...opportunistic screening and all that.

We are not thinking about men’s health.

Men’s health was seen as a piece in an incomplete jigsaw puzzle. While not entirely foreign, it remained challenging for PCDs to see it as a distinct entity. They knew something needed to be done for men but were not entirely sure what should be included under men’s health.

Most of the things [health care services provided], they know but they don’t do it as part of men’s health. They know is a part of medical consultation. There should be bits and pieces there inside a patient; you have all the pieces of jigsaw puzzles of men’s health. The other problem is there are a lot of missing pieces around.

We never think about men’s health, we never actually divide patients like that...actually we just take care about patients.

Men’s health was poorly defined compared to the more established concept of women’s health. Proactive health care and opportunistic screening for female patients were known to the doctors, but when men’s health screening was mentioned, there were many ‘maybe’ moments of uncertainty.

I think men’s health screening...it is not as screening as what they do as women health’s screening. For women’s health screening, everybody knows...what to do, but
male patients, we do not really have that kind of exposure that kind of knowledge what we have to do. For some of us may be we know but frequently forget about it. is not like that when I saw a 50 years old lady come to the clinic and I would suggest to her, pap smear examination, I would suggest. But for male in 50 years old, male 55 or something come into my clinic...It won’t come into my mind to ask for men’s health screening.

Maybe we don’t know what to ask about men’s health.

The relationship between men’s medical problems and gender was not obvious, particularly in relation to non-male-specific medical problems. For example, doctors often did not see a male patient with diabetes as a ‘male’ patient, but simply as a patient with diabetes. The missing link (jigsaw piece) was in viewing male patients’ medical illnesses as a ‘men’s agenda’. Because of this uncertainty over what constituted men’s health, there were debates, especially during focus group discussion, about the scope, approach and importance of so-called ‘men’s health’. For obvious reasons, these debates were not reflected in the IDIs. However, the IDIs provided a wide spectrum of responses in relation to the scope of, and approach to, men’s health.

5.3.2 Scope of men’s health: holistic versus male-specific health

At one end of the spectrum of opinion, some PCDs thought that the scope of men’s health should be holistic. At the other end, PCDs advocated seeing men’s health as only related to male-specific disorders. Those taking a holistic perspective would include all aspects of health as defined by the WHO. These aspects would also include healthy relationships with family members and men’s working environments. Those taking a holistic perspective also emphasised the need to look into men’s quality of life. They noted that physical health, mental health and social health were interrelated, while acknowledging
the need to explore men's sexual health, because in Malaysian society, sexual health carries an image of manliness and masculinity. Therefore, sexual health has to be addressed alongside the other aspects of men's health, such as their psychological well-being and underlying medical problems.

The patient might have diabetes, hypertension, and also the problem of erectile dysfunction which may affect his relationship, his social life and so on. It's all interrelated.

Taking a holistic approach to men's health also involved issues that were common to men or where men were at higher risk.

My priority [of men's health check-ups] would usually be on the most prevalent disease that men faced, it should be cardiovascular [problems]. That is the most important thing that we need to look at.

This holistic scope of men’s health was challenged by some participants. They agreed that care for male patients should include all aspects of their health as defined by the WHO, but when talking about 'men’s health', they preferred to refer to it as male-specific conditions in order to differentiate it from general health. In their opinion, although overall health was a concern to men, it should still remain under general health and not be included in the discussion on men’s health.

men’s health er...actually we have general health, female health and men's health. Men's health actually to me is pertaining to the sexual organ then from there, we trace back their health.
Normally when you talk about men's health, the process just narrow down their mind specific to men's sexual health needs. Although we shouldn't just focus on one issue but sometimes when we think about men's health and men's need, most people make it [men's health] focus to sexual health.

Those doctors opposed to a holistic approach to men's health preferred to classify health issues into general health, women's health and men's health. Although the doctors preferred such a division, they did recognise that sexual health, particularly erectile dysfunction, was associated with cardiovascular morbidities. They advocated holistic approaches to urological and sexual health, and erectile dysfunction was seen as the indicator of men's overall health.

So if this patient has ED, definitely this patient is prone for hypertension, diabetes. So, we are using ED as an indicator.

Although there was debate about the scope of men's health and uncertainty about what constituted men's health, much of the discussion was around men's sexual health. Some PCDs wanted to assess men according to various aspects of health simultaneously, including sexual health, by adopting the WHO's definition of health, whereas others advocated that sexual health should be the focus of a holistic approach to men's health. The debate was essentially about what the prime focus of attention should be when doctors talked about men's health.
5.3.3 Opposing views on the approach to men's health: universal or gender-specific

Most of the doctors viewed men's health as a new concept. However, some acknowledged the need to have a gender-specific, as opposed to a universal, approach to men's health. Proponents of the universal approach to men's health argued that men should be approached the same way regardless of their gender in non-male-specific conditions. In their consultations, men were considered to have similar health needs to women as far as common health issues are concerned. Some even questioned the reasons for having a separate entity conceptualised as men's health.

Well, I think as the health care provider, services that we provide, we should be universal for male or female in whatever age groups, it should be universal.

-A10

Aging medicine is already there, I don't have to talk about it. Whole lot of people addressing the issue here. These [men's health] are meaningless. If you are not practical, you forget it. There is no big deal about men's health.

-ID110

According to these doctors, there were more urgent health issues such as hypertension, diabetes and acute illnesses, which deserved greater priority. Specific men's health concerns such as sexual health were considered secondary to these common illnesses.

...there are many other problems to settle...hypertension, diabetic rather than men's health, this one doesn't kill you...
In their opinion, sexually-related health matters were the only area that required a different approach.

I agree with Dr. L, for general health, there should be no different but, if you talking about men’s health [in relation to sexual health] then you should have a different approach.

Most men are, at least I think, quite concern with the sexual health concern that relates to the masculinity, manliness, so that is another factor that we got to know about.

The opponents of a universal approach stated that men exhibited different help-seeking behaviour and hence needed special attention. Men would not present readily for health assessment or for trivial illnesses due to the prescribed image of masculinity in Malaysian society. Men also have different social priorities and responsibilities in life. For example, men were unlikely to attend health services during working hours because they placed a higher priority on work. Therefore, health service delivery to men has to take these factors into consideration.

...this group of people [men] who need to be screened but do not seem to come for screening due to their responsibility...because men seem to think perhaps health screening is not one of the priorities. The priority is to earn money and be the breadwinner for the family. That’s more priority to them. So perhaps you should have advocacy for men health, it will allow them to come.
Those doctors opposed to a universal approach noted the relationships between sexual health and common medical illnesses, social relationships and family systems. Men have important roles as the financial providers and companions to the family.

... patients with ED problem also have the risk of having MI [myocardial infarction] or having heart problem. So I think it’s important.

-4R1

I not sure why but, maybe that’s why we try to capture this group of people [men] who need to be screened but do not seem to come for screening due to their responsibility and other things that concern them out there.

-6R6

They also noted the need to have special communication skills in approaching men and the need to be sensitive to their male patients’ masculine self-image and social responsibility.

Tackling the male [patients] is not simple. It is not similar with tackling the female patients.

-10/7

I think it important how to... to approach men.

-2R3
They often advocated specific approaches to men’s health service delivery, with special attention given to addressing men’s health issues. At present the health care system, particularly the public health system, only provides special services for maternal and child health.

However to advocate and to capture men’s interest, we might have to use different approaches for them [men] to use the services...

What I try to say is that our settings right now are more friendly towards women because our maternal and child service is very well established and we focus more on that.

Maybe maternal child health clinic should change to family clinic.

The gender of doctors is thought to have an influence on how they view men’s health and their help-seeking behaviour. Contrary to this assumption, however, a review of our data did not yield substantive differences between male and female doctors. There proved to be similar and opposing views of men’s health among both male and female doctors.

There was indeed a wide variation in opinions about men’s health among Malaysian PCDs. The concept of men’s health was relatively new to many of the participating doctors. While most agreed on the holistic approach to men’s health, many were uncertain about the focus of emphasis, the scope, the approaches to men’s health issues and men’s health check-ups.
5.4 Weighing the importance of men’s health

Weighing medical importance was one of the prominent determinants involved in this process of decision making. Essentially, the process of weighing medical importance was a mental act of assigning the degree of emphasis the doctors conferred on a particular medical condition during an encounter with their patients. The doctors weighed the medical importance of men’s health check-ups based on their own understanding of the topic and scope of men’s health, their own interests, and their responsibility for health promotion in primary care (Figure 5.1).

5.4.1 Interest as a factor in weighing the importance

In a focus group discussion, one doctor spoke about her initiative to inquire more into areas that interested her, and this opinion was supported by others. Their interest influenced whether they considered certain health issues important, and hence they placed more emphasis on screening it.

I look at things that sort of... I feel that if the things interest me more, I tend to screen it more often and ask more... such as smoking.

-8R4

Again, it comes back to the basic, as really the interest and the man power. So we’re looking into a specific men health issue. It is more than what we do in extra [in our routine].

-8R5

In an IDI, a doctor admitted to not addressing men’s health issues because she was not interested.

Because I’m not really interested on men’s health issues, so I just, I mean, delve only on the surface and I don’t go into it.

- IDI8
5.4.2 Understanding men’s health as a factor in weighing the importance

FGDs again provided an opportunity for the participants to debate the scope of men’s health, which influenced their intention of what to screen in health check-ups. Doctors who took note of cardiovascular disease as a common problem affecting men would emphasize cardiovascular risk assessment (including smoking) as part of health check-ups. This was in addition to male-specific disorders, such as sexual reproductive disorders, which have often been advocated as the main issues in men’s health.

I know that people have looked at like sexual problems, like erectile dysfunction... and now andropause... that’s another err... the main domain of men’s health, but the other domain, I think cardiovascular screening and the cancer screening also... that is what we usually do

On the other hand, in the same FGD and also in other FGDs, some doctors who emphasised male-specific disorders as the main concern for men’s health would make sexual health the main agenda in men’s health check-ups. While they would also enquire about cardiovascular risk factors and family relationships, they saw these issues as underlying factors to sexual health.

Partly... true also but I think now, when talk about men’s health, because now cardiovascular diseases come under cardiovascular screening, so... when we talk about men’s health right now, it is more towards men’s sexual organ disease like prostatism, prostatitis or sexual dysfunction

I think, for us as a GP, our role is to screen ED to detect a ‘bigger’ underlying disease, so our job is to screen for ED get down to the underlying disease
It was their knowledge and exposure that shaped their understanding of the scope of men’s health issues, and hence their perception of its importance. Both IDIs and FGDs have raised doctors’ concerns about their exposure to, and knowledge of, men’s health screening.

I think we don’t have enough information about testosterone deficiency, probably we don’t see it as important. We probably we, we see as part of... as part of ageing process.

-IDI 3

I think men’s health screening it is not the same as what they do for women’s screening. For women’s screening, we have a lot of campaigns. Everybody knows what to do, but for men, we do not really have that kind of exposure, that kind of knowledge why we have to do.

-4R1

5.4.3 Philosophy of health promotion as a factor in weighing the importance

In an interview with one of the key opinion leaders, the doctors who saw health promotion as the responsibility of primary care would proactively provide health check-ups.

We will start screening them [men] for various risk factors to attenuate the cause of a disease. Delay the onset of the complication as well.

-IDI2

However, if the doctors had a negative perception of the importance of men’s health check-ups, they would not put any effort into initiating it.

I, I think, there is no big deal about men’s health. As I said, I don’t think you should go and waste so much of your time. The most important thing is practicality. For a doctor... the most important is actually must be practical. If it’s not practical, you can forget it.

-IDI10

125
In summary, the doctors’ perceptions of their responsibility and the importance of the areas for men’s health check-ups determined the priority and degree of emphasis during encounters with male patients. The felt responsibility of health screening was related to the doctors’ philosophical stance on health screening. Hence, the weight the doctors gave to a particular men’s health area did not change with the agenda for visits. Rather, the priority to bring up the issue during encounters with men depended on their perception of men’s receptivity to health check-ups (Figure 5.1).
5.5 Weighing men’s receptivity to health check-ups

The second prominent determinant of doctors’ intentions to initiate health check-ups was the weight doctors assigned to men’s receptivity to health check-ups (Figure 5.1). Men’s receptivity to health check-ups reflected the degree of willingness of male patients to discuss health check-ups during consultation. Hence, the weight assigned to a patient’s receptivity influenced the doctor’s intention to raise discussion about the check-ups (Figure 5.2).

![Figure 5.2](image)

**Figure 5.2 Relationship between perceived receptivity and doctors’ intention to offer health check-ups**

5.5.1 The degree of perceived receptivity

The ultimate degree of receptivity was when the male patients themselves requested a health check-up or a particular screening test. In so doing, the men openly declared their interest in health check-ups. In these circumstances, doctors would not hesitate to undertake the health check-ups. This is demonstrated by the following quotes taken from one of the FGDs:

*Sometimes we do know the outcome. I suggest to him why not you [the patient] get these done: why not screen for cholesterol, diabetes. Usually I do suggest for such screening but such patients who come for screening are very few. Very few will ask for it.*

-7R4
I do get patient like that too, they all want to do blood test, “doctor I want to check my blood”, that’s what they said. So I proceed with blood test. But, very seldom I propose to them. Tell you very frankly. Very seldom I offer.

-7R1

At the other end of the spectrum, the degree of receptivity was lowest when male patients refused to discuss health check-ups by articulating their disapproval or by conveying unease non-verbally.

Sometimes it takes some time. I’ve seen, I’ve written in my card okay I want to do blood test next time, then next time he doesn’t come, then the next few visit he’s not there...disappear (chuckled)

-7R4

Most of the time if you for those unprepared patient, if you just bring up this question [about health screening] they would just shrink away. They would just shut themselves up and say “just proceed with this consultation and I do not want to listen more to this”.

-10/1

In-between these two extremes, there was a spectrum of perceived receptivity. This perception of men’s receptivity was shaped by doctors’ subjective assessments when they encountered male patients in the clinics. The effort of this subjective assessment ranged from minimal, i.e. just based on their prior assumptions, to a more thorough effort such as ‘indirect questioning’ to test men’s receptivity. The objective way of assessing men’s receptivity by posing direct questions such as “Would it be okay to discuss health check-ups?” was not encountered in any of the transcripts. Often, the questions about screening put to male patients were direct offers of screening tests or health checks.
I'll tell them these are the mile-stone [scheduled test] you need to screen.

-IDI_2

I said, when was your last cholesterol done? Have you had this checked, have you had that checked? You know at this age we need to have this and all that...so I think if we keep on reminding them.

-IDI_6

I make every man that comes for the diabetic clinic. I ask, if they are married, I ask about sexual dysfunction.

-2R3

These questions were not assessing men’s receptivity but rather were the first step in the process of “negotiating health check-ups” (elaborated below; section 5.10), where a balance between medical importance and men’s receptivity was reached and the intention to initiate the discussion was already made (elaborated below; section 5.9).

5.5.2 Methods of assessing men’s receptivity

There were three methods of assessing men’s receptivity:

1) The doctors assumed the level of men’s receptivity based on their prior perception about the factors influencing their receptivity (Figure 5.3).

Sometime we feel reluctant [to offer health examination] because of patient himself. They seem to be reluctant for us to examine.

-4R3

Social history is something that I personally feel, in an Asian set-up, and I think there are enough studies to prove that we fail on this areas, particulars we GPs, fail in this area, because we just assume and we judge on overall and say, no, this guy will not be forthcoming.

-IDI_13

I know the outcome will be negative so I don’t want to waste my time.

-6R2

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The doctors watched for cues from their patients. For example, doctors would look out for a cue indicating some hidden agenda. This indicated receptivity to further questioning and hence proactive health screening may be on the patient’s agenda.

This was usually the case when it was about sexual health. The absence of such cues indicated non-receptivity.

Let’s say, the patient come and just for a normal flu and cough, I’ll say, “Ok, I’ll give you some medication”, this and that and everything. You can sense that. Some of them will say, “Ok, see you”. They just go on. Some of them just sit down and then they will chat with me. If they know there are no other patients waiting, they’ll say, “Oh, doc, is there any patients?” I say, “No, no patients.” So, they’ll stay. Then they will ask, how’s the business, this and that.

So, that’s how I start talking about anything. So, that’s how I manage to easily ask them to do the screening.

The doctors indirectly tested men’s receptivity by introducing a broad question about health and observing the patient’s response. If the men responded positively, it indicated that they were ready for further discussion, and hence a level of receptivity to talk about health check-ups.

I suppose health, if you want to define health, it’s not just physical... also emotional, social and psychological. So, usually, you know... We tend to question, “How, how do you feel?” “Are you satisfied with your life?” and so on.
You say 'Do you have problems in your relationship with your spouse?'

And...something of that nature, then, I lead. I see what the response is coming back to me like. You able to probe in a gentle manner without the patient feeling uneasy.

—from ID 9

From there I ask a basic history, a family history and we progress from there. If they kind of open up and ask me further questions and I’ll answer it, and that’s how the conversation grows. Otherwise we’ll stop.

—from ID 11

The above three methods were not exclusive to each other, and they overlapped at their boundaries, therefore representing a continuum. The minimal effort of assessment based on assumption relied heavily on the doctors’ perceptions of the factors that influenced men’s receptivity (Figure 5.3). They made assumptions about the level of sensitivity of the topics for discussion, the men’s help-seeking behaviour, their image to men, and the level of receptivity associated with the agenda for the visits. By contrast, observing cues from their male patients during encounters with them involved greater effort in assessing their receptivity, and hence reduced their assumptions about the four factors outlined in Figure 5.3. At the other end of the spectrum, when doctors ‘indirectly’ tested men’s receptivity, minimal assumptions were made about it.
5.5.3 Four factors influencing doctors’ perceptions of men’s receptivity

![Diagram showing factors influencing perception of receptivity]

1) Perceived sensitivity of the topic of men’s health check-ups:

Discussion of less sensitive health issues, such as cardiovascular risk assessment, was perceived as more easily received by many male patients. By contrast, sensitive issues, like sexual health, were more difficult to broach unless there was reasonable justification.

*Because the test is simple, not invasive... so they know that they’ll have the disease... and... there is no sensitive issue in screening about the high risk cardiovascular, metabolism syndrome.*

I’ll take the opportunity to check his ah... BP, weight, height, I’ll check his BMI. I’ll start promoting itself, and let’s say if the BP is high I’ll tell him ‘please come back and recheck again. I will also promote [blood test], if he is more than 40 I’ll say, I will advise him even though is not that setting [of health check], I will said please come back and do screening for cholesterol,
diabetes. I do nowadays. Ah... of course sexual history actually only for those patients have hypertension in addition diabetes.

I find it hardest to talk to men in the older age group where they will totally cut off, you know, our conversation and say no, it's part of aging, or you know, where ED is concerned.

While prostate disorders may be viewed as a sensitive issue in the community, if it was not perceived as sensitive by the doctor, then initiating discussion about it was an easy matter.

If it is a first time visit and I'm seeing the patient, and the patient is let's say, 50 years old, 50 to 55, immediately I will ask them about prostate problems on the day. It's not as personal as ED.

2) Doctors' perceptions of the help-seeking behaviour of their male patients:

Doctors associated men's positive attitudes towards health with receptivity to health check-ups. When male patients were perceived as interested in health information, placed health as a priority, and were willing to pay for a health check-up, then they were more likely to be interested in a broader discussion about their health. Older men were also perceived to be interested in maintaining health.

Men who are aware of health are quite happy when you give a card, an appointment card. They do come back to you and said 'I want a health check, can you please check'

Men over forty, for example, I think they will, they have already got that idea that they are about to go for health check. And I think, especially the
government officers, the government has a compulsory program for health check...they accept [the idea of health check-up]

On the other hand, if the doctors had a negative perception about a male patient’s help-seeking behaviour, they would perceive these individuals to be resistant to health check-ups. This substantially reduced their intention to discuss a health check-up with them. For example, stereotyping men into the hegemonic image of masculinity contributed to the perception of low receptivity to health check-ups. Men were thought to be in denial of their health, not believe in health check-ups, guard their masculine image, and fear long term treatment. Men were also thought to have low receptivity to health check-ups if doctors believed that a sexual health discussion with men was a taboo subject.

The men seem to think, perhaps health screening is not one of their priorities. The priority is to earn money and be the breadwinner for the family. That’s a higher priority for them. They perceive health is not important.

In that sense...it is partially a cultural context that guys here don’t openly talk about this subject and secondly is the ignorance the masculine part of men that think that they don’t need a check-up.

I have not brought this up but, I do in a roundabout way...Of course, if you tell out [about erectile dysfunction], I tell you, he will screw you up, man. How, how do you screen actively for, ah, ED? You tell me. Erectile dysfunction is very sensitive.
3) Perceived doctors’ image to men:

The assumptions doctors made about their image to male patients also affected their perception of patients’ receptivity. This image was their general impression to male patients, and it represented the doctors’ views on the doctor-patient dynamic within the consultation. If there was an established rapport with male patients, they would be perceived as receptive to discussion of health check-ups. Rapport often developed over a period of time following repeated encounters with them, such as occurred in the treatment of chronic illnesses or prolonged engagement of the doctors as family doctors.

It depends on the relationship em...you know that patient trusts you and then you can ask, but for initial [encounter] normally we don’t ask such questions [about sexual health]

—2R5

Gender issues between male patients and female doctors were often raised as a barrier to discussing men’s health issues by some, but not all, female doctors. Men were perceived as being uncomfortable with, and hence unreceptive to, discussing sensitive areas such as sexual health with female doctors.

So I think I can get the confidence, so I’m not shy in asking, but I see female doctors are shy in asking, some time even in our culture, male patient are not really comfortable then with female doctor to ask... or discus all this thing[sexual issues].

—3R4 (male doctor)

While this was true in many situations due to socio-cultural influences, as discussed in many FGDs, this might not entirely be due to gender since some female doctors were confident in dealing with sexual health matters with their male patients. In one
female doctor’s experience, many of her male patients have been receptive to discussing sexual health matters with her. Therefore, it was more a matter of how she perceived her professional relationship with her male patients. The perceived image of her as confident among male patients influenced her perception of the men’s receptivity.

If you open up and you show that, you will and willing to tackle whatever problem they have, I think they will open to you. So far I don’t have problem. Normally they...they will open up. I think even to talk about sex, about whatever, I think I don’t have problems. I have gay patients, the transsexual, normally they open up to me. I, I don’t have a problem.

-IDI3 (female doctor)

A positive image of competency also supported the doctors’ perception that men would be receptive to discussing men’s health issues. In the following example, gender was, again, not an issue. Many members agreed with her in the FGD.

I think the patients screen us first, patients screen us first...for example if they know you and they are comfortable with you. Then we offer [health check].
The discussion then is very easy.

-8RS (female doctor)

4) the agenda of doctor-patient encounters:

The other factor that affected the degree of male patient receptivity was the agenda for the doctor-patient encounters. If the agenda for the encounter was to have a health check-up, there would be total receptivity. However, varying degrees of receptivity were seen with minor complaint and follow-up consultations. In a walk-in consultation for minor ailments, the receptivity was high if the doctors managed to seize the opportunity to talk about health issues relevant to their complaints.
...the question of...which, which subject to introduce depends on your complaint. Okay...is just like you take an URTI case [for example], then you can go into [the topic of] smoking. You can just check the weight and height, and if it goes beyond [the normal level] and you said 'you are, you know, you are above [recommended] weight level. I think you have to look at lipid profile and, because you are going along like that, they can understand all these.

The degree of receptivity was also high if, during a consultation, the doctors were able to recognise non-verbal cues from men indicating that they wished to discuss health check-ups. This often happened with sensitive issues such as relationship problems and sexual health. The hidden agenda signified a higher degree of receptivity to discussion of the issue.

If they have problems, more of relationship problem, with their spouse, with their children or their in-laws. Mainly the relationship problems...It is worth exploring and it depends on their cue given or...some time they have multiple not specific complaints and then you can explore.

Male patients who came regularly or for follow-up on chronic illnesses presented different levels of receptivity, as a rapport might have developed and a relationship of trust established. They were more receptive to discussing health matters because of their pre-existing illness. For example, men were perceived to be more amenable to talking about sexual health matters during chronic disease consultations.

To me I initiate it but not as men’s health, it’s general health. But I won’t, honestly speaking...do like screening as a checklist. It depends. If I notice that the patient comes quite regularly. If they normally come quite regular at least
two three times a month. There’s a lot of opportunity to actually ask them, not only on this session normally at the next session. Actually there's a lot of opportunity.

They [male patients], they do talk, particularly when these people have a disease like hypertension, they are on medications like anti-diabetic or anti-hypertensive.

The perception of men’s receptivity to health check-ups by the doctors was a subjective assessment of the willingness of men to discuss men’s health check-ups. It involved a process of mental weighing by considering the context of the consultation, the perceived men’s help-seeking behaviour and the topic of health check-ups in mind. This mental (subjective) weighing was an initial assessment of patients’ receptivity. Doctors would influence patients’ receptivity if the medical importance was significant enough by negotiating health check-ups. The negotiation of health check-ups will be discussed in section 5.10. Hence, the weight given to perceived receptivity could be modified and did not totally determine the doctors’ intention to initiate discussion of health check-ups. This intention depended on the balance between the perceived receptivity and the perceived medical importance of the topic in mind, which will be discussed next.
5.6 Balancing the weight of receptivity versus medical importance

In this regard, there was an arbitrary balance point between perceived receptivity and medical importance, which determined whether the doctors would initiate discussion of men's health check-ups (Figure 5.1). This point is represented by situation D in Figure 5.4.

\[ I = \text{Perceived medical importance} \]
\[ R = \text{Perceived men's receptivity} \]

Threshold

A B C D E F G H

- Withhold discussion
- Initiate discussion

Figure 5.4 Balancing the weight of perceived men’s receptivity and medical importance

When doctors felt the importance of a particular health issue (hence giving it more weight), they placed less emphasis (less weight) on their perception of male patients' receptivity to discuss it. This thereby strengthened their intention to engage their male patients in discussing it (Figure 5.2; situation E to G). Therefore, the perceived receptivity was not an issue even though the receptivity was low (Figure 5.2; situation E). For example, inquiry into sexual problems was initiated when it was deemed necessary, despite it being perceived as not easily acceptable by many patients, as illustrated below in one of the FGDs:

> if you know that diabetes is one of the reasons for patient’s sexual dysfunction, yes.

> You will trigger the question and ask the patient in more detail.
(noddmg) Diabetes, hypertension which are high risk [conditions for sexual dysfunction].

No risk [of sexual dysfunction] is really...[giggling] difficult. The example is patient with URTI...[laughing], I won't ask about sexual dysfunction.

-2R5

Similarly, men's receptivity played a smaller role for doctors who perceived cardiovascular risk assessment as an important issue. Hence, cardiovascular risk assessment was often offered during encounters that were unrelated to heart disease. Other issues that were perceived as important were routine blood pressure measurement, psychosocial health when men presented with repeated minor complaints, sexual health when men were at risk of complications from medication, and cancer screening among men with a positive family history.

In fact, one example is about, just two weeks ago, a patient came in, a forty plus year-old Indian man, came in for just a normal cough and cold and so on. And then, I asked him, "Have you ever tested your blood?" He said he has not tested his blood for long time. The last test he did was eight or ten years ago. So I said, "Since you know you are forty-something, so why don't you just do a sugar and cholesterol test."

-ID14

However, the doctors would often propose a health check-up when there was at least some degree of male patient receptivity to it. Rarely, more elaborate health check-ups, such as screening, would be offered proactively when male patients were very un receptive. In an ID1, a doctor expressed his opinion about offering blood tests to his male patients:

Usually, if they are interested in their health, only then I will give them the possibility of a screening test, rather than pushing it onto their face.

-ID11

On the other hand, if a particular component of the health check-up was perceived as less important to male patients, such as if a doctor saw it as a waste of money, the male patients would then need to demonstrate a high degree of receptivity before the doctor would initiate discussion of it (Figure
5.2; situation H). For example, the degree of receptivity to laboratory assessment of serum tumour markers would need to be very high indeed to counter the low medical importance of such a screening test before he/she would agree to offer the test to his/her patients.

I don’t do it [tumour marker testing]. I think it’s just a waste of patient’s money. I don’t believe it. Any patient who asks me [for that] also I will not going to do. My standard is that, I don’t do tumour markers testing. I’ll tell off the patients. Unless they insist they want the tumour markers.

- ID14

In most instances, there needs to be at least a minimal level of medical importance in the subject of the health check-up. Otherwise, the tests would not be negotiated.

A lot of them comes asking for, what you call that... cancer markers. But most cancer marker are not sensitive enough. I just turn them away. But they insist to do it and when it actually come out positive what are we going to do? More screening?

- IDI 1

If we are going to do it without a benefit to the patient, then, you know we are a bit hesitant.

- IDI 6

In situations A, B and C (in Figure 5.2), certain medical conditions were perceived as having low medical importance in health screening, and male patients were perceived as not being keen to discuss them. In these situations, it was quite obvious that health check-ups for the conditions were often not intended to be discussed.

If you are talking about prostate cancer, do you think you should screen them? I don’t think so. The yield will not be there. It might be fruitful but it might not be...it might not sound nice to that particular patient as they will not be receptive to the idea.

- IDI1

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In the mental act of balancing the medical importance of an issue with the perceived male patients' receptivity, these two concepts intersected. The balance for each doctor, whether it was above or below the threshold to undertake health check-ups for male patients, varied with every encounter with individual male patients due to the differences in perceived receptivity and the health risks for each patient. The weight assigned to the medical importance of a particular condition and male patients' receptivity to health check-ups for it, also varied greatly among doctors. This was attributed to their wide spectrum of understanding and emphasis on men’s health issues as discussed in section 5.3. However, most participants agreed on the importance of cardiovascular risk assessment and hence placed less emphasis on men’s receptivity in regard to this issue. But, in areas of psychosocial health assessment, prostate disorders, and sexual health, their opinions varied greatly. However, no matter the level of intention of doctors to initiate the discussion of men’s health check-ups, perception of their own competencies and external factors could still affect their final decisions.
5.7 Perceived personal competency in undertaking men’s health check-ups

Doctors’ perceptions of personal competency related to their comfort, skills and confidence in initiating discussion of men’s health check-ups. It was also associated with their skills in resolving a health issue once it was detected. Their competency related to their levels of training, exposure and experience as illustrated in sections 5.3 and 5.4. Competency in performing health check-ups was a concern for many participants. Despite a strong intention to initiate discussion about it, their enthusiasm and effort could be dampened if the doctors felt incompetent in doing so (Figure 5.1). For example, feeling uncomfortable about discussing men’s health check-ups, particularly about sexual dysfunction, nullified their intention to initiate the discussion.

Yeah...it [ED] is a very sensitive issue, it depends on how you open up the topic, because now a days, in diabetic clinic, we are suppose to screen for ED, most of them [the other medical officer] are not comfortable, and they don’t try to ask.

-8R4

By contrast, if doctors felt comfortable about initiating men’s health check-ups, their intention was intensified. This was particularly true of cardiovascular risk screening, where most of the doctors felt comfortable with their skills.

I don’t think we have a problem. For example in this clinic, we have like most of our patient if they are more than 40 whatever, more than 55 or those who are at risk, we, we do screen for the cardiovascular problem.

-ID13

While gender, again, was often raised as a barrier in the discussion about ‘comfort’ both in FGDs and IDIs, its importance was contested by other participants in the FGDs. Some female doctors felt comfortable discussing sensitive men’s health issues relating to sexual health. It was more a matter
of skills in addressing the issue. The following quotes were taken from one FGD, where participants were all female doctors:

8R2: Probably in term of sexual yes, but I don’t think it [gender issue] is so in term of cardiovascular risk factor that both male and female are having, I don’t think that is an issue. But in term of sexual reproducing health probably it plays a role there. Gender influence is there.

8R7: I’m comfortable, I think. They themselves uncomfortable and they will make the patient even more uncomfortable. So perhaps that is one of the reasons why they don’t explore.

8R4: It depends on how you put it forward. I mean if ah...say, we ask like “I’m sorry I need to ask some questions that may related to your problem today or may not be but something is necessary” they are okay about it.

Besides being comfortable in bringing up men’s health check-ups, having adequate knowledge and skill was also vital in being able to initiate discussion about it. Despite feeling the need to raise certain issues, some doctors were unable to do so satisfactorily due to their lack of knowledge or skills.

Ok, actually for myself, in term of men’s health screening not being carried out as active as I suppose to, I think we need to more proactive than usual. I think that’s a weakness of inadequate knowledge, impart knowledge is very important. I think Dr. Z became like this [being proactive in men’s health screening] (all laughing), because he actually attended lots of conferences, you know.

8R2

Asking about sexual problem can be very sensitive. If you are talking about screening other things like physical problems...that is not so sensitive. But men’s health screening includes all, the sexual and everything, the person must be well trained.

IDI 7

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The intention to initiate the discussion was also hampered by the perceived inability to manage men’s health issues when they were detected. This was particularly so with sexual dysfunction where training in managing it was often inadequate.

If it is sexual health, not really [screen for it]. By right, you suppose to...(laugh). The minute they talk about it, oh no, they can’t perform. Now you end up with a problem here.

However, being comfortable and well equipped with skills and knowledge alone was insufficient to motivate doctors to discuss men’s health check-ups. There was still a need to have a substantial level of perceived men’s receptivity to health check-ups before the doctors would engage men in it. This is well illustrated in the following quote, a section of transcript from an interview with a doctor who was trained in anti-aging medicine and testosterone replacement therapy.

In terms of [male] hormone decline, yes. That’s where my main strategy is. In this particular area of treatment, I try to look at the preventive side. But you know, in the preventive side in sexual health, if you look at the patient whom you want to discuss with them issues of declining sexual health as they grow older or if they are beginning to become obese or they smoke or take alcohol excessively, giving them the advice, I choose very carefully the group of patients I’m going to speak to. I don’t speak to patients who come for other complaints unless the patients has been on my follow-up for 14 years and he thinks that I’m a best friend to him.

-ID13

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Despite his expertise in treating androgen deficiency and sexual health, he chose the group of
patients that he was going to speak to. While being competent was a determining factor, perceived
receptivity to men's health check-ups was an even more important determining factor.

Perceived personal competency in undertaking health check-ups acted as one of the determinants in
the doctors' decision-making process of engaging men in health check-ups (Figure 5.1). It potentially
modified the doctors' intentions, hence affecting their final decision.
5.8 Role of external factors

External factors were environmental circumstances that affected the doctors’ final decision on engaging men in health check-ups. After the struggle of weighing whether to initiate discussion of men’s health check-ups, their intentions could still change depending on environmental circumstances at the moment of contact with male patients. However, the extent to which external factors were a facilitator or hindrance to their intentions depended on how intense the doctor’s wish was in engaging male patients in health check-ups. Five categories of external factor were found.

5.8.1 Designated clinic systems for men’s health

Having a special program or designated system of running men’s health check-ups facilitated this service. The health check-ups would then be more organised, coordinated, efficient and focused. The systems might involve having a men’s health clinic, a screening package, trained staffing, or simply an organised work process.

> we have men’s health clinic, it limits the patient load [by having appointment system] because they have to take long history from the patient.

>4R2

So, when patients come, you can introduce to the patient that this package of screening. If the patients have extra time that they can spend, by all means, we can offer to the patient. I would have trained more, the paramedic to do the screening.

Okay, and then simplify the screening format and ah...probably the patients do not have to register in front. You can have a...a place where the patients can just walk in, see the nurses, do their screening and then register there itself...and then, put more staff, and then make sure that they are trained to do the intervention as well.

>IDI 7

Checklists facilitated the efficient use of time and acted as reminders to both the doctors and paramedics involved in the health check-ups.
We have certain check list to screen because mental health problems are quite common in primary care. They are under diagnosed. We use checklist to ease the time constraint.

For example we see the patients with the diabetes so at least we have to check list what to do. So the same applies to men’s health.

Having these designated programs or systems in running men’s health check-ups also acted as a message that health check-ups were necessary, and this message improved men’s receptivity to health check-ups. Some participants in FGDs and IDIs noted that by having a ‘proper’ program, men actually turned up for health check-ups. Hence, the first hurdle of weighing men’s receptivity was overcome.

They [men] willing came forward if you have proper program...you can ask the staff nurse to check the blood pressure, height and weights, and probably the lab staff can take the blood sample...and there are few more people, do the physical examination, to screen the heart case [risk factor for heart disease]...so can be done. But more coordinated.

Participants in FGS and IDIs who acknowledged the importance of men’s health check-ups agreed on the advantage of having special arrangements.

In fact well-adult clinic is very limited. We are just doing the CVD [cardiovascular] screening. We are not asking about the sexual history or their, you know, the mental health aspect. So is not really comprehensive. You know we can add in all this, but all this integrated one we need staffing.
However, some participants had different views. Even though special programs could facilitate men’s health check-ups, there was the possibility of creating stigma as men’s health check-ups involved sensitive issues such as sexual health. A more feasible way was to integrate them into routine practice.

*I think, with men’s health clinic, men will be more shy. If more specific service, they will be more shy.*

-To me... as I said just now that we don’t let go men’s health check-ups but we don’t want to run men’s health as a special program. All of it should be integrated into usual clinic practice.

-In order to have a workable men’s health check-up program, the doctors in the clinic must, first and foremost, value the importance of it and the importance of men’s health generally. Besides facilitating health check-ups, having such programs also potentially reduced the influence of doctors’ perceptions of men’s receptivity. However, in many instances health check-ups for male patients were still carried out in the absence of a formal program in the clinic, although selectively, as the intention to initiate it was substantial.

5.8.2 Resources for men’s health check-ups

The issue of resources for men’s health check-ups was discussed in virtually all the FGDs and IDIs. It ranged from the cost of screening to male patients, resource constraints for health care providers, and the cost of treating the disorders detected in check-ups. The cost to male patients was particularly an issue in the private sector where all the costs of screening and treatment were borne by patients or third-party payers. By contrast, manpower and the cost of treatment to clinics’ budget were important issues in resource-stretched public health clinics.
In private clinics, requesting laboratory tests for health check-ups was perceived by doctors as expensive for their male patients. The doctors noted male patients were often unwilling to pay for preventive health check-ups, expenditure on health check-ups not being their priority. Similarly, the cost of treatment for erectile dysfunction and testosterone deficiency syndrome were considerable. Therefore, many of the doctors hesitated in suggesting health check-ups in these areas even though their intentions to do so were high.

The GP will be prevented from actually performing his best. Maybe of the expenses...

Because it will depend on the payment mechanism in order to succeed. Because currently I mean...the patients say is too expensive.

So, in the end, you try, you know...One thing, for example, Androide® [a form of testosterone] is expensive...right? So, if you really want to give them good treatment in GP practice, it's not that easy also. Ah, affordability. Because a lot of them do not, can't afford. Like Viagra 30 dollars, 40 dollars each.

Also, doctors were apprehensive about proposing health check-ups as costly health check-ups could 'scare' patients off, rendering them unresponsive to it.

And we are also scared to, you know, tell them you have to do some blood test. Next is money. Ya, scared them off. “What is this doctor doing blood test all the time!”

For public clinics, the concerns were human resources in the clinics and the availability of treatment options if medical disorders were detected.

Problem is, like I said just now, manpower. I can tell you health office people are very ambitious. They want to do cardiovascular screening, HIV program in primary care, and want to do everything, but when you come to the ground, its all the same persons who run to the clinic. So, of course when you have enough manpower. We
can do men's health check-ups, Can do! But once you allocate certain staffs to this, you won’t have enough staff to run all other programs.

Practically is manpower. Who should do for screening and whether we have structure, a room for the questionnaire to be to be handed out. We need staffing, dedicated staffing!

The issue of lack of treatment options not only concerned erectile dysfunction, but also included smoking cessation and follow up for preventive services.

Now we have medication for erectile dysfunction but it’s not available in government clinics. The patient must buy. That makes us more difficult to treat them. We find a lot but where to proceed. What to proceed? What can we offer? You can screen, but what next?

So sometimes we screen but if we don’t have manpower to, I mean, to counsel to follow up, to do the next step, I think is unfair for the patient. For example like we know that patient is smoking, we need Nicorette®, but we don’t have that, so patient said, if just counseling I don’t want to be follow up.

Although resource constraints could be considerable obstacles, there were means to overcome them once the level of intention to offer health check-ups was high. The key was still how the doctors balanced out medical importance with perceived men's receptivity. When the male patients requested a test, cost was not an issue. Likewise, when the health check-ups were perceived as important, arrangements were made to work around the problem of high cost.
From my experience, drug company have a lot to offer, because my bone desitometry actually, sponsored by drug company, my HBA1C also. micro albuminuria also from drug company. So that actually that have a lot, because if you want to do by your own, you barely have time and then is costly. Bone densitometry if they go to the medical center, they were charge minimum RM150 dollars so if they come to you, to me. They won’t pay anything. I don’t charge them at all.

No, it’s [financial burden] okay because if the program runs simultaneously with the primary care or the government primary care, then it’s not a problem because if the patient cannot afford here, they can go there.

5.8.3 Time constraints

Doctors found allocating time to discuss health check-ups with their male patients a challenge. Preventive activities were usually considered as forms of extra services after addressing the patients’ main complaints, unless the ‘complaint’ was health check-ups.

Outpatient you know, can never concentrate [on screening] because you know, because of the time constraint we have to clear the patient’s complaint fast.

Finding time for preventive activities was possible in consultation if patients’ complaints could be quickly addressed.

cases who come on and off for URTI and small rashes only was something that doesn’t take more than a minute to get everything done. So… it makes time with
patient, is worth waiting to be with you for another 5 to 10 minutes also and talk about something else [health screening].

For minor ailment who needed quite consultation, yes, it can be done, but not for other consultation which consumes time.

Due to time constraints, the doctors needed to defer their intention to recommend health check-ups against their wishes. This difficulty was felt both in private and public clinics. So I think we can spend time with the patient and talk about the pros and cons and see what are his concerns are, why he doesn’t want to have it done and time to ah... correct misconceptions and his fear, get him to come here but ah...when you come and see him, you have another 20 patients outside and then I’ll said ‘I’ll try next time’.

Ya and that’s the time constraint and we can’t do as much screening as we could in the clinic. Even do we’re doing screening I don’t think it will capture patient who is coming to clinic for the screening because of the time constrain.

Time constraint was particularly a problem in areas perceived to be sensitive to men, such as the assessment for sexual dysfunction, mental health and social problems. More consultation time was foreseen as necessary for these areas.

If he complains about his sexual problems then of course I would proceed...I ask further regarding that problems, if not, then I won’t...because it depends on what men want in outpatient clinic...time is very limited.
I mean, sensitive problems and er... I mean not to blame the doctor... most of the time, time is limited. We normally look at the organic problems. If come to social problem, sometime you, don’t explore... because it consumes of a lot of time...

Besides the concern of time constraint in discussing health check-ups, there was also a concern about time constraint in addressing the medical problems that emerged from the health check-ups. Opportunistic screening, I guess it is not widely being even mentioned to the patient at the moment. So, probably because of, come back again to time factor, and because, once you screen, you really have to have time to handle the patient.

Hence, health check-ups were performed selectively depending on the availability of time. Health check-ups were not offered to everybody.

The other thing, I think why GP... I don’t know about other people, but as far as I am concern, I think we are too busy to think to do screening for everybody.

However, in some situations, time constraint was not an issue and health check-ups were offered if the doctors perceived a high level of need to address it. For example, when doctors noted cues for a hidden agenda, they might proceed with the agenda of health check-ups.

The patient, erm... you know, even though if they come with URTI, and then you treat... all that, but sometimes you can see whether, patient is still satisfied or not satisfied. From there, you can ask further question, but I don’t think it is appropriate for every patient you are giving the standard question, because you can’t afford the time to do that.
Time constraint was linked to the patient load in the clinic. If there were appointment systems or designated programs with controlled patient load, proactive men’s health check-ups were easier.

*Malaysian practice is such that we don’t have a patient comes in by appointment, where you spend half an hour, with the next patient is in half an hour’s time. So I have full consultation time with this patient. So I got time to talk about high blood pressure readings, complications, diabetes, whatever... then ok. Then comes sexual [health]. How is your sex life like? You can. But here, here would be, there are plenty of patients waiting outside.*

-IDI 9

*Probably if you, you are running a government [clinic], where you have dedicated clinic, that is different you know...because going through all of this takes time.*

-IDI 6

Time constraint was one of the major barriers faced by PCDs in the attempt to engage male patients in health check-ups. Thus, despite acknowledging the importance of men’s health check-ups, doctors often did not discuss it, unless there was a substantial level of receptivity from their male patients, or medical importance in one area of men’s health that overcame the barrier of time constraint.

5.8.4 Privacy issues

Privacy was also an issue when the screening involved overall health check-ups for patients. This was especially so when the doctors wished to deal with sexual health matters, which was a sensitive area to discuss. Effective screening depended on whether male patients would reveal their illness. This was made easier if privacy was ensured.
If you just give them a table and a chair to do the screening, what do you expect?
Erm...because it involve doing the whole thing for the patients. It is not so conducive, it's too pack. No privacy at all.

-I\textsuperscript{DI} 7

I think if you want to screen for men's health like sexual organ based, it has to be separate clinic

-2R5

Sexual health. Difficult, because here is on open space. So...in this sense is, is not enough privacy to talk about such thing.

-I\textsuperscript{DI} 9

A well-organised system that ensured privacy during the screening process facilitated discussion about men's health, particularly sexual health matters.

5.8.5 Network support for doctors in men's health check-ups

Doctors were motivated to engage men in health check-ups if there was a network of support for them in managing the medical conditions detected through health check-ups. With such support, the lack of resources in the clinic or personal competency in managing the conditions could be overcome.

But if you know that this [facility], UMMC has this, HKL has this, HTAR have this. Sometime so we know there something there to help this patient, we are motivated to screen. We can advise patients. We manage up to here, after that...cannot manage, we refer to these places, these places have this, this, this. We're more comfortable.

-8R8

[^UMMC=University Malaya Medical centre; HKL=Hospital Kuala Lumpur; HTAR=Hospital Tengku Ampuan Rahimah]
And I say, 'Eh, I have got this patient, how?' Or I have my favourite cardiologists; I can pick up [the phone] and say, 'Eh, I, I am sending this patient to you, okay. Okay?' You know. So, I feel that, that is my, I need the support network also.

Another participant spoke about the frustration of insufficient support.

We need to know more detail about this... because probably we can initiate the program [men's health screening] but once the problem arise, who to consult? Networking... we need networking...

External factors played an important role in shaping the final decision of PCDs to engage male patients in health check-ups. All external factors presented above were closely related. Having a well-planned system or program in the clinic was seen as an important facilitator of men's health check-ups. Without one, the problems of time constraints, insufficient resources, privacy, and network support intensified. Time and resource constraints were the main obstacles hindering the effort to initiate discussion about men's health check-ups in the clinics. However, their impact could be lessened with a well-planned system. Many doctors also worked, although selectively with only some of their patients, around these obstacles and brought forward the discussion of health check-ups with them. These were instances where there were substantially high levels of perceived receptivity or medical importance.
5.9 Intention to initiate health check-ups

The intention to initiate health check-ups related to the desire to start a process of negotiating health check-ups with male patients. It was about the doctor’s wish to accomplish this task. The intention had a weight reflecting the strength of the desire. The intention, besides being directly shaped by patients’ receptivity and medical importance, was also modified by the external factors and their personal competencies in handling the issues at hand (Figure 5.1). In the IDls or FGDs, these intentions were sometimes expressed with uncertainty, and at other times, with definite will. Such expressions illustrated the degree of importance they attached to health check-ups.

"unless if the patient frequently come to us with... unresolved problem. So maybe they have something that they want to tell us about they didn't tell it. So in that case we maybe will ask"

-ID1

"I would recommend if they are receptive to such idea as a blood test."

-ID11

"My personal belief is erectile dysfunction is over-rated. I don't know it should be screening for that. Contrary to what it's being marketed. I don't want to ask. I don't want to ask at all."

-ID12

"I will always make it a point to check the patient's blood pressure. To me, I think that is one easy screening test that I normally do"

-ID14

As mentioned in section 5.6, the intention emerged from the process of balancing medical importance with perceived receptivity. The level of intention was modified during the decision-making process, following the consideration of perceived external factors and personal competency, as discussed in this chapter. There was a threshold as to whether the doctors would ultimately act on their intentions. The acts were the strategies doctors employed to negotiate health check-ups with their male patients.
5.10 Negotiating health check-ups

Negotiating health check-ups was the outcome of the decision made in relation to engaging male patients in health check-ups (Figure 5.1). Doctors employed various strategies in negotiating health check-ups with their male patients. These ranged from gentle persuasion to more paternalistic approaches. To ease the process of negotiating health check-ups, doctors often sought to establish a good rapport with their male patients.

*Because we try to develop rapport at initial part so we try talking this and that...at the end he just ask the broad question first and then go...just like deeper just one...I think you can ask when you develop rapport.*

*Only in a GP setting, it [recommending screening] cannot be done in a rush. Kind of thing, you know. You've got to build rapport and so on.*

A good rapport with male patients improved their level of receptivity to the suggestion of a health check-up.

*So you just talk nicely. When I talk to them just like friend, so they don't feel so offensive. They can accept it.*

Straightforward suggestion to undertake health check-ups and providing information to support the suggestion was often the doctors' first step in negotiating their strategies. Usually this happened when there were substantial levels of perceived receptivity or medical importance relating to health check-ups.

*We are able to at least guide them. Right...so they come to us for screening. So we say, ‘Ah...we will be going through.’ So we will say, ‘Okay. This test will be relevant.’*
Ok, my method of screening ED that I know that the fact that patient come in at 50 years old 50% of them will develop some degree of ED problem, I always mention this statistical information first and then I honestly ask them whether they have any other performance problem.

-6R4

Other doctors also resorted to using communication tools such as questionnaires and pamphlets to overcome the problems of time constraint and embarrassing situations. The doctors personally distributing the questionnaires or pamphlets in the consultation rooms was more effective than leaving them in the waiting room.

Maybe if we can provide a questionnaire, so they can answer it silently and then give it to us that’s better for screening.

-4R1

If you put [the questionnaires] outside, who wants to fill up. I also don’t want to fill up. Right or not? Why... If I want to fill up it shows that I’ve got a problem. (laugh) And it is too open... Whereas if it is in the consultation room its different. I just give the form, you take back.

-ID/9

Options were also discussed to overcome obstacles in undertaking health check-ups.

But actually do at any stages is not a problem. With the lower socio-economic group, they are not able to come up with RM100 in one shot. We tell them this test will cost RM20, the next time you come will cost you another RM20. so our screening may take a little bit longer.

-ID/6
In areas perceived to be very important to screen, doctors would remind their patients even to the extent of pushing them to undertake the test. This represented a more paternalistic approach.

I find that my biggest challenge is that 20-30% of patients, who just don’t want to do it, don’t want to know, and my biggest challenge is how to get them to test. So, my only thing is that I just keep on reminding them.

-I DI 14

I suppose it’s an example being a persevering. You keep telling them. Keep telling them. Keep talking to them. Uh...I always give a lecture to all my patients, those who are, who have high blood pressure, diabetes and even that a full range of complications that could happen to you. Sometimes I’m a bit harsh, but I think without pushing them, they just won’t listen.

-I DI 12

Sometimes, it’s our, it’s the doctors’ duty actually to explain and tell them what is aging. So, some doc, some patients ah, ah...need to be a bit frightened. You know, to frighten them a bit.

-I DI 10

The type of strategies and extent of the effort in recommending health check-ups to male patients relied on the obstacles foreseen by the doctors. Establishing rapport, providing options, and having good communication styles were used to increase the level of patient receptivity to discuss health check-ups. In addition, persistent reminders and strong recommendations were adopted if the importance of health check-ups in certain areas were significant.
5.11 Validation of the core concept: balancing medical importance and men’s receptivity

The core concept of balancing the medical importance of men’s health issues with perceived men’s receptivity to health check-ups, and the theoretical framework, were presented at the feedback sessions. The model was well accepted by all doctors in the feedback sessions.

I think the diagram reflects the whole idea of how the doctor is thinking, as discussed before, probably some other elements affect the perception, for example gender, as we talk about sexual issues to male patient.

—Group feedback, 3R2

Yes, it is very true about the balance of receptivity and medical importance

—Group feedback, 2R3

The concepts of medical importance and the perception of men’s receptivity were re-emphasised. One of the respondents equated the concept to asking men about smoking cessation to sexual health screening. Some men became defensive and deterred the doctor from asking about smoking.

Actually, I think it [receptivity to discussion on ED] is like smoking also. If you feel like, you want to advice the patient to quit and the patient is not ready, they do get defensive

—Individual feedback, 8R4
5.12 The theoretical framework of decision making to engage men in health check-ups: a conclusion

The substantive theoretical framework proposed (Figure 5.1) from the findings of phase I illustrates the complexity of the decision-making process undertaken by PCDs in engaging male patients in health check-ups. The framework outlines four major determinants that affect the doctors’ final decision to negotiate health check-ups with their male patients: the perceived receptivity of male patients, the medical importance of the issues at hand, their perceived personal competency, and the influence of external factors. Each of these determinants has a different dynamic with one another depending on the context and content of each encounter with male patients. Depending on the understanding and approaches to men’s health issues adopted by each doctor, there were wide variations in the practice of men’s health check-ups among PCDs. The external barriers perceived by each doctor were also different despite some similarities within private or public clinics. Likewise, doctors’ perceptions of men’s receptivity, help-seeking behaviour, the doctor-patient relationship, and medical importance were weighed and subsequently allocated different levels of emphasis for each patient. The main determinants being weighed are the male patient’s receptivity to health check-ups and the medical importance of potential issues facing him. In this way a balance is reached denoting the level of doctors’ intention to initiate discussion of health check-ups. This level of intention is subsequently modified as the doctors consider the influence of external factors and their personal competencies in handling the issues at hand. A final decision is then made and the negotiation of a health check-up is initiated. Moreover, the strategies adopted in the negotiation are shaped by how the doctors weigh the four determinants.
6 Phase II: Methods

6.1 Introduction
Phase I has identified the theoretical framework and key determinants in the doctors' decision to engage male patients in health check-ups. As argued in the methodology chapter, the framework provides a comprehensive understanding of how each doctor arrives at the decision. However, it neither provides the information on the average impact of each determinant on the decision made, nor the patterns of the determinants among the PCDs in Malaysia.

This chapter elaborates on the procedures carried out using a cross-sectional survey method to achieve the objectives of phase II. The objectives, in short, are to quantify the average impact of each determinant on the doctors' decision to engage male patients in health check-ups, and to examine the patterns of the determinants.

The first section describes the conceptual framework that the design of phase II is based on, followed by the study design, study population, sampling, survey instrument, variables, data collection process, and data analysis in phase II. The last chapter addresses the ethical issues in phase II.
6.2 Conceptual framework

The conceptual framework for phase II was constructed based on the theoretical framework provided in phase I. The theoretical framework noted four main determinants of the doctors' decision to initiate health check-ups with their male patients, namely:

1. Doctors' attitudes towards the medical importance of health check-ups;
2. Doctors' perceptions of male patient's receptivity to health check-ups;
3. Doctors' perceptions of external factors as barriers; and
4. Doctors' perceptions of personal competency in health check-ups.

These determinants operated within the influence of the doctors' philosophical stance on health check-ups, their perception of men's help-seeking behaviour, the specific topics of men's health issues, and the context of the consultation. The context of consultation encompassed the agenda of the visits and the doctor-patient dynamic within the consultation. In order to operationalise phase II, a conceptual framework was constructed to represent all the determinants and the factors influencing them (Figure 6.1). The attitudes towards the medical importance of health check-ups in general corresponded with the philosophical stance of the doctors in health check-ups. The remainders of the concepts represented the determinants described above.

Fifteen scenarios, each constituting a model, were examined in phase II. Each scenario represented one of the five topic areas of men's health under three different contexts of consultation for each area. The five topic areas of health check-ups were: cardiovascular risk, sexual dysfunction, psychosocial health, smoking habits, and colon cancer screening. These were chosen based on the characteristics of each health issue (Table 6.1). The three contexts examined were: encounters for acute minor complaints, follow-up visits, and health check-up sessions. These were chosen because of their characteristics in the doctor-patient relationship and the agenda in consultation (Table 6.2). The outcome variable was the intention to initiate health check-ups in the specified topic of men's health check-ups, and at the specified context for each of the scenarios.
Table 6.1 The characteristics of the topic areas of men’s health check-ups

<table>
<thead>
<tr>
<th>Topics of men’s health check-ups</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiovascular risk</td>
<td>A prevalent and important medical problem</td>
</tr>
<tr>
<td></td>
<td>Well recognised as an important health issue in the public</td>
</tr>
<tr>
<td></td>
<td>Most doctors are well informed about its importance</td>
</tr>
<tr>
<td></td>
<td>Most doctors are equipped with skills to screen for the risk</td>
</tr>
<tr>
<td>Sexual dysfunction</td>
<td>A recognised medical problem in men</td>
</tr>
<tr>
<td></td>
<td>Personal sensitivity is substantial</td>
</tr>
<tr>
<td></td>
<td>Variation in doctors’ skills to screen for sexual dysfunction</td>
</tr>
<tr>
<td>Psychosocial health</td>
<td>Recognised as an important component in a holistic approach to men’s health</td>
</tr>
<tr>
<td></td>
<td>Involves some personal sensitivity</td>
</tr>
<tr>
<td>Smoking</td>
<td>A prevalent and important men’s health issue</td>
</tr>
<tr>
<td></td>
<td>Has received extensive coverage in public health campaigns</td>
</tr>
<tr>
<td></td>
<td>Most doctors are well informed about its importance</td>
</tr>
<tr>
<td></td>
<td>A difficult problem to address</td>
</tr>
<tr>
<td>Colon cancer screening</td>
<td>A controversial issue in the Malaysian context</td>
</tr>
<tr>
<td></td>
<td>Provokes anxiety in the community</td>
</tr>
</tbody>
</table>

Figure 6.1 Conceptual framework in phase II: the doctors’ decision making process of whether to initiate men’s health check-ups

Note: the shaded areas are influenced by the topics of men’s health and the contexts of consultation
<table>
<thead>
<tr>
<th>Context of consultation</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute minor complaint</td>
<td>Often the first encounter with the patients</td>
</tr>
<tr>
<td></td>
<td>Rapport is less well established</td>
</tr>
<tr>
<td></td>
<td>Demands attention to immediate medical problems</td>
</tr>
<tr>
<td>Follow up visits</td>
<td>Substantial rapport is established</td>
</tr>
<tr>
<td></td>
<td>Substantial health information about the patients is available</td>
</tr>
<tr>
<td></td>
<td>The agenda may involve preventive health</td>
</tr>
<tr>
<td>Health check-ups sessions</td>
<td>Patient is ready to talk about health check-ups</td>
</tr>
<tr>
<td></td>
<td>Agenda of the visit is clear to the doctors and patients</td>
</tr>
</tbody>
</table>
6.3 Study design

Phase II was a cross-sectional questionnaire survey carried out on randomly selected PCDs from two representative states in Malaysia from March 2010 to November 2010.

6.4 Study population

The participants for phase II were practicing PCDs in either the public or private sectors. The inclusion criteria were:

1. Registered as PCDs in Malaysia, and
2. Regularly practice at least one day a week in primary care outpatient settings.

The exclusion criteria were:

1. Locum PCDs, and
2. PCDs who practise only in specific areas of interest; for example, in primary care dermatology, complementary and alternative medicine, sports medicine, primary care pediatrics.

It was important to exclude locum doctors as they were replacement doctors for a temporary period in the primary care clinics. As a result, they would not fulfill the characteristics of the relationship desired in follow-up visits.
6.5 Sample size

The minimal sample size needed for regression analysis was calculated based on methods proposed by Cohen et al., using the following parameters [307]:

1. Estimate effect size \( f^2 \) of 0.15, which was calculated from an estimated \( R^2 \) of 0.13 using the following formula:
   \[
   f^2 = \frac{R^2}{1 - R^2}
   \]
   \( R^2 \) was the variance of the outcome variable explained by the model. In behavioural science research, the value of 0.13 was considered moderate for population \( R^2 \).

2. Independent variables, \( k = 12 \) (1 independent variable for each concept except for the concept "external barriers", where there were 5 independent variables)

3. Power of 80%

4. Significant criterion, \( \alpha = 0.05 \)

Estimated sample size \( n^* \) was calculated using the following formula: [307]

\[
 n^* = \frac{L}{f^2} + k + 1
\]

where \( L = 16.8 \), read from the table E2.1(307) with \( \alpha = 0.05 \), power=80%

The required minimal sample size was 125. An additional 50% of the calculated sample size was added to account for possible non-responders. Hence, the sample size require was 190.

However, in order to establish the pattern of the determinants among PCDs in Malaysia, a different minimal sample size was needed. This was calculated with the Epi Info StatCalc 2000® program using an estimated 50% response rate with a lower acceptable rate of 40%. The sampling was stratified to private and public doctors. The total estimated number of private doctors in the states of Kelantan and Kuala Lumpur/Selangor (KL/Sel) was 1,763 and the number of public doctors was 545 (The method of estimating the number of doctors is described in section 6.6—sampling). As such, the
estimated number of private doctors needed for phase II was 91, and the estimated number of
doctors from public clinics needed was 82, which made a total of 173 doctors. Again, a further 50% was added to account for non-responders, which resulted in 182 private doctors and 164 doctors in public clinics, with a total of 346 doctors. The final sample size was 346 doctors. This provided sufficient power for both purposes in phase II.
6.6 Sampling

The sampling was performed in the states of Kelantan and KL/Sel. The reasons for choosing these two states were similar to those in phase I. The unit of analysis was the PCDs. However, the sampling frame of PCDs was unavailable. Instead, there were registries for primary care clinics. Hence, sampling could only be done on the clinics. Each private clinic would have one PCD, and thus was made a unit of sampling representing one doctor. Most urban private clinics are group practices compared to single practices in rural areas. However, regardless of the practice pattern, usually only one resident doctor practises in a clinic. On the other hand, each public clinic could have more than one doctor depending on its location and the density of the community it was serving. Each public clinic in Kelantan would have three doctors and in Kuala Lumpur/Selangor would have five doctors.

All doctors in the selected public clinics were invited to participate.

The lists of private and public primary care clinics were retrieved from the Malaysian Medical and Health Directory 2007(317) and Ministry of Health reports on public health facilities, (318) respectively. The sampling process is shown in the flow diagram in figure 6.2. The sampling unit was the primary care clinic. Four lists of primary care clinics were constructed (Figure 6.2), and a random number for each clinic was generated using the Window Excel® random number function. The clinics were sorted according to the descending order of the random numbers, and the clinics topped the list selected. The final number of private and public clinics for Kelantan were 12 and 16 respectively, whereas for KL/Sel they were 170 and 22 respectively. These should have represented 48 public doctors and 12 private doctors in Kelantan, and 110 public doctors and 170 private doctors in KL/Sel.
Total number of clinics in the registry

Estimated number of doctors:
- 1 doctor per clinic for private sector;
- 3 doctors per clinic for Kelantan;
- 5 doctors per clinic for KL/Sel*.

Number of doctors required to participate (calculated using Epi Info StatCalc 2000):

Number of doctors required to participate for each state (distributed according to the ratio between the 2 states):

Clinics required to be recruited:
- 1 doctor per clinic for private sector;
- 3 doctors per clinic for Kelantan;
- 5 doctors per clinic for KL/Sel*.

*KL/Sel = Kuala Lumpur/ Selangor

Figure 6.2 Process of sampling the participants
6.7 Survey instrument

The survey instrument in phase II was a questionnaire developed according to the conceptual framework (Figure 6.1). The questionnaire asked for participants’ perceptions and attitudes about various issues, and they were divided into four sections as below:

1. Part I was about the background factors which described the practice characteristics of participating doctors.

2. Parts II, III, IV and V were about four general determinants which measured the concepts of perceived external barriers, perceived men’s help-seeking behaviour in relation to health check-ups, attitudes towards the importance of health check-ups in general, and attitudes towards the importance of men’s health check-ups. These are depicted as the white boxes in the conceptual framework (Figure 6.1).

3. Parts VI, VII, VIII, IX and X corresponded to five specific topics of men’s health. Each part contained sections which measured the concepts of
   a. the doctors’ attitudes towards the medical importance of the corresponding topic (Medical importance);
   b. the doctors’ perceptions of male patients’ receptivity to discussing the health check-ups for the corresponding topic (Receptivity);
   c. the doctors’ perceptions of personal competency in undertaking the health check-ups for the corresponding topic (Competency);
   d. the doctors’ perceptions of male patients’ receptivity to discussing the health check-ups for the corresponding topic in 3 different contexts (Receptivity in context).

These were depicted as the light or dark grey boxes in the conceptual framework (Figure 6.1).

4. Part XI related to the doctors’ intentions to initiate health check-ups in five topics of men’s health in three different contexts. These were depicted as the black box in the conceptual framework (Figure 6.1). The three contexts were:
i. A middle aged man presented with an acute minor complaint; acute minor
complaints were defined as non-life threatening complaints such as aches and
sprains, upper respiratory tract infections or minor dermatological illnesses.

ii. A middle aged man came for a follow up visit; follow up visits were defined as
recurrent visits for chronic illnesses or follow ups of previous episodes of illness.

iii. A middle aged man came for wellness check-ups; wellness check-ups were defined as
visits for health assessment in any form, such as men requesting health check-ups,
compulsory employee health screening or a call back by the doctors for health
screening.

Each part of the questionnaire contained items which were the indicators of the concepts they were
measuring. The items were developed from the findings in phase I.

6.7.1 Development of items in the questionnaire

The items in part II to X of the questionnaire were statements, to which the participants
needed to indicate their level of agreement using a Likert scale. The participants responded
on a scale of 1-5 denoting their degree of agreement from "strongly disagree" [1] to "strongly
disagree" [5].

These statements were derived from common themes and wording expressed by the
participants in phase I. For example, under the concept of perception of men's help-seeking
behaviour, the theme "illness orientated" was rephrased into "men will only consult a doctor
when they fall ill"; the theme "refuse to reveal" was rephrased into "Men generally avoid
talking about their health". The number of items in each section was kept to the optimum by
balancing the breadth covered by each concept and length of the questionnaire.

The items in part XI of the questionnaire were questions asking how likely the participants
were to undertake health check-ups in the three different contexts. Again, they responded
on a Likert scale of 1-5 denoting their likeliness from "highly unlikely" [1] to "highly likely" [5].
The first draft had 256 items and underwent expert reviews by a senior consultant in primary care practice and a health psychologist with an interest in men’s health. The consolidated questionnaire, which had 204 items, was then subjected to a systematic process of internal validation.

6.7.2 Internal validation of instrument

The process of validation started with content validation by senior Malaysian PCDs, followed by structural validation and internal consistency testing.

The 204 item questionnaire was reviewed by four Malaysian PCDs for its content validity. The items were discussed, refined and rephrased to improve their representativeness of the concepts, and their understandability and clarity prior to the process of structural validation among PCDs. Structural validation and internal consistency testing were needed to establish their convergent-discriminating property and reliability, respectively. These were done by piloting the tentative questionnaire to a group of PCDs, with the statistical tests then being applied to the responses to the items in the questionnaire.

The estimated number of participants to be recruited for the structural validation was 90. This was based on the rule of thumb that a minimum of five participants should be recruited per item for a valid application of factor analysis, and the longest section representing a concept in the questionnaire contained 18 items. Recruitment of participants was carried out through convenient sampling of PCDs via invitations to the members of the FMSA, face to face interviews with private PCDs within the vicinity of the University of Malaya (UM) and the Universiti Kebangsaan Malaysia (UKM), and distribution of questionnaires to the trainees in family medicine at UKM and the University of Science Malaysia (USM), based in Kelantan.

The first statistical test was the exploratory factor analysis using principal component factoring with promax rotation to establish structural validity. Non-orthogonal promax rotation was chosen because the latent variables (factors) were likely to be correlated.
Each concept in the questionnaire was subjected to factor analysis separately. The items measuring one concept should factor into a latent variable (a factor), except for the concept of external barriers where five latent variables were expected. The assessments of adequacy in sampling and appropriateness of data for factoring procedure were performed by estimating the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett’s Test of Sphericity values, where the KMO value ≥ 0.5 was acceptable (≥ 0.7 was good) and Bartlett’s test of sphericity should be significant (p < 0.05) by using a χ² test. (319) A significant factor was when its Eigenvalue was >1.0. Items were retained if they fulfilled all the following criteria:

1. has a maximum correlation of 0.3 with any other items in the same concept;
2. a factor loading of > 0.4;
3. a good discriminating property by absence of factor loading of > 0.4 in two latent variables; and
4. must be one of the two items loaded on one latent variable.

The items that did not fulfill the criteria were dropped one at a time per cycle of analysis before the next procedure of factor analysis. This iterative process was terminated when all the items fulfilled the criteria above.

The reliability of the questionnaire as a scale was then assessed by calculating the Cronbach’s alpha and composite reliability (CR) values. These statistics measured the internal consistency of the scale. Internal consistency gave an indication of scale homogeneity; whether calculating a composite score or a mean score of the scale was valid. (320) Cronbach’s alpha statistic was a good estimate for true reliability if it was applied on the scale measuring only one concept. (321) This explained why the reliability assessment was performed after the structure of the questionnaire was established. The alpha statistic was calculated for each section of the questionnaire measuring one latent variable. However, the
alpha statistic may underestimate the true reliability as it assumed equal loadings of each item on the latent variable, which was often not the case in the observed data. (322, 323) Therefore, CR, which took account of factor loading, was also calculated to supplement the information on internal consistency. An acceptable Cronbach’s alpha value was set at ≥ 0.6, (320) whereas an acceptable CR was set at ≥ 0.7. While the calculation of Cronbach’s alpha was performed using a computer program, CR was calculated manually using the following formula (324):

\[
CR = \frac{\sum \lambda_i^2}{\sum \lambda_i^2 + \sum \text{Var}(e_i)}
\]

Where \( \lambda_i \) was the factor loading of the item \( i \) and \( \text{Var}(e_i) \) was the variance due to random measurement error for each loading of item \( i \). \( \text{Var}(e_i) \) was calculated from the following formula:

\[
\text{Var}(e_i) = 1 - \lambda_i^2
\]

The final version of the questionnaire comprised 176 items (Appendix 6.1). This process of internal validation also served as the pilot test in the field survey to identify any logistical problems prior to the final survey.
6.8 Variables

There were a total of 42 explanatory latent variables and 15 outcome variables identified from the internal validation process (see section 7.2.2). The variables were grouped according to figure 6.3.

The 15 outcome variables corresponded to the 15 scenarios to be examined.

<table>
<thead>
<tr>
<th>General determinants (8 variables)</th>
<th>1° - Time constraint</th>
<th>2° - Lack of privacy</th>
<th>3° - Inadequate clinic system support</th>
<th>4° - Lack of networking</th>
<th>5° - Cost constraint</th>
<th>6° - Perceived men's help-seeking behaviour</th>
<th>7° - Attitude towards the medical importance of proactive health check-ups in general</th>
<th>8° - Attitude towards the medical importance of proactive men's health check-ups</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topics of health check-ups</td>
<td>Sexual</td>
<td>Psychological</td>
<td>Smoking</td>
<td>Colon cancer screening</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CVD risk screening</td>
<td>9° - Receptivity</td>
<td>10° - Comfort</td>
<td>9° - Receptivity</td>
<td>9° - Receptivity</td>
<td>10° - Medical importance</td>
<td>10° - Medical importance</td>
<td>10° - Medical importance</td>
<td>9° - Receptivity</td>
</tr>
<tr>
<td></td>
<td>Determinants specific to the topic (5-variables)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>11° - Men should initiate</td>
<td>12° - Proactive offering</td>
<td>13° - Effectiveness</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>14° - Competency in CVD risk management</td>
<td>15° - Competency in obesity management</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Determinants specific to the topic and contexts(\text{fish} )</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>AM, F/up, HC</td>
<td>AM, F/up, HC</td>
<td>AM, F/up, HC</td>
<td>AM, F/up, HC</td>
<td>AM, F/up, HC</td>
<td>AM, F/up, HC</td>
<td>AM, F/up, HC</td>
<td>AM, F/up, HC</td>
</tr>
<tr>
<td></td>
<td>16°</td>
<td>16°</td>
<td>16°</td>
<td>12°</td>
<td>12°</td>
<td>12°</td>
<td>12°</td>
<td>12°</td>
</tr>
<tr>
<td>Outcome variables</td>
<td>17°</td>
<td>17°</td>
<td>17°</td>
<td>13°</td>
<td>13°</td>
<td>13°</td>
<td>13°</td>
<td>13°</td>
</tr>
</tbody>
</table>

*All variables are numbered; the number represents the nth variable in a scenario

*Visits for acute minor complaints; F= visits for follow-up; F= visits for health check-ups

† Perceived receptivity to initiate discussion of health check-ups at the specified context

§ Likelihood of doctors initiating health check-ups at the specified topic during the specified context (Up to 15 scenarios in total)

Figure 6.3 Grouping of the variables according to the general determinants, the related topics and the contexts of consultation

The explanatory variables for each scenario included all the variables from general determinants, determinants specific to the topic, and determinants specific to the topic and context. Hence, each scenario has 12 explanatory variables, except for cardiovascular risk screening, as there were two constructs for "receptivity" (9° and 10° variable in figure 6.3), three constructs for "medical importance" (11°, 12° and 13° variable in figure 6.3), and two constructs for "competency" (14° and 15° variables in figure 6.3) in the cardiovascular risk screening.
6.9 Data collection process

The process of data collection for public and private clinics was similar. It started with a telephone call to all selected clinics in which permission was sought to visit the clinic. During the visits, which were done solely by the principal investigator, to the clinics, the participants were briefed about the purpose of the project, and they were given the questionnaire (Appendix 6.1), the participant information sheet (Appendix 6.2) and the consent form (Appendix 6.3). The participants were allowed to clarify any matters and concerns before consenting to participate. The questionnaire did not bear any personal identifier and was later indexed with a serial number. The consents were kept separately from the questionnaire because participants’ names were stated in the consent forms.

The completed questionnaire was returned to the principal investigator immediately, either by post or by personal collection at a later date. Each questionnaire took roughly 30 minutes to complete. Upon completing and returning the questionnaire, each participant received a book, which costs about RM30.00 (USD 10), as a token of appreciation. Reminder calls to the participants were made if the questionnaire was not received within two weeks of the initial visit.

The returned questionnaires were indexed immediately, and the responses to the questionnaire were transferred into a SPSS® file by a research assistant. Accuracy of data entry was checked randomly by the principal investigator. Every effort was made to trace all missing responses in the questionnaires by phone calls, fax or emails. Data were explored for unusual responses, and if found, they were checked for their accuracy of data entry before reconfirming them with the participants.

All questionnaires which had the data transferred were stored in a locked cabinet.
6.10 Data analysis

All statistical procedures, unless otherwise stated, were performed using Statistical Program for Social Science (SPSS for Window, release 16.0.1. 2007. Chicago: SPSS Inc). The analysis started with the recoding of items which had reversed scoring in order to have unidirectional scales. Missing data were excluded pairwise in the analysis. The data were then reassessed for their internal validity, followed by the description of the data and the regression analysis.

6.10.1 Reassessment of internal validity

Each section constituting a concept was re-analysed for its structural validity and internal consistency using the same procedures described in section 6.7.2. The reassessment was important in order to establish the structural stability of the concepts (the variables), so that further statistical analyses based on the variables were more valid. (325)

Besides establishing the structural stability of the concepts, reassessment of internal validity also produced a factor score for each concept, which has several advantages over mean score as a variable in the regression analysis (see section 6.10.4).

In addition, the following criteria were also set to assess whether calculating the mean score of a concept (to be used in descriptive statistics – see section 6.10.3) from the items it subsumed was valid:

1. The KMO statistic ≥ 0.5 (preferable ≥ 0.7);
2. The items forming the concept were confirmed to have only one factor from principal component analysis with an Eigenvalue > 1.0;
3. The total observed variance explained by the factor was ≥ 50%; and
4. The composite reliability index was ≥ 0.7.
6.10.2 Data characteristics

In part I, which surveyed the participants' practice characteristics, the data were categorical except the variables asking about years practicing as PCDs, average number of patients seen in a typical working day, and average opening hours in a working day.

In parts II to XI, the data were treated as continuous as the mean scores or factor scores of the concepts were used for analysis, except for three outcome variables which asked about the likelihood of participants undertaking enquiry into sexual dysfunction, smoking habit and colon cancer screening. These three outcome variables were treated as ordinal categorical data because they were measured with only one item each.

6.10.3 Descriptive statistics

Descriptive statistics were used to provide background information on the participants, the patterns of distribution for the determinants (explanatory variables) in the decision-making process, and the patterns of distribution of outcome variables.

In part I, means, medians and their standard deviation were used for continuous variables and proportions were used for categorical variables.

By contrast, in parts II to X, besides describing the mean (95% confidence intervals), the mean scores for each participant were also categorised accordingly (Table 6.3). The classification retained the unit used in the Likert scale.

<table>
<thead>
<tr>
<th>Mean score</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0 - &lt; 2.0</td>
<td>Strongly disagree</td>
</tr>
<tr>
<td>2.0 - &lt; 3.0</td>
<td>Disagree</td>
</tr>
<tr>
<td>3.0</td>
<td>Neutral</td>
</tr>
<tr>
<td>&gt;3.0 - 4.0</td>
<td>Agree</td>
</tr>
<tr>
<td>&gt;4.0 - 5.0</td>
<td>Strongly agree</td>
</tr>
</tbody>
</table>
Clearly, using mean scores and categorising them in descriptive statistics preserved the unit of measurement and rendered the interpretation meaningful. By contrast, factor scores were standardised to their standard deviation, and hence lost the unit of measurement (see section 6.10.4). (325)

For outcome variable, while the methods of describing the data were similar to describing explanatory variables, the meaning of categories changed according to the scale used (Table 6.4). Ordinal data were simply described using proportion and frequency.

<table>
<thead>
<tr>
<th>Mean score</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0 - &lt; 2.0</td>
<td>Highly unlikely</td>
</tr>
<tr>
<td>2.0 - &lt; 3.0</td>
<td>unlikely</td>
</tr>
<tr>
<td>3.0</td>
<td>Not sure</td>
</tr>
<tr>
<td>&gt;3.0 - 4.0</td>
<td>Likely</td>
</tr>
<tr>
<td>&gt;4.0 - 5.0</td>
<td>Highly likely</td>
</tr>
</tbody>
</table>

6.10.4 Procedure of regression analysis

The regression analyses in phase II used the factor scores of the explanatory and outcome variables, which were calculated using the least square regression approach. This approach considered the loading weight of each contributing item to the concept measured, and hence yielded maximum validity of the scores. (325) This was in contrast to mean scores where equal loading weight was assumed. Furthermore, regression analysis using mean scores (or sum-scores) potentially produced inaccurate estimations of multiple correlation and regression coefficients with high standard error. (326) However, factor scores, which were standardised to their standard deviation, lost the unit of measurement. (325) This disadvantage was not an issue as the objective of using regression analysis in phase II was to explore the relative importance of the explanatory variables (determinants).
The steps taken in the regression analyses were as below:

1. Bivariate analysis between all explanatory variables (determinants) and continuous outcome variables (likelihood of participants initiating health check-ups): scatter plots were used to examine the pattern of relationship; whether linear relationship could be assumed.

2. Multivariate regression analysis: two types of regression models were used due to the nature of the outcome variables.
   
a. Simultaneous linear multiple regression (ordinary least square method) was used for scenarios where the data of outcome variables were continuous. These scenarios involved the topics of cardiovascular risk screening and psychosocial health assessment. The model for multiple linear regression was:
   \[ Y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \ldots + \beta_k x_k \]
   \( Y \) = outcome variable; \( \beta_i \) = regression coefficient for \( k \)th explanatory variables; \( x_k \) = \( k \)th explanatory variables

b. Simultaneous ordinal multiple regression was used for scenarios where the data of outcome variables were ordinal categorical. These scenarios involved the topics of sexual dysfunction, smoking and colon cancer screening. The model for ordinal regression was:
   \[ \ln \left( \frac{\text{prob}(\text{event})}{1 - \text{prob}(\text{event})} \right) = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \ldots + \beta_k x_k \]
   \text{Prob}(\text{event}) = \text{probability of being in higher categories of ”likelihood”};
   \( \beta_i \) = coefficient estimates for \( k \) explanatory variables
   The types of link function used (the left-side part of the equation) depended on the distribution of outcome variables (Table 6.5)
Table 6.5 Distribution of outcome categories and their corresponding types of link function used

<table>
<thead>
<tr>
<th>Pattern of outcome categories</th>
<th>Link function</th>
<th>Form</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evenly distributed</td>
<td>Logit</td>
<td>(\ln\left(\frac{Y}{1 - Y}\right))</td>
</tr>
<tr>
<td>Skewed towards higher outcome categories</td>
<td>Complementary log-log</td>
<td>(\ln(-\ln(1 - \gamma)))</td>
</tr>
<tr>
<td>Skewed towards lower outcome categories</td>
<td>Negative log-log</td>
<td>(-\ln(-\ln(\gamma)))</td>
</tr>
</tbody>
</table>

Note: \(Y = \text{Prob(event)}\)

Simultaneous multiple regression was chosen instead of stepwise regression because the objective of phase II was to explore the relative importance of determinants.\(^{308}\) It was not aimed at developing a prediction model for the doctors’ decision, in which case stepwise regression would be appropriate.\(^{307, 308}\) Furthermore, stepwise regression might result in spurious statistical significance\(^{327, 328}\) and overestimation of regression coefficients.\(^{328, 329}\) Therefore, there might be errors in selecting the significant variables, especially when there were a large group of explanatory variables.\(^{307, 329}\) The statistics reported from each model are summarised in table 6.6.

In summary, descriptive statistics provided the pattern of determinants among PCDs in Malaysia. By contrast, the regression statistics: \(R^2\), pseudo \(R^2\), and model fit statistics assessed the usefulness of the models, and hence the relevance of the theoretical framework at the population level. Also, the \(\beta\)s from regression statistics provided the relative importance of the determinants among each other, and hence ranked their importance.\(^{307, 330}\)
<table>
<thead>
<tr>
<th>Statistics reported</th>
<th>Multiple linear regression</th>
<th>Ordinal regression</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total observed variance of outcome variable explained by the model</td>
<td>$R^2$, Multivariate square correlation of a outcome variable estimated from a set of explanatory variables</td>
<td>Nagelkerke’s $R^2$ (a pseudo-$R^2$); a good Nagelkerke’s $R^2$ is lower than a good $R^2$ from linear least model(331)</td>
</tr>
<tr>
<td>Model fit</td>
<td>1. $F$-statistic from ANOVA test between regressed values and residuals; significant difference denotes the model fit</td>
<td>1. $X^2$ test of two -2log-likelihood values between model with only intercept and model with all explanatory variables; significant difference denotes the model fit</td>
</tr>
<tr>
<td></td>
<td>2. Pearson and Deviance goodness-of-fit measures; non-significant test denotes model fit</td>
<td>2. Parallelism: 1. $X^2$ test of two -2log-likelihood values of constrained model and test model; non-significant $X^2$ denotes assumption met</td>
</tr>
<tr>
<td>Relative importance of explanatory variables</td>
<td>$\beta$, standardised regression coefficients for each explanatory variables</td>
<td>$\beta$, estimates of regression coefficients for each explanatory variables</td>
</tr>
<tr>
<td>Regression diagnostic for collinearity</td>
<td>Variance inflation factor (VIF); a value above 9 is indicative of collinearity</td>
<td>NA</td>
</tr>
<tr>
<td>Observed power</td>
<td>Observed power for the model</td>
<td>NA</td>
</tr>
</tbody>
</table>
| Checking for assumption                                 | Linear relationship: 1. Scatter plot between explanatory variable and outcome variable  | Parallelism :
|                                                        | 2. Scatter plot between residuals and predicted outcome values                           | 1. $X^2$ test of two -2log-likelihood values of constrained model and test model; non-significant $X^2$ denotes assumption met |
|                                                        | Errors: 1. Homoscedasticity of error: Scatter plot between residual and independent variables  | |
|                                                        | 2. Independence of errors: Scatter plot between residual and ordered case                | |
|                                                        | 3. Normality of error distribution: Histogram and q-q plot of residual                   | |
| Checking for outliers                                  | $DFIT$, Standardised change in predicted score when case $i$ is included in regression; $DFIT$ of $> 0.562$ (for cardiovascular model) and $> 0.523$ (for psychosocial health) constitutes an outlier | $DFIT$, Standardised change in $\beta$, when case $i$ is included in regression; $DFIT$ of $> 0.145$ constitutes an outlier |

Note: All statistical definitions, unless otherwise specified, were adopted from Cohen et al. 2003 (307)
6.11 Ethical issues

This questionnaire survey had minimal implications in relation to ethical issues. Nevertheless, all measures were taken to avoid any disruption in the clinic and uneasiness among the participants. Standard narration in invitation calls was used to minimise the possible coercion effect (Appendix 6.4). Participants were visited during their preferred time and given a free choice of whether to respond to the survey. They were also given the contacts of the principal investigator so as to clarify any concerns about the project. Informed consent (Appendix 6.3) was obtained from each participant. However, a returned questionnaire without a consent form attached was considered consenting to participate. The participants were ensured confidentiality of information, as the questionnaire was anonymous.

Phase II was also approved by the Ethics and Medical Research Committee, the Ministry of Health Malaysia (NMRR-09-710-4499), the Medical Ethics Committee, University Malaya Medical Centre (679.28), and the Human Research Ethics Committee, the University of Sydney (11-2009/12262) (Appendix 6.5 for all approval letters).
7 Phase II: Results

7.1 Introduction

This chapter is divided into two segments: segment one elaborates on the findings from the internal validation of the questionnaire; segment two elaborates on the findings from the survey. All findings presented are the summary of statistical outputs. The detailed statistical procedures and steps taken are appended and cited appropriately in the text. Summary tables are provided at the end of this chapter to highlight the important findings.
SEGMENT I

(Findings from the internal validation of the questionnaire)
7.2 Internal validation of the questionnaire

The process of content validation was described in section 6.7.2. Resulting from this process, a 204 item questionnaire was subjected to structural validation and reliability assessment. A total of 91 participants responded to the invitation for questionnaire validation. The participants took roughly 30 minutes to complete the whole questionnaire. Their profiles are described in section 7.2.1. Only the summary findings of factor analysis are presented, and the details and steps of the whole procedures are appended (Appendix 7.1). The summary statistics for each item are appended (Appendix 7.2).

7.2.1 Participants’ profile in the questionnaire validation phase

A majority of the respondents were members of the Family Medicine Specialists Association (FMSA) who practised in public clinics. Public and female doctors were over represented (Table 7.1—in the following page). The medians for period practicing as PCDs, average number of patients seen per day, and average opening hours in a typical working day were 8.5 years, 25 patients and 8 hours respectively.
Table 7.1 Characteristics of respondents in piloting and questionnaire validation phase

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender, n=91</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>25</td>
<td>27.5</td>
</tr>
<tr>
<td>Female</td>
<td>66</td>
<td>72.5</td>
</tr>
<tr>
<td>Qualification, n=91</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basic medical degree</td>
<td>42</td>
<td>46.2</td>
</tr>
<tr>
<td>Postgraduate diploma</td>
<td>1</td>
<td>1.1</td>
</tr>
<tr>
<td>Masters in family medicine</td>
<td>43</td>
<td>47.3</td>
</tr>
<tr>
<td>Fellowship in RACGP/RCGP*</td>
<td>4</td>
<td>4.4</td>
</tr>
<tr>
<td>Other Masters</td>
<td>1</td>
<td>1.0</td>
</tr>
<tr>
<td>Location of practice, n=90</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>72</td>
<td>80.0</td>
</tr>
<tr>
<td>Rural</td>
<td>18</td>
<td>20.0</td>
</tr>
<tr>
<td>Nature of main practice, n=91</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public</td>
<td>67</td>
<td>73.6</td>
</tr>
<tr>
<td>Private</td>
<td>24</td>
<td>26.4</td>
</tr>
<tr>
<td>Having a structured program for men’s</td>
<td>15</td>
<td>16.5</td>
</tr>
<tr>
<td>health check-ups, n=91</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Period practicing as primary care doctor (years), n=88</th>
<th>Mean</th>
<th>Median</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>10.3</td>
<td>8.5</td>
<td>1</td>
<td>43</td>
<td>6.9</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Total number of patients seen in a day, n=90</th>
<th>Mean</th>
<th>Median</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>36.9</td>
<td>25</td>
<td>1</td>
<td>700</td>
<td>72.6</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Average opening hours in a typical working day, n=89</th>
<th>Mean</th>
<th>Median</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>8.3</td>
<td>8</td>
<td>3</td>
<td>14</td>
<td>1.9</td>
<td></td>
</tr>
</tbody>
</table>

*The Royal Australian College of General Practice; recognised Royal colleges of General Practice
7.2.2 Outcome of factor analysis

More than 80% of the KMO measure of sampling adequacy statistics were ≥ 0.6, indicating the sample size was appropriate for factor analysis (Table 7.2). Although 9 factor analysis procedures had KMO statistics < 0.6, their KMO statistics were > 0.5, which indicated that factor analysis was still acceptable. All Bartlett’s Test of Sphericity values were statistically significant with p < 0.001, indicating the correlations between items were large enough for meaningful factor analysis (Appendix 7.2).

Table 7.2 Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy statistics distribution for 47 factor analysis procedures

<table>
<thead>
<tr>
<th>KMO statistic for factoring each concept</th>
<th>n</th>
<th>%</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 0.8 (excellent)*</td>
<td>5</td>
<td>10.6</td>
<td>10.6</td>
</tr>
<tr>
<td>≥ 0.7 - &lt; 0.8 (good)</td>
<td>18</td>
<td>38.3</td>
<td>48.9</td>
</tr>
<tr>
<td>≥ 0.6 - &lt; 0.7 (mediocre)</td>
<td>15</td>
<td>31.9</td>
<td>80.9</td>
</tr>
<tr>
<td>≥ 0.5 - &lt; 0.6 (acceptable)</td>
<td>9</td>
<td>19.1</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>47</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

* the grading was adopted from Field AP 2009 (319)

Only 195 of the 204 items were subjected to factor analysis because nine items measuring the “likeliness” of doctors undertaking health check-ups in three topics (sexual dysfunction, smoking habit, colon cancer screening) in three different contexts of consultation (acute minor complaint visits, follow-up visits, health check-up visits) were measured with only one item each. Twenty-two of the 195 items were eliminated in the process of factor analysis (Table 7.3— in the following page). These items either had poor factor loadings, cross loadings or poor correlations with other items in their respective section, which had contributed to the poor Cronbach’s alpha values. The final number of factors extracted in each concept was consistent with the number expected from the conceptual framework, except the concepts measuring “Receptivity”, “Medical Importance” and “Competency” in cardiovascular screening. While one factor was expected from each of these concepts, two, three and two factors were extracted respectively (Table 7.3). Hence, the final number of factors extracted...
was 48 instead of the expected 44. These 48 factors included 42 explanatory variables and six outcome variables. However, one of the explanatory variables, the concept measuring cost constraint as the external barrier, contained only one item. As elaborated above, the other nine of the 15 outcome variables measured with one item each were not subjected to factor analysis. The final number of items in the questionnaire was 176 (166 items from factor analysis + one item measuring cost constraint + nine items measuring one outcome variable each), and the final number of factors assessed for their validity and reliability properties was 47 (one factor less than 48 because “cost constraint” was measured with only one item).
Table 7.3 Number of items and latent variables identified from factor analysis on 40 theoretical concepts in the questionnaire

<table>
<thead>
<tr>
<th>Concepts</th>
<th>Expected factors to be extracted</th>
<th>Original number of items</th>
<th>Initial cycle of factor analysis</th>
<th>Final outcome from factor analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived external barriers</td>
<td>5</td>
<td>18</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Doctors’ perceptions of men’s help-seeking behaviour</td>
<td>1</td>
<td>10</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Doctors’ attitudes towards proactive health check-ups</td>
<td>1</td>
<td>5</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Doctor’s attitude towards proactive men’s health check-ups</td>
<td>1</td>
<td>7</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>Asking about sexual dysfunction</td>
<td>1</td>
<td>6</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Medical Importance</td>
<td>1</td>
<td>5</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Competency</td>
<td>1</td>
<td>6</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Receptivity in acute minor complaint visits</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Receptivity in follow-up visits</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Receptivity in health check-up visits</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Cardiovascular risk screening</td>
<td>1</td>
<td>6</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Receptivity</td>
<td>1</td>
<td>6</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Medical Importance</td>
<td>1</td>
<td>6</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Competency</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Receptivity in acute minor complaint visits</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Receptivity in follow-up visits</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Receptivity in health check-up visits</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Likelihood of screening in acute minor complaint visits</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Likelihood of screening in follow-up visits</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Likelihood of screening in health check-up visits</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

*Numbers indicate items eliminated in the final analysis.
Table 7.3 Number of items and latent variables identified from factor analysis on 40 theoretical concepts in the questionnaire –continue–

<table>
<thead>
<tr>
<th>Concepts</th>
<th>Expected factors to be extracted</th>
<th>Original number of items</th>
<th>First cycle of factor analysis</th>
<th>Final outcome from factor analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Number of latent variables within the concept</td>
<td>Number of items eliminated*</td>
</tr>
<tr>
<td>Psychosocial health assessment</td>
<td>Receptivity</td>
<td>1</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Medical importance</td>
<td>1</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Competency</td>
<td>1</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Receptivity in acute minor complaint visits</td>
<td>1</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Receptivity in follow-up visits</td>
<td>1</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Receptivity in health check-up visits</td>
<td>1</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Likelihood of assessing in acute minor complaint visits</td>
<td>1</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Likelihood of assessing in follow-up visits</td>
<td>1</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Likelihood of assessing in health check-up visits</td>
<td>1</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Asking about smoking habit</td>
<td>Receptivity</td>
<td>1</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Medical importance</td>
<td>1</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Competency</td>
<td>1</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Receptivity in acute minor complaint visits</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Receptivity in follow-up visits</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Receptivity in health check-up visits</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Colon cancer screening</td>
<td>Receptivity</td>
<td>1</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Medical importance</td>
<td>1</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Competency</td>
<td>1</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Receptivity in acute minor complaint visits</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Receptivity in follow-up visits</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Receptivity in health check-up visits</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>44</td>
<td>195</td>
<td>56</td>
<td>22</td>
</tr>
</tbody>
</table>

* Cost as the external barrier was measured with single item.

Note: nine items measuring the likeliness of asking about sexual dysfunction, smoking and colon cancer screening were not factor analysed as each was measured with only one item.
The correlations between items among an extracted factor were within the acceptable range of 0.3-0.9. The lowest maximum correlations between items was 0.308 (Appendix 7.2) and 83% of factors had their lowest maximum correlation between items of ≥ 0.5 (Table 7.4). All selected items fulfilled the criteria of having an item factor loading of ≥ 0.4. Furthermore, 95.8% of the items had factor loading values of ≥ 0.6 (Table 7.5).

### Table 7.4 Lowest maximum correlation between items for 47 extracted factors

<table>
<thead>
<tr>
<th>Lowest maximum correlation between items</th>
<th>n</th>
<th>%</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 0.8 - &lt; 0.9</td>
<td>6</td>
<td>12.8</td>
<td>12.8</td>
</tr>
<tr>
<td>≥ 0.7 - &lt; 0.8</td>
<td>11</td>
<td>23.4</td>
<td>36.2</td>
</tr>
<tr>
<td>≥ 0.6 - &lt; 0.7</td>
<td>8</td>
<td>17.0</td>
<td>53.2</td>
</tr>
<tr>
<td>≥ 0.5 - &lt; 0.6</td>
<td>14</td>
<td>28.3</td>
<td>80.0</td>
</tr>
<tr>
<td>≥ 0.4 - &lt; 0.5</td>
<td>6</td>
<td>12.8</td>
<td>95.7</td>
</tr>
<tr>
<td>≥ 0.3 - &lt; 0.4</td>
<td>2</td>
<td>4.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>47</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Note: A maximum correlation of ≥ 0.3 was adequate.

### Table 7.5 Distribution of factor loading value for 166 items

<table>
<thead>
<tr>
<th>Factor loading value</th>
<th>n</th>
<th>%</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 0.8 - &lt; 0.8</td>
<td>97</td>
<td>58.4</td>
<td>58.4</td>
</tr>
<tr>
<td>≥ 0.7 - &lt; 0.8</td>
<td>4</td>
<td>25.9</td>
<td>84.3</td>
</tr>
<tr>
<td>≥ 0.6 - &lt; 0.7</td>
<td>19</td>
<td>11.4</td>
<td>95.8</td>
</tr>
<tr>
<td>≥ 0.5 - &lt; 0.6</td>
<td>6</td>
<td>3.6</td>
<td>99.4</td>
</tr>
<tr>
<td>≥ 0.4 - &lt; 0.5</td>
<td>1</td>
<td>0.6</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>166</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Note: A item factor loading of ≥ 0.4 was adequate.

More than 90% of the variance explained by the extracted factors on their corresponding observed data were within the acceptable range of ≥ 0.5 (Table 7.6). The lowest “variance explained by factor” was 41.3% (Appendix 7.2). The three factors with “variance explained by factor” < 50% prohibited the use of their mean scores as a valid measurement. However, the use of regression scores from these factors was still valid because of high factor loadings and acceptable internal consistency statistics.

### Table 7.6 “Total variance explained by the factor” distribution for 47 extracted factors

<table>
<thead>
<tr>
<th>Total variance explained by the factor</th>
<th>n</th>
<th>%</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 80%</td>
<td>5</td>
<td>10.6</td>
<td>10.6</td>
</tr>
<tr>
<td>≥ 70% - &lt; 80%</td>
<td>14</td>
<td>29.8</td>
<td>40.4</td>
</tr>
<tr>
<td>≥ 60% - &lt; 70%</td>
<td>17</td>
<td>36.2</td>
<td>76.6</td>
</tr>
<tr>
<td>≥ 50% - &lt; 60%</td>
<td>8</td>
<td>17.0</td>
<td>93.6</td>
</tr>
<tr>
<td>≥ 40% - &lt; 50%</td>
<td>3</td>
<td>6.4</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>47</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Note: A total variance explained of ≥ 50% was adequate in order for the mean score to be valid.
7.2.3 Reliability of the extracted factors

Cronbach’s alpha statistics were ≥ 0.6 in 42 (89.4%) of the 47 extracted factors (Table 7.7).

Five factors had Cronbach’s alpha statistic < 0.6, but all extracted factors had a composite reliability index of ≥ 0.7. Furthermore, 45 of the 47 extracted factors had a composite reliability of ≥ 0.8 (Table 7.8).

<table>
<thead>
<tr>
<th>Table 7.7 Cronbach’s alpha distribution for 47 extracted factors</th>
<th>Table 7.8 Composite reliability distribution for 47 extracted factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cronbach’s alpha for each factor</td>
<td>Cumulative</td>
</tr>
<tr>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>≥ 0.8</td>
<td>18</td>
</tr>
<tr>
<td>≥ 0.7 - &lt; 0.8</td>
<td>18</td>
</tr>
<tr>
<td>≥ 0.6 - &lt; 0.7</td>
<td>6</td>
</tr>
<tr>
<td>≥ 0.5 - &lt; 0.6</td>
<td>4</td>
</tr>
<tr>
<td>≥ 0.4 - &lt; 0.5</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>47</td>
</tr>
<tr>
<td>Note: A Cronbach’s alpha of ≥ 0.6 was adequate</td>
<td></td>
</tr>
</tbody>
</table>

| Composite reliability for each factor | Cumulative |
| n | % | % |
| ≥ 0.9 | 10 | 21.3 | 21.3 |
| ≥ 0.8 - < 0.9 | 35 | 74.5 | 95.7 |
| ≥ 0.7 - < 0.8 | 2 | 4.3 | 100.0 |
| Total | 47 | 100.0 |
| Note: A Composite reliability of ≥ 0.7 was adequate |

In summary, the criteria for structural validity and internal consistency of the questionnaire were met in almost all the factors extracted. The KMO and Bartlett’s Test of Sphericity statistics indicated factor analysis was feasible and valid. The number of factors extracted was consistent with the theoretical concepts. The high factor loadings and good maximum correlations between items for all factors demonstrated a good structural validity, and a large proportion of factors had acceptable Cronbach’s alpha statistics and composite reliability, thereby demonstrating the good internal consistency of the questionnaire.
SEGMENT II

(Findings from the survey)
7.3 Recruitment of participants

A total of 224 clinics were sampled from the registries instead of the planned 220. All clinics in Kelantan agreed to participate, compared with the state of Kuala Lumpur and Selangor where only 67.3% in private clinics and 91.3% in public clinics agreed to participate (Figure 7.1).

There were a total of 280 doctors invited (Figure 2.7), which was more than the selected clinics as some clinics had more than one resident doctor, especially the public clinics. The overall response rate for this survey was 70.4%.
Overall doctors' response rate:
70.4%  
*KL/Sel = Kuala Lumpur/ Selangor  
† Invited doctors were doctors who agreed or declined to participate  
† Participation was when the completed questionnaire was received  

Figure 7.2 Response to the process of doctor recruitment
7.4 Demographic and practice characteristics of participants

The majority of participants were Malay, had basic medical degrees and were in urban practices (Table 7.9). There were slightly less male participants and fewer participants from the private sector. The period practicing as PCDs and workload (as measured by number of patients seen per hour) among the participants varied widely (Table 7.9); both skewed to shorter periods and lower workloads. The majority of doctors had ≤ 10.0 years of experience (Figure 7.3) and saw ≤ 5.0 patients per hour (Figure 7.4).
Table 7.9 Characteristics of respondents participating in questionnaire survey

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender, n=198</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>90</td>
<td>45.5</td>
</tr>
<tr>
<td>Female</td>
<td>108</td>
<td>54.5</td>
</tr>
<tr>
<td>Ethnic group</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malay</td>
<td>97</td>
<td>49.0</td>
</tr>
<tr>
<td>Chinese</td>
<td>44</td>
<td>22.2</td>
</tr>
<tr>
<td>Indian</td>
<td>56</td>
<td>28.3</td>
</tr>
<tr>
<td>Others</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td>Qualification, n=198</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Basic medical degree</td>
<td>156</td>
<td>78.8</td>
</tr>
<tr>
<td>Postgraduate diploma</td>
<td>15</td>
<td>7.6</td>
</tr>
<tr>
<td>Masters in family medicine</td>
<td>15</td>
<td>7.6</td>
</tr>
<tr>
<td>Fellowship in RACGP/RCGP*</td>
<td>5</td>
<td>2.5</td>
</tr>
<tr>
<td>Other Masters</td>
<td>7</td>
<td>3.5</td>
</tr>
<tr>
<td>Location of practice, n=198</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban</td>
<td>135</td>
<td>68.2</td>
</tr>
<tr>
<td>Rural</td>
<td>63</td>
<td>31.8</td>
</tr>
<tr>
<td>Nature of main practice, n=198</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public</td>
<td>104</td>
<td>52.5</td>
</tr>
<tr>
<td>Private</td>
<td>94</td>
<td>47.5</td>
</tr>
<tr>
<td>Having a structured program for men's health check-ups, n=163</td>
<td>35</td>
<td>21.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Mean</th>
<th>Median</th>
<th>Minimum</th>
<th>Maximum</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period practicing as primary care doctor (years), n=192</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Workload:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total number of patients seen in a day, n=192*</td>
<td>52.7</td>
<td>50.0</td>
<td>15.0</td>
<td>160.0</td>
<td>28.5</td>
</tr>
<tr>
<td>Average opening hours in a typical working day, n=195†</td>
<td>9.1</td>
<td>8.0</td>
<td>4.0</td>
<td>15.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Average number of patients seen per hour, n=192</td>
<td>6.0</td>
<td>5.0</td>
<td>1.7</td>
<td>20.0</td>
<td>3.4</td>
</tr>
</tbody>
</table>

* The Royal Australian College of General Practice; recognised Royal colleges of General Practice
† Number of available data set was 194; two outliers were removed—one 24 hour clinic and one with 270 patients/day
‡ Number of available data set was 196; one outlier was removed—one 24 hour clinic
Figure 7.3 Distribution of period practicing as a primary care doctor among the participants.

Figure 7.4 Distribution of workload among the participants.
The profiles and practice characteristics of private and public sector clinics differed substantially. A large proportion of participants from private sector clinics were male doctors and non-Malay (Table 7.10). They practised mainly in urban settings and had greater experience as PCDs. They also saw fewer patients per hour than their public counterparts.

Table 7.10 Comparing the characteristics of the practice between private and public sector

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Nature of practice (column %)</th>
<th>Private (n=98)</th>
<th>Public (n=100)</th>
<th>χ² (df)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td></td>
<td>Male</td>
<td>Female</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>69.1</td>
<td>24.0</td>
<td>40.524</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>30.9</td>
<td>76.0</td>
<td>(1)</td>
<td></td>
</tr>
<tr>
<td>Ethnic group</td>
<td></td>
<td>Malay</td>
<td>Female</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>32.3</td>
<td>64.4</td>
<td>28.953</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>37.6</td>
<td>8.7</td>
<td>(3)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>30.1</td>
<td>26.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Qualification</td>
<td></td>
<td>Basic medical degree</td>
<td>Postgraduate diploma</td>
<td>76.6</td>
<td>80.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>23.4</td>
<td>19.2</td>
<td>(1)</td>
<td></td>
</tr>
<tr>
<td>Location Place of practice</td>
<td></td>
<td>Urban</td>
<td>Rural</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>88.3</td>
<td>50.0</td>
<td>33.381</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td></td>
<td></td>
<td>11.7</td>
<td>50.0</td>
<td>(1)</td>
<td></td>
</tr>
</tbody>
</table>

Table 7.10 Comparing the characteristics of the practice between private and public sector

<table>
<thead>
<tr>
<th>Mean (standard deviation)</th>
<th>Private</th>
<th>Public</th>
<th>t (df)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Period practicing as primary care doctor (years), n(private)=93, n(public)=99</td>
<td>18.5 (10.9)</td>
<td>7.6 (7.7)</td>
<td>7.979 (164.1)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Total number of patients seen in a day, n(private)=92, n(public)=100</td>
<td>42.8 (20.2)</td>
<td>61.8 (31.9)</td>
<td>4.969 (169.1)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Average opening hours in a typical working day (hours), n(private)=93, n(public)=102</td>
<td>9.9 (2.4)</td>
<td>8.4 (1.0)</td>
<td>5.683 (121.3)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Average number of patients seen per hour, n(private)= 92, n(public)=100</td>
<td>4.4 (2.0)</td>
<td>7.4 (3.8)</td>
<td>6.962 (150.4)</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>
7.5 Reassessment of the internal validity of part II of the questionnaire

There were 176 items in the questionnaire, but only 166 items were reassessed for scale validity before further interpretation of the data. The reassessment was unnecessary for 10 items, as they measured 1 concept each (one item measuring cost constraint and nine items measuring the doctors’ “likeliness” to undertake health check-ups in three topics in three different contexts of consultation – see section 7.2.2). The summary statistics for the final cycle of factor analyses are given in Appendix 7.3. The analyses of the summary statistics are given below.

The KMO statistics (Table 7.11) and the Bartlett’s test of sphericity (all tests with p<0.001) demonstrated appropriate factoring procedures.

Table 7.11 Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy statistics distribution for 45 analysis procedures

<table>
<thead>
<tr>
<th>KMO statistic for factoring each concept</th>
<th>n</th>
<th>%</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 0.8 (excellent)*</td>
<td>5</td>
<td>11.1</td>
<td>11.1</td>
</tr>
<tr>
<td>0.7 - &lt; 0.8 (good)</td>
<td>17</td>
<td>37.8</td>
<td>48.9</td>
</tr>
<tr>
<td>0.6 - &lt; 0.7 (mediocre)</td>
<td>17</td>
<td>37.8</td>
<td>86.7</td>
</tr>
<tr>
<td>0.5 - &lt; 0.6 (acceptable)</td>
<td>6</td>
<td>13.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>45</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

* the grading was adopted from Field AP 2009(319)
After the final cycles of factor analyses, the original 47 latent variables were consolidated to 45 latent variables. The reduction of two variables was from the sections measuring doctors' attitudes toward cardiovascular risk screening and doctors' perceptions of their personal competency; three variables were reduced to two, and two variables were reduced to one respectively (Table 7.12).

Table 7.12 Changes in the latent variables identified before and after reassessment of internal validity

<table>
<thead>
<tr>
<th>Variables identified before reassessment</th>
<th>Variables identified after reassessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitudes towards cardiovascular risk screening:</td>
<td>1. Doctor should initiate the screening</td>
</tr>
<tr>
<td>1. Doctor should initiate the screening</td>
<td>2. Proactive cardiovascular screening is important</td>
</tr>
<tr>
<td>2. It should be proactively done by doctors</td>
<td>3. Lifestyle changes are effective</td>
</tr>
</tbody>
</table>
Also, six items were dropped during the factor analysis procedures for the corresponding reasons given in Table 7.13. This brought the total items subjected to final cycle of factor analyses and internal consistency testing to 160.

Table 7.13 Items dropped after reassessment of internal validity and their corresponding reasons

<table>
<thead>
<tr>
<th>Variables</th>
<th>Items dropped</th>
<th>Reasons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctors’ attitudes towards proactive health screening</td>
<td>Offering health screening is not an obligation for a primary care doctor.</td>
<td>The maximum correlation with other items was &lt; 0.3.</td>
</tr>
<tr>
<td>Doctors’ attitudes towards proactive men’s health screening</td>
<td>I think providing proactive health screening to men is cost effective.</td>
<td>The maximum correlation with other items was &lt; 0.3.</td>
</tr>
<tr>
<td>Doctors’ perceptions of personal competency in asking about sexual dysfunction</td>
<td>I feel uneasy talking about sexual health to male patients.</td>
<td>The item was furthest away in component plot*.</td>
</tr>
<tr>
<td>Doctors’ perceptions of personal competency in cardiovascular screening</td>
<td>I am uncertain of when to refer men with high cardiovascular risk.</td>
<td>The item was furthest away in component plot*.</td>
</tr>
<tr>
<td>Doctors’ perceptions of receptivity to smoking assessment</td>
<td>Men expect doctors to raise the issue of their smoking problem.</td>
<td>Item factor loading was 0.205 (less than the threshold of 0.4).</td>
</tr>
<tr>
<td>Doctors’ perceptions of personal competency in smoking cessation management</td>
<td>I am uncertain of when to refer men requiring smoking cessation.</td>
<td>The item was furthest away in component plot*.</td>
</tr>
</tbody>
</table>

* This indicated that the meaning of the item may be interpreted differently to the rest of the items.

The maximum correlation between the items within a factor and factor loading for each item on their respective factor were appropriate (Table 7.14 and Table 7.15).

Table 7.14 Lowest maximum correlation between items for 45 extracted factors

<table>
<thead>
<tr>
<th>Lowest maximum correlation between items</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 0.7 - &lt; 0.8</td>
<td>13.3</td>
</tr>
<tr>
<td>≥ 0.6 - &lt; 0.7</td>
<td>35.6</td>
</tr>
<tr>
<td>≥ 0.5 - &lt; 0.6</td>
<td>26.9</td>
</tr>
<tr>
<td>≥ 0.4 - &lt; 0.5</td>
<td>15.8</td>
</tr>
<tr>
<td>≥ 0.3 - &lt; 0.4</td>
<td>6.7</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Note: A maximum correlation of ≥ 0.3 was adequate

Table 7.15 Distribution of factor loading value for 160 items

<table>
<thead>
<tr>
<th>Factor loading value</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 0.8</td>
<td>45.6</td>
</tr>
<tr>
<td>≥ 0.7 - &lt; 0.8</td>
<td>38.8</td>
</tr>
<tr>
<td>≥ 0.6 - &lt; 0.7</td>
<td>11.3</td>
</tr>
<tr>
<td>≥ 0.5 - &lt; 0.6</td>
<td>4.4</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Note: A item factor loading of ≥ 0.4 was adequate
More than 90% of factors extracted had a “total variance explained” ≥ 50% (Table 7.16). Although there were four factors having a “total variance explained” < 50%, they were only slightly less than 50%:

1. “Doctors’ attitudes towards men’s health check-up” (48.8%)
2. “Doctors’ perceptions of personal competency in cardiovascular risk screening” (45.9%)
3. “Doctors’ perceptions of receptivity to psychosocial health assessment” (49.8%)
4. “Doctors’ perceptions of personal competency in psychosocial assessment” (49.3%)

Table 7.16 “Total variance explained by the factor” distribution for 45 extracted factors

<table>
<thead>
<tr>
<th>Total variance explained by the factor</th>
<th>n</th>
<th>%</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 80%</td>
<td>1</td>
<td>2.2</td>
<td>2.2</td>
</tr>
<tr>
<td>≥ 70% - &lt; 80%</td>
<td>10</td>
<td>22.2</td>
<td>24.4</td>
</tr>
<tr>
<td>≥ 60% - &lt; 70%</td>
<td>16</td>
<td>35.6</td>
<td>60.0</td>
</tr>
<tr>
<td>≥ 50% - &lt; 60%</td>
<td>14</td>
<td>31.1</td>
<td>91.1</td>
</tr>
<tr>
<td>≥ 40% - &lt; 50%</td>
<td>4</td>
<td>8.9</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>45</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Note: A total variance explained of ≥ 50% was adequate in order for the mean score to be valid.

All extracted factors had satisfactory internal consistency indexes (Table 7.17 and Table 7.18).

Table 7.17 Chronbach’s alpha distribution for 45 extracted factors

<table>
<thead>
<tr>
<th>Cronbach’s alpha for each factor</th>
<th>n</th>
<th>%</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 0.8</td>
<td>12</td>
<td>26.7</td>
<td>26.7</td>
</tr>
<tr>
<td>≥ 0.7 - &lt; 0.8</td>
<td>23</td>
<td>51.1</td>
<td>77.8</td>
</tr>
<tr>
<td>≥ 0.6 - &lt; 0.7</td>
<td>5</td>
<td>11.1</td>
<td>88.0</td>
</tr>
<tr>
<td>≥ 0.5 - &lt; 0.6</td>
<td>5</td>
<td>11.1</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>45</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Note: A Cronbach’s alpha of ≥ 0.6 was adequate.

Table 7.18 Composite reliability distribution for 45 extracted factors

<table>
<thead>
<tr>
<th>Composite reliability for each factor</th>
<th>n</th>
<th>%</th>
<th>Cumulative %</th>
</tr>
</thead>
<tbody>
<tr>
<td>≥ 0.9</td>
<td>4</td>
<td>8.9</td>
<td>8.9</td>
</tr>
<tr>
<td>≥ 0.8 - &lt; 0.9</td>
<td>39</td>
<td>86.7</td>
<td>95.6</td>
</tr>
<tr>
<td>≥ 0.7 - &lt; 0.8</td>
<td>2</td>
<td>4.4</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>45</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Note: A Composite reliability of ≥ 0.7 was adequate.

This questionnaire achieved substantial internal validity. Each factor extracted represented the latent variable that it was set up to measure. The mean score of each factor was valid to be used for descriptive statistics, and the factor score for each factor was also valid to be used in regression analyses.
7.6 Primary care doctors’ opinion of health check-ups for male patients

This section describes the opinions of the participants in various issues relating to health check-ups for male patients. They are:

1. the doctors’ perceptions of external barriers to men’s health check-ups;
2. the doctors’ perceptions of men’s help-seeking behaviour relating to health check-ups;
3. the doctors’ attitudes towards health check-ups generally; and
4. the doctors’ attitudes towards men’s health check-ups.

These are the general determinants, which were not specific to the topics or context of men’s health check-ups, or of PCDs’ decision making on whether to initiate health check-ups with their male patients.

7.6.1 Doctors’ perceptions of external barriers to men’s health check-ups

Doctors’ perceptions of external barriers to men’s health check-ups constituted five types of external barriers (Figure 7.5). On average, the mean scores for the five types of external barriers to men’s health check-ups centred around three, which denoted that the participants neither agreed nor disagreed on whether they were barriers to men’s health check-ups (Figure 7.5).
However, the distribution of the participants’ degree of agreement revealed that almost equal proportions of the participants either disagreed or agreed with the barriers, and only a small proportion of participants took a neutral stance, except for “lack of referral network” and “cost constraint to men” (Figure 7.6). The majority (55.6%) of the participants perceived that time constraint was a barrier, but this was not the case for lack of privacy, lack of clinic system supporting health check-ups, lack of referral network and cost constraint, where 60.1%, 50.3%, 44.2% and 42.4% either disagreed or strongly disagreed respectively (Figure 7.6).
Figure 7.6 Doctors’ degree of agreement on the external barriers to health check-ups

<table>
<thead>
<tr>
<th></th>
<th>strongly disagree</th>
<th>disagree</th>
<th>neutral</th>
<th>agree</th>
<th>strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Time constraint (%)</td>
<td>4.6</td>
<td>34.7</td>
<td>5.1</td>
<td>37.2</td>
<td>18.4</td>
</tr>
<tr>
<td>Lack of privacy (%)</td>
<td>22.7</td>
<td>37.4</td>
<td>8.1</td>
<td>24.7</td>
<td>7.1</td>
</tr>
<tr>
<td>Lack of clinic system</td>
<td>9.1</td>
<td>41.1</td>
<td>9.6</td>
<td>32.0</td>
<td>8.1</td>
</tr>
<tr>
<td>Lack of referral network (%)</td>
<td>6.1</td>
<td>38.1</td>
<td>26.9</td>
<td>22.8</td>
<td>6.1</td>
</tr>
<tr>
<td>Cost constraint to men (%)</td>
<td>7.6</td>
<td>34.8</td>
<td>21.7</td>
<td>28.8</td>
<td>7.1</td>
</tr>
</tbody>
</table>
7.6.2 **Doctors’ perceptions of men’s help-seeking behaviour in relation to health check-ups**

The higher mean scores of the doctors’ perceptions of men’s help-seeking behaviour indicated the perception of men being keen for health check-ups and lower scores indicated otherwise. The mean score (95% CIs) was 2.8 (2.7 – 2.9). On average, the participants perceived that men were not keen for health check-ups. A majority of them (58.6%) disagreed or strongly disagreed that men were positive about health check-ups (Figure 7.7).

![Figure 7.7 Doctors’ degree of agreement on men being keen for health check-ups](image-url)

<table>
<thead>
<tr>
<th>Degree of agreement (%)</th>
<th>n= 198</th>
</tr>
</thead>
<tbody>
<tr>
<td>strongly disagree</td>
<td>9.1</td>
</tr>
<tr>
<td>disagree</td>
<td>49.5</td>
</tr>
<tr>
<td>neutral</td>
<td>7.6</td>
</tr>
<tr>
<td>agree</td>
<td>27.8</td>
</tr>
<tr>
<td>strongly agree</td>
<td>6.1</td>
</tr>
</tbody>
</table>
7.6.3 Doctors' attitudes towards the medical importance of proactive health check-ups
The higher mean scores of the doctors’ attitudes towards proactive health check-ups indicated higher agreement that proactive health check-ups were important in primary care.

The mean (95% CIs) was 4.0 (3.9 – 4.0). On average, the participants perceived that proactive health check-ups were important in primary care. Very few participants (5.5%) disagreed and no participant strongly disagreed with the importance of proactive health check-ups (Figure 7.8).

![Figure 7.8 Doctors' degree of agreement that health check-ups were important in primary care](image)

<table>
<thead>
<tr>
<th>Degree of agreement (%)</th>
<th>n 198</th>
</tr>
</thead>
<tbody>
<tr>
<td>disagree</td>
<td>2.5</td>
</tr>
<tr>
<td>neutral</td>
<td>3.0</td>
</tr>
<tr>
<td>agree</td>
<td>65.2</td>
</tr>
<tr>
<td>strongly agree</td>
<td>29.3</td>
</tr>
</tbody>
</table>
7.6.4 Doctors' attitudes towards the medical importance of proactive men's health check-ups

The higher mean scores of the doctors' attitudes towards proactive men's health check-ups indicated higher agreement that proactive health check-ups were important for male patients in primary care. The mean (95% CIs) was 3.8 (3.7–3.8). On average, the participants perceived that proactive health check-ups were also important for male patients in primary care. However, more participants (11.2%) disagreed that health check-ups were important for male patients compared with health check-ups generally (Figure 7.9), although a great majority (88.8%) still placed importance on health check-ups for male patients.

![Figure 7.9 Doctors' degree of agreement that men's health check-ups were important in primary care](image)

In summary, although some participants perceived time constraint as an important barrier, many had opposing views. They also had mixed views about cost constraint, lack of clinic system support, lack of privacy and lack of referral network support. While a large proportion of participants perceived men as being reluctant about health check-ups, a great majority of them perceived that health check-ups and men's health check-ups were important.
7.7 Cardiovascular risk screening in male patients

This section has three sub-sections. The first sub-subsection (section 7.7.1) describes the pattern of the specific determinants of PCDs' intention to initiate cardiovascular risk screening with their male patients (see figure 6.3 in page 175 for the grouping of determinants). This is followed by a description of the likeliness of PCDs initiating the screening (section 7.7.2). The last subsection (section 7.7.3) summarises the findings of the multiple linear regression analyses in order to ascertain the usefulness of the models, with all determinants collectively, in explaining the doctors' intention. The last sub-section also examines the relative importance of each of these determinants in the models.

7.7.1 Specific determinants of doctors' intention to initiate cardiovascular risk screening

From the theoretical framework, four specific determinants were conceptualised. However, after reassessment of structural validity (see section 7.5), six specific determinants were identified instead. These determinants were grouped into the following categories:

a. Doctors' perceptions of male patients' receptivity (three determinants):
   i. Perceived male patients as expecting cardiovascular risk screening
   ii. Perceived male patients as being comfortable with the discussion of cardiovascular risk screening
   iii. Perceived male patients as being receptive to proactive cardiovascular risk screening in a specific context of consultation, either in acute minor complaint, follow-up or health check-up visits

b. Doctors' attitudes towards medical importance of proactive cardiovascular risk screening (two determinants):
   i. Proactive screening is important
   ii. Doctors should initiate the screening

c. Doctors' self-perception of personal competency in risk screening (one determinant):
   i. Perceived as being personally competent
The higher mean scores in each determinant indicated a higher degree of agreement that the male patients were receptive to screening, or proactive screening was important, or doctors were personally competent in the screening.

Generally, the participants perceived that male patients were receptive to cardiovascular risk screening (Figure 7.10). Men were perceived as expecting and comfortable with cardiovascular risk screening. Their degree of receptivity was even higher in follow-up and health check-up visits compared with the context of acute minor complaint visits (Figure 7.10).

In the frequency distribution chart (Figure 7.11), a great majority of participants, 83.2% and 75.6% respectively, either agreed or strongly agreed that men were comfortable with and expected cardiovascular risk screening (Figure 7.11). However, doctors' perceptions of male
patients’ receptivity in acute minor complaint visits was more variable. As opposed to > 90% of the participants perceiving a high degree of receptivity to follow-up and health check-up visits, as many as a quarter of the participants disagreed that their male patients were receptive to the screening.

In the “attitudinal” concepts, the participants scored highly on the medical importance of proactive cardiovascular risk screening but poorly on the doctor taking the lead in initiating the screening (Figure 9.12).
In the frequency distribution chart (Figure 7.13), almost all participants agreed or strongly agreed that "proactive cardiovascular risk screening is important". However, a significant proportion of them (47.2%) disagreed that doctors should initiate the discussion on this issue. Furthermore, 21.3% of them took a neutral stance on the issue of whether the doctor should initiate the discussion.

The participants were generally confident about their skills in cardiovascular risk management (Figure 7.12): up to 96.5% of the participants agreed or strongly agreed that they were competent in cardiovascular risk management (Figure 7.13).
Doctor should initiate CVS risk screening (%), n=197

<table>
<thead>
<tr>
<th></th>
<th>strongly disagree</th>
<th>disagree</th>
<th>neutral</th>
<th>agree</th>
<th>strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5.6</td>
<td>47.2</td>
<td>21.3</td>
<td>22.3</td>
<td>3.6</td>
</tr>
</tbody>
</table>

Proactive CVS screening is important (%), n=198

<table>
<thead>
<tr>
<th></th>
<th>strongly disagree</th>
<th>disagree</th>
<th>neutral</th>
<th>agree</th>
<th>strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.5</td>
<td>0.5</td>
<td>2.5</td>
<td>46.0</td>
<td>50.5</td>
</tr>
</tbody>
</table>

Competent in CVS risk management (%), n=198

<table>
<thead>
<tr>
<th></th>
<th>strongly disagree</th>
<th>disagree</th>
<th>neutral</th>
<th>agree</th>
<th>strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.0</td>
<td>2.0</td>
<td>3.5</td>
<td>63.1</td>
<td>31.3</td>
</tr>
</tbody>
</table>

Figure 7.13 Doctors’ attitudes towards proactive cardiovascular (CVS) risk screening and perception of competency in CVS management
7.7.2 Likelihood of doctors to initiate cardiovascular risk screening

The doctors' intention to initiate cardiovascular risk screening was examined by assessing the
degree of likeliness of doctors initiating the screening in three different contexts (Figure 7.14).
Higher mean scores in the degree of likeliness indicated a higher degree of intention to
initiate the discussion of cardiovascular risk screening. All mean scores in the three contexts
were more than three (Figure 7.14), reflecting a high degree of intention to initiate the
discussion with their male patients. Similar to the pattern seen in perceived male patients' 
receptivity to cardiovascular risk screening, the degree of likeliness was much higher in
follow-up and health check-up visits (Figure 7.14).

Figure 7.14 Mean scores and 95% confidence intervals for the likeliness of doctors
initiating cardiovascular (CVS) risk screening in three different contexts

Also, more variability of degree of likeliness was noted in the context of acute minor
complaint visits, in which about a quarter of participants were unlikely to initiate the
discussion (Figure 7.15). In the contexts of follow-up and health check-up visits, > 90% of participants were either likely or highly likely to initiate the discussion.

<table>
<thead>
<tr>
<th>Context</th>
<th>Very unlikely</th>
<th>Unlikely</th>
<th>Not Sure</th>
<th>Likely</th>
<th>Very Likely</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute minor complaint visits (%)</td>
<td>0.5</td>
<td>22.8</td>
<td>12.2</td>
<td>45.7</td>
<td>18.8</td>
</tr>
<tr>
<td>Follow-up visits (%)</td>
<td>0.0</td>
<td>5.1</td>
<td>1.5</td>
<td>42.4</td>
<td>51.0</td>
</tr>
<tr>
<td>Health check-up visits (%)</td>
<td>0.0</td>
<td>0.5</td>
<td>0.0</td>
<td>20.7</td>
<td>78.8</td>
</tr>
</tbody>
</table>

Figure 7.15 Likelihood of doctors initiating discussion about cardiovascular (CVS) risk screening in three different contexts.
Usefulness of models and the significant determinants of doctors' intention to initiate cardiovascular risk screening

Three models, corresponding to three contexts of consultation, were constructed to ascertain their usefulness in explaining the doctors' intention to initiate cardiovascular risk screening with their male patients. Each model had 14 explanatory variables and one outcome variable. The explanatory variables included eight general determinants described in section 7.6 and six specific determinants described in section 7.7.1. The intentions, which were the outcome variables, were measured as the degree of likeliness to initiate the screening in three different contexts (section 7.7.2). The usefulness of the models was assessed before examining the relative importance of determinants.

7.7.3.1 Usefulness of the explanatory models

Bivariate analysis using scatter plots between each determinant and the corresponding outcome variable showed that the assumption of linearity between the two variables was met (the scattered plots are appended - Appendix 7.4). The correlation matrix between explanatory variables did not reveal any extreme correlation ($r \geq 0.9$) (Appendix 7.5). Extreme correlation was not desirable as it indicated the possibility of redundancy between the explanatory variables.

In the initial round of simultaneous multiple linear regression analysis, two outliers were identified. The DFFIT statistic for case 32 was 0.609, which exceeded the threshold of 0.562 in the model investigating the context of acute minor complaint visits. By contrast, the DFFIT statistic for case 109 was 0.712, which also exceeded the threshold in the model investigating the context of health check-up visits (see section 6.10.4 for the definition of an outlier). These outliers were dropped in the final round of regression analyses, resulting in an improvement of the respective $R^2$ of the models (Table 7.19). The $R^2$ improved from 0.288 to 0.293 in the model investigating the context of acute minor complaint visits, whereas the $R^2$ improved from 0.246 to 0.252.
in the model investigating the context of health check-up visits. In the context of follow-up visits, no outlier was identified (the steps involved in the regression are appended - Appendix 7.6).

In the final round of regression analyses, the proposed models significantly explained 29.3%, 27.6% and 25.2% (corresponding to $R^2$ of 0.293, 0.276 and 0.252) of the observed variance in doctors’ intention to initiate cardiovascular risk screening in acute minor complaint, follow-up and health check-up visits of their male patients (Table 7.19). The observed power of the analyses in the three models was excellent (Table 7.19).

Table 7.19 Summary statistics for simultaneous multiple regression analyses for three models corresponding to three contexts of consultation

<table>
<thead>
<tr>
<th>Contexts of the models</th>
<th>Round of regression analysis</th>
<th>n</th>
<th>$R^2$</th>
<th>F</th>
<th>P</th>
<th>Observed power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute minor complaint visits</td>
<td>Initial</td>
<td>190</td>
<td>0.288</td>
<td>5.049</td>
<td>&lt;0.001</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Final</td>
<td>189*</td>
<td>0.293</td>
<td>5.155</td>
<td>&lt;0.001</td>
<td>100%</td>
</tr>
<tr>
<td>Follow-up visits</td>
<td>Initial and final</td>
<td>191*</td>
<td>0.276</td>
<td>4.783</td>
<td>&lt;0.001</td>
<td>100%</td>
</tr>
<tr>
<td>Health check-up visits</td>
<td>Initial</td>
<td>191</td>
<td>0.246</td>
<td>4.099</td>
<td>&lt;0.001</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>Final</td>
<td>190*</td>
<td>0.252</td>
<td>4.218</td>
<td>&lt;0.001</td>
<td>100%</td>
</tr>
</tbody>
</table>

* outlier case 32 was dropped  
* no outlier case  
† outlier case 109 was dropped

No collinearity among explanatory variables in all three models was noted. The VIF statistics were < 5 (Appendix 7.6). Hence, the biases in the estimates of regression coefficients and their standard deviations were minimal.

The proposed models also fulfilled all the assumptions for multiple linear regression. The assumption of linearity in the relationship between explanatory variables and outcome variables was reassessed with scatter plots between the residuals and predicted outcome values for each model. The close proximity of the “Lowess line” to
the mean residual line of "0" in all the scatter plots confirmed that the assumption was met (the residual-outcome value plots are appended – Appendix 7.7). The assumptions about the characteristics of residuals were also met. The homoscedasticity and independent distribution of residuals were demonstrated by the random pattern seen in the residual-explanatory variable plots and residual-ordered case plots respectively. In addition, the normal distribution of residuals was demonstrated by the pattern of normal distribution in the histogram and q-q plots. All residual-explanatory variable plots, residual-ordered case plots, histogram and q-q plots of residuals are appended – Appendix 7.8.

7.7.3.2 Relative importance of the determinants

Standardised coefficients, β, for each explanatory variable within the corresponding model were examined and compared to ascertain the significant and important determinants of doctors’ likeliness to initiate cardiovascular risk screening in three different contexts of consultation (Table 7.20). The magnitude of β corresponded to the magnitude of importance as a determinant.

In the context of acute minor complaint visits, four explanatory variables significantly determined the doctors’ intention (Table 7.20). The doctors’ perceptions of male patients’ receptivity to cardiovascular risk screening in acute minor complaint visits was the most important determinant, and it was positively associated with the doctors’ intention. Hence, higher degree of perceived male patients’ receptivity to cardiovascular risk screening in acute minor complaint visits was associated with higher likeliness of doctors to initiate the screening. The second most important determinant was doctors’ perceptions of male patients’ help-seeking behaviour. Contrary to the positive association above, the more positive the doctors’ perceptions of their male patients’ help-seeking behaviour, the less likely the doctors were to initiate the screening. The third most important determinant was the doctors’
perceptions of male patients expecting cardiovascular risk screening. This
determinant had a positive association where a higher degree of perceived
receptivity was associated with a higher degree of likeliness in initiating the
discussion. The last significant determinant was the barrier of lack of referral network;
a greater degree of perceived barrier was associated with lesser likeliness of initiating
the discussion.
Table 7.20 Standardised coefficient ($\beta$) for all determinants of doctors’ likeliness to initiate cardiovascular risk screening in three different contexts of consultation

<table>
<thead>
<tr>
<th>Determinants</th>
<th>Acute minor complaint visits</th>
<th>Follow-up visits</th>
<th>Health check-up visits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\beta$</td>
<td>$p$</td>
<td>$\beta$</td>
</tr>
<tr>
<td><strong>External barriers to health check-ups</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time constraint</td>
<td>0.030</td>
<td>0.740</td>
<td>0.084</td>
</tr>
<tr>
<td>Lack of clinic system supporting health check-up</td>
<td>-0.120</td>
<td>0.175</td>
<td>-0.109</td>
</tr>
<tr>
<td>Lack of privacy in the clinic</td>
<td>0.081</td>
<td>0.309</td>
<td>0.058</td>
</tr>
<tr>
<td>Lack of referral network</td>
<td>-0.152</td>
<td>0.026</td>
<td>-0.012</td>
</tr>
<tr>
<td>Cost constraint to men</td>
<td>0.076</td>
<td>0.288</td>
<td>-0.127</td>
</tr>
<tr>
<td><strong>Doctors’ positive perceptions of men’s help-seeking behaviour in relation to health check-ups</strong></td>
<td>-0.227</td>
<td>0.002</td>
<td>-0.237</td>
</tr>
<tr>
<td>Doctors’ attitudes towards medical importance of health check-ups</td>
<td>0.112</td>
<td>0.181</td>
<td>0.195</td>
</tr>
<tr>
<td>Doctors’ attitudes towards medical importance of men’s health check-ups</td>
<td>0.109</td>
<td>0.188</td>
<td>0.024</td>
</tr>
<tr>
<td><strong>Doctors’ perceptions of receptivity</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived male patients expecting CVS* risk screening</td>
<td>0.193</td>
<td>0.004</td>
<td>0.059</td>
</tr>
<tr>
<td>Perceived male patients being comfortable in discussing CVS risk screening</td>
<td>0.059</td>
<td>0.409</td>
<td>0.168</td>
</tr>
<tr>
<td>Perceived male patients being receptive to proactive CVS risk screening in the contexts of consultation</td>
<td>0.331</td>
<td>&lt;0.001</td>
<td>0.267</td>
</tr>
<tr>
<td><strong>Doctors’ attitudes towards medical importance</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attitudes towards proactive CVS risk screening</td>
<td>-0.146</td>
<td>0.055</td>
<td>0.027</td>
</tr>
<tr>
<td>Attitudes towards doctors initiating CVS risk screening</td>
<td>0.035</td>
<td>0.600</td>
<td>-0.087</td>
</tr>
<tr>
<td>Perceived being personally competency in CVS risk management</td>
<td>0.024</td>
<td>0.756</td>
<td>-0.016</td>
</tr>
</tbody>
</table>
In the context of follow-up visits, four significant explanatory variables were identified, and the most important determinant was also the doctors’ perceptions of male patients’ receptivity, with a similar type of positive association. Similarly, the doctors’ perceptions of male patients’ help-seeking behaviour was the next most important determinant with a negative association as in the context of acute minor complaint visits. However, the next two most important determinants differed from the context of acute minor complaint visits, where the doctors’ attitudes toward medical importance of health check-ups became the third and doctors’ perceptions of male patients’ comfort in discussion cardiovascular risk screening became the fourth most important determinants, with both having positive associations with the doctors’ likeliness to initiate cardiovascular risk screening (Table 7.20).

In the context of health check-up visits, there were substantial differences in the significant determinants compared with the contexts of acute minor complaint visits. Only two explanatory variables were significantly associated with the doctors’ intention to initiate cardiovascular risk screening (Table 7.20). The most important determinant was the doctors’ attitudes toward proactive cardiovascular risk screening, followed by the doctors’ perceptions of male patients’ receptivity to the screening. Both determinants had positive associations with the likeliness of doctors to initiate the screening. Hence, doctors who placed importance on proactive cardiovascular risk screening were more likely to initiate the screening. Doctors who perceived a higher degree of receptivity to cardiovascular risk screening were also more likely to initiate the screening.
Table 7.21 List of significant determinants in descending order of importance from multiple linear regression analyses of three contexts of consultation

<table>
<thead>
<tr>
<th>Determinants</th>
<th>Acute minor complaint visits</th>
<th>Follow-up visits</th>
<th>Health check-up visits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receptivity*</td>
<td>0.331</td>
<td>Receptivity*</td>
<td>0.267</td>
</tr>
<tr>
<td>Male patients' HSB*†</td>
<td>-0.227</td>
<td>Male patients' HSB*</td>
<td>-0.237</td>
</tr>
<tr>
<td>Men's expectation of CVS risk screening</td>
<td>0.193</td>
<td>Attitudes towards health check-ups</td>
<td>0.195</td>
</tr>
<tr>
<td>Lack of referral network</td>
<td>-0.152</td>
<td>Male patients' comfort</td>
<td>0.168</td>
</tr>
</tbody>
</table>

* Standardised coefficients from full model of multiple linear correlation
† Perception of male patients' receptivity to cardiovascular risk screening in the corresponding context
‡ Perception of male patients' help-seeking behaviour in relation to health check-ups

The significant determinants of the likeliness to initiate cardiovascular risk screening in the three different contexts differed substantially (Table 7.21). Determinants related to "perceived receptivity" were prominent in the context of acute minor complaint visits but less so in the context of health check-up visits. On the other hand, determinants related to "attitudes towards medical importance" were prominent in health check-up visits and follow-up visits. The context of follow-up visits presented an interesting scenario where both determinants related to "perceived receptivity" and "attitudes towards medical importance" were important.
In summary, the participants perceived that male patients were generally receptive to cardiovascular risk screening in three contexts of consultations, especially during health check-up visits. They felt proactive cardiovascular screening was important and that they were competent to carry out the screening. The models proposed significantly explained doctors' intentions to offer cardiovascular risk screening. Both doctors' "perceptions of male patients' receptivity" and doctors' "attitudes towards medical importance" were significant determinants; "perceptions of male patients' receptivity" was more important in acute minor complaint visits and follow-up visits, but "attitudes towards medical importance" was more important in health check-up visits. External barriers to and perceived competence in cardiovascular risk screening played a smaller role in the doctors' intentions.
7.8 Asking about sexual dysfunction in male patients

The presentation of this and the subsequent section is similar to the topic of cardiovascular risk screening, where the pattern of the specific determinants of PCDs' intention to ask about sexual dysfunction among male patients is described first. (section 7.8.1) This is followed by a description of the likeliness of doctors asking about it (section 7.8.2). The last subsection (section 7.8.3) summarises the findings of ordinal regression analyses to ascertain the usefulness of the models, with all determinants collectively, in explaining the doctors' intention. The last sub-section then examines the relative importance of each of these determinants in the models.

7.8.1 Specific determinants of doctors' intention to ask about sexual dysfunction

Four specific determinants were conceptualised from the theoretical framework. These were grouped into "doctors' perceptions of male patients' receptivity to asking about sexual dysfunction (generally and in three different contexts)", "attitudes to proactive asking about sexual dysfunction" and "doctors' perceived personal competence in assessing sexual dysfunction" (Figure 7.16). The interpretation of mean scores was similar to cardiovascular risk screening.
Higher mean scores of doctors’ perceptions of male patients’ receptivity to asking about sexual dysfunction indicated a perceived higher degree of agreement that male patients were receptive to questions about sexual dysfunction. Generally, male patients were perceived as slightly less receptive to questions about sexual dysfunction, and the degree of receptivity was lowest if the context of consultation was acute minor complaint visits.

Doctors perceived a comparatively higher degree of receptivity among male patients in follow-up visits and an even higher degree in health check-up visits. (Figure 7.16)

In the frequency distribution chart (Figure 7.17), more than 50% of participants perceived that male patients were generally unreceptive to questions about sexual dysfunction. While up to 73.3% of them disagreed or strongly disagreed that men would be receptive to such
questions in the context of acute minor complaint visits, a majority agreed or strongly agreed that men would be receptive to such questioning in follow-up or health check-up visits.

Figure 7.17 Doctors' perceptions of male patients' being receptive to questioning about sexual dysfunction generally and in three different contexts

In measuring doctors' attitudes towards asking male patients about sexual dysfunction, higher mean scores indicated a higher degree of agreement that such questions were necessary. Likewise, in measuring their perceived personal competency in assessing sexual dysfunction, higher mean scores indicated a higher degree of perceived personal competency. While on average, participants viewed asking about sexual dysfunction as unnecessary, the mean score was close to 3 (a neutral stance) (Figure 7.16). Similarly, while they perceived themselves as competent in assessing sexual dysfunction, once again the score was close to 3.
While a minority (31.6%) of participants agreed or strongly agreed that proactive questioning about sexual dysfunction was important, up to a fifth took a neutral stance. On the other hand, a large proportion of participants (49.2%) agreed or strongly agreed that they were competent in assessing sexual dysfunction (Figure 7.18), with fewer participants taking a neutral stance.
7.8.2 Likeliness of doctors asking about sexual dysfunction

The likeliness of doctors asking about sexual dysfunction was measured in three different contexts of consultation with one item each. Hence, unlike cardiovascular risk screening, there was no mean score of likeliness. The participants rated the item on a scale of 1-5, corresponding to the likeliness in asking about sexual dysfunction in the corresponding scenario. A majority of the participants (78.3%) were either unlikely or highly unlikely to ask about sexual dysfunction in the context of acute minor complaint visits (Figure 7.19).

Although more participants were likely or highly likely to ask such questions in follow-up or health check-up visits compared with acute minor complaint visits, particularly in health check-up visits, they only constituted < 50% of the participants. Up to almost 30% of them took a neutral stance. The data showed a slant towards “unlikely” in asking about sexual dysfunction.

![Figure 7.19 Likeliness of doctors asking about sexual dysfunction in three different contexts](image)

<table>
<thead>
<tr>
<th></th>
<th>Highly unlikely</th>
<th>Unlikely</th>
<th>not sure</th>
<th>Likely</th>
<th>Highly likely</th>
</tr>
</thead>
<tbody>
<tr>
<td>in acute minor complaint visits (%)</td>
<td>23.2</td>
<td>55.1</td>
<td>15.2</td>
<td>6.1</td>
<td>0.5</td>
</tr>
<tr>
<td>in follow-up visits (%)</td>
<td>7.6</td>
<td>36.9</td>
<td>29.8</td>
<td>21.7</td>
<td>4.0</td>
</tr>
<tr>
<td>in health check-up visits (%)</td>
<td>4.0</td>
<td>23.7</td>
<td>26.3</td>
<td>30.8</td>
<td>15.2</td>
</tr>
</tbody>
</table>
7.8.3 Usefulness of models and the significant determinants of doctors’ intention to ask about sexual dysfunction

Three models were constructed to ascertain their usefulness in explaining the doctors’ intention to ask about sexual dysfunction. Twelve explanatory variables were included in each model representing the eight general determinants described in section 7.6 and the four specific determinants on the topic of sexual dysfunction described in section 7.8.1. The outcome variables, the intentions, were measured as the degree of likeliness of doctors asking about sexual dysfunction in three different contexts (see section 7.8.2). Because of the ordinal categorical nature of outcome variables, the usefulness of the model and relative importance of the determinants were analysed using ordinal regression analysis.

7.8.3.1 Relevance of explanatory models

Different link functions were used in three different contexts as the distributions of outcome variable for each context were different (see table 6.5 for the type of link functions matching the type of outcome variable distributions). The details of the statistical outputs are appended – Appendix 7.9.

Merging of the categories “highly likely” and “likely” was only necessary in the analysis of the likeliness of doctors asking about sexual dysfunction in the contexts of acute minor complaint visits, as the frequency (n) in the “highly likely” category was 1.

All three models, corresponding to three contexts of consultation, significantly explained the doctors’ intention to ask about sexual dysfunction; all three models have significant model fitting statistics of -2log-likelihood $\chi^2$ (Table 7.22). The non-significance of goodness-of-fit statistics indicated that the models tested fitted well with the observed data.
Table 7.22 Summary of ordinal regression statistics of three models for determining doctors’ intention to ask about sexual dysfunction corresponding to three contexts of consultation

<table>
<thead>
<tr>
<th>Contexts of visits</th>
<th>Model fitting</th>
<th>Goodness of fit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>Nagelkerke pseudo- R²</td>
</tr>
<tr>
<td>Acute minor complaint visits*</td>
<td>191</td>
<td>0.132</td>
</tr>
<tr>
<td>Follow-up visits#</td>
<td>190</td>
<td>0.316</td>
</tr>
<tr>
<td>Health check-up visits†</td>
<td>192</td>
<td>0.205</td>
</tr>
</tbody>
</table>

* link function: Negative log-log
# link function: Logit
† link function: Complementary log-log

Although Nagelkerke $R^2$ was an estimate of the actual $R^2$, the models seemed to explain 13.2% to 31.6% of the observed variance in doctors’ intention to ask about sexual dysfunction in acute minor complaint, follow-up and health check-up visits respectively. The model explained most effectively in the context of follow-up visits, followed by health check-up visits and acute minor complaint visits.

Tests of parallelism in all three models showed a non-significant difference between null hypothesis (which states that the regression slopes are parallel) and the models (which makes no assumption of parallelism), confirming the valid use of ordinal regression analysis (Table 7.23).

Table 7.23 Test of parallelism for the three models corresponding to three contexts of consultation

<table>
<thead>
<tr>
<th>Contexts of the models</th>
<th>-2log-likelihood χ²</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute minor complaint visits</td>
<td>29.764</td>
<td>0.193</td>
</tr>
<tr>
<td>Follow-up visits</td>
<td>38.693</td>
<td>0.349</td>
</tr>
<tr>
<td>Health check-up visits</td>
<td>45.821</td>
<td>0.126</td>
</tr>
</tbody>
</table>

235
7.8.3.2 Relative importance of the determinants

The relative importance of each determinant from the others was ascertained by comparing the coefficient estimates of regression, B, of the variable from the ordinal regression models. The standard errors for the determinants within each context of consultation were similar, making comparison within each context of consultation possible.

In the context of acute minor complaint visits, the only significant determinant was the doctors' perceptions of male patients' receptivity to questioning about sexual dysfunction in that specific context (Table 7.24). It was a positive relationship, where a higher degree of perceived receptivity was associated with a higher degree of likeliness in asking about sexual dysfunction.

In the context of follow-up visits, four significant determinants were noted (Table 7.24). The most important determinant was, again, the doctors' perceptions of male patients' receptivity to such questions in follow-up visits. The second most important determinant was perceived personal competency in assessing sexual dysfunction, followed by positive perceptions of men's help-seeking behaviour in relation to health check-ups and cost constraint. However, the latter two determinants have a negative association, where a more positive perception of men's help-seeking behaviour and a perceived higher degree of cost constraint was associated with a lower likeliness of asking about sexual dysfunction.

In the context of health check-up visits, two significant determinants were noted (Table 7.24). In this context, however, the most important determinant was perceived to be personal competency in assessing sexual dysfunction. The doctors' perceptions of male patients' receptivity to such questioning in health check-up visits was a less important determinant than "perceived personal competency".
Table 7.24 Estimates of regression coefficient (B) for all determinants of doctors’ likelihood to ask about sexual dysfunction in three different contexts of consultation

<table>
<thead>
<tr>
<th>Determinants</th>
<th>Acute minor complaint visits</th>
<th>Follow-up visits</th>
<th>Health check-up visits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>SE*</td>
<td>p</td>
</tr>
<tr>
<td>External barriers to health check-ups</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time constraint</td>
<td>-0.162</td>
<td>0.125</td>
<td>0.196</td>
</tr>
<tr>
<td>Lack of clinic system supporting health check-up</td>
<td>0.040</td>
<td>0.130</td>
<td>0.757</td>
</tr>
<tr>
<td>Lack of privacy in the clinic</td>
<td>0.035</td>
<td>0.116</td>
<td>0.764</td>
</tr>
<tr>
<td>Lack of referral network</td>
<td>-0.152</td>
<td>0.097</td>
<td>0.118</td>
</tr>
<tr>
<td>Cost constraint to men</td>
<td>-0.032</td>
<td>0.099</td>
<td>0.750</td>
</tr>
<tr>
<td>Doctors’ positive perceptions of men’s help-seeking behaviour in relation to health check-ups</td>
<td>-0.135</td>
<td>0.107</td>
<td>0.205</td>
</tr>
<tr>
<td>Doctors’ attitudes towards medical importance of health check-ups</td>
<td>0.047</td>
<td>0.110</td>
<td>0.671</td>
</tr>
<tr>
<td>Doctors’ attitudes towards medical importance of men’s health check-ups</td>
<td>-0.138</td>
<td>0.112</td>
<td>0.219</td>
</tr>
<tr>
<td>Doctors’ perception of receptivity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived male patients as being receptive to questioning about sexual dysfunction generally</td>
<td>0.173</td>
<td>0.115</td>
<td>0.132</td>
</tr>
<tr>
<td>Perceived male patients as being receptive to questioning about sexual dysfunction in the context of consultation</td>
<td>0.237</td>
<td>0.095</td>
<td>0.013</td>
</tr>
<tr>
<td>Doctors’ attitudes towards proactive asking about sexual dysfunction</td>
<td>-0.080</td>
<td>0.103</td>
<td>0.433</td>
</tr>
<tr>
<td>Perceived as being personally competent in assessing sexual dysfunction</td>
<td>0.096</td>
<td>0.112</td>
<td>0.391</td>
</tr>
</tbody>
</table>

* Standard error
In summary, the participants perceived that male patients were generally unreceptive to questions about sexual dysfunction, although in contexts of follow-up and health check-up visits, male patients were perceived to be more receptive. While only 30% of participants agreed with the importance of proactive asking about sexual dysfunction, about half of participants perceived themselves as competent in assessing sexual dysfunction. The majority of the participants were unlikely or unsure of whether to ask about sexual dysfunction, especially in the context of acute minor complaint visits. Many were also unsure of asking about it in follow-up and health check-up visits.

The models proposed significantly explained the doctors' intention to ask their male patients about sexual dysfunction, especially in follow-up visits. The perceptions of male patients' receptivity to asking about sexual dysfunction was, again, an important determinant of the doctors' intention in all three contexts of consultations, especially in the contexts of acute minor complaint and follow-up visits. However, participants' perceptions of their personal competency in sexual dysfunction assessment was the most important determinant of the doctors' intention in health check-up visits. As opposed to the topic of cardiovascular risk screening, determinants related to the "doctors' attitudes" were not significantly related to the doctors' intention on the topic of sexual dysfunction. However, similar to the topic of cardiovascular risk screening, participants who perceived men as being positive about health check-ups were less likely to ask about sexual dysfunction. Besides cost constraint to male patients, which was the only significant barrier to doctors' intention in the context of follow-up visits, external barriers played little role in determining doctors' intention to ask about sexual dysfunction.
7.9 Psychosocial health assessment in male patients

Similar to previous chapters, the pattern of the specific determinants of doctors' intention to initiate psychosocial health assessment in male patients will be presented first (section 7.9.1). The subsequent sections describe the likeliness of doctors to assess psychosocial health in male patients (7.9.2). The last subsection (section 7.9.3) summarises the findings of multiple regression analyses to ascertain the usefulness of the models and the relative importance of the determinants in the models.

7.9.1 Specific determinants in doctors' intention to initiate psychosocial health assessment

Four specific determinants were also conceptualised from the theoretical framework. They were grouped into “doctors' perceptions of male patients' receptivity (generally and in three different contexts)”, “attitudes towards proactive psychosocial health assessment” and “doctors' perceived personal competence in psychosocial health assessment” (Figure 7.20).
In measuring the doctors' perceptions of male patients' receptivity to psychosocial health assessment, the higher mean scores indicated a higher degree of perceived male patients' receptivity. Looking at the mean scores, it is apparent that participants were rather neutral in their stance on male patients' receptivity to psychosocial health assessment in general. However, the perceived degree of receptivity varied in different contexts of consultation. Male patients were perceived as more receptive to the assessment in health check-up and follow-up visits than acute minor complaint visits. However, in the frequency distribution chart (Figure 7.21), almost as many participants agreed or strongly agreed as participants disagreed or strongly disagreed that male patients were generally receptive to the assessment. In the context of acute minor complaint visits, a majority of the participants (60.9%) did not think that male patients were receptive to the assessment. By contrast, in
the context of follow-up and health check-up visits, a majority (65.5% to 79.2%) of them thought that male patients were receptive to it.

![Histogram showing doctors' perceptions of male patients' receptivity to psychosocial health assessment generally and in three different contexts.](image)

<table>
<thead>
<tr>
<th>General (%, n=198)</th>
<th>0.0</th>
<th>22.3</th>
<th>10.7</th>
<th>67.0</th>
<th>12.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>in acute minor complaint visits (%), n=198</td>
<td>6.1</td>
<td>54.8</td>
<td>14.7</td>
<td>22.8</td>
<td>1.5</td>
</tr>
<tr>
<td>in follow-up visits (%), n=197</td>
<td>0.0</td>
<td>22.3</td>
<td>12.2</td>
<td>58.4</td>
<td>7.1</td>
</tr>
<tr>
<td>in health check-up visits (%), n=197</td>
<td>0.0</td>
<td>10.2</td>
<td>10.7</td>
<td>67.0</td>
<td>12.2</td>
</tr>
</tbody>
</table>

Figure 7.21 Doctors' perceptions of male patients' receptivity to psychosocial health assessment generally and in three different contexts

In measuring doctors' attitudes and their perceived personal competency towards proactive psychosocial health assessment, a higher mean score indicated a higher degree of agreement that the assessment was important, and a similarly higher score in perceived personal competency indicated a perceived higher degree of competence. In general, the participants agreed that proactive psychosocial health assessment was important, and they perceived themselves as being competent in psychosocial assessment (Figure 7.20). In the frequency distribution chart (Figure 7.22), up to 93.8% of the participants agreed or strongly agreed that proactive psychosocial health was important. On the other hand, 76.8% agreed or strongly agreed that they were competent in psychosocial health assessment.
Proactive psychosocial health assessment is important (%), n=198

Competent in assessing psychosocial health (%), n=394

Figure 7.22 Doctors’ attitudes towards proactive psychosocial health assessment and perceived personal competency in the assessment
7.9.2 Likeliness of doctors to initiate psychosocial health assessment

Comparing three different contexts of consultation, participants were more likely to initiate psychosocial health assessment in health check-up and follow-up visits than in acute minor complaint visits (Figure 7.23).

![Likelihood chart](image)

Figure 7.23 Mean scores and 95% confidence intervals for the likeliness of doctors initiating psychosocial health assessment in male patients in three different contexts

In the frequency distribution chart (Figure 7.24), almost equal proportions of participants were either likely/highly likely or unlikely/highly unlikely to assess psychosocial health in acute minor complaint visits. On the other hand, a majority of participants, 65.7% and 80.7% respectively, were either likely or very likely to assess psychosocial health in follow-up and health check-up visits.
7.9.3 Usefulness of models and the significant determinants of doctors’ intention to initiate psychosocial health assessment

Similar to the previous topic, three models were constructed in order to ascertain their usefulness in explaining the doctors’ intention to initiate psychosocial health assessment in three different contexts of consultation. Each model has 12 explanatory variables which included eight general determinants (described in section 7.6) and four specific determinants (described in section 7.9.1).

The intentions, which were the outcome variables, were measured in the same way as the intention to initiate cardiovascular risk screening. They were expressed as the degree of likeliness to assess psychosocial health in male patients. Multiple linear regression analysis was therefore applied to assess the relevance of the models in explaining the doctors’ intention and the relative importance of each determinant.
7.9.3.1 Relevance of the explanatory models

Bivariate analysis using scatter plots between each determinant and the corresponding outcome variable showed that the assumption of linearity between the two variables was met (the scatter plots were appended - Appendix 7.10). The correlation matrix between explanatory variables did not reveal any extreme correlation ($r \geq 0.9$) (Appendix 7.11).

Simultaneous multiple regression analyses on the three models were applied only once as no outlier was noted. The DfFIT statistics for all cases were below the threshold of 0.523 (see section 6.10.4 for threshold setting). The details of the statistical outputs for the three models are appended - Appendix 7.12.

All three models, corresponding to the three contexts of consultation, significantly explained the doctors' intention to initiate psychosocial health assessment; all three models significantly explained 21.9% to 26.1% of the observed variance of the doctors' intention (Table 7.25).

<table>
<thead>
<tr>
<th>Contexts of the models</th>
<th>n</th>
<th>$R^2$</th>
<th>$F$</th>
<th>$p$</th>
<th>Observed power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute minor complaint visits</td>
<td>190</td>
<td>0.219</td>
<td>3.503</td>
<td>&lt;0.001</td>
<td>99.9%</td>
</tr>
<tr>
<td>Follow-up visits</td>
<td>190</td>
<td>0.261</td>
<td>5.222</td>
<td>&lt;0.001</td>
<td>100.0%</td>
</tr>
<tr>
<td>Health check-up visits</td>
<td>190</td>
<td>0.247</td>
<td>3.819</td>
<td>&lt;0.001</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

No collinearity between explanatory variables was noted from the regression analysis. The VIF statistics were < 5 (Appendix 7.12).

The assumption of linearity in the relationship between explanatory variables and outcome variables was reassessed with scatter plots between the residuals and predicted outcome values for each model. The close proximity of the "Lowess line" to
the mean residual line of "0" in all the scatter plots confirmed that the assumption was met. The residual-outcome value plots are appended – Appendix 7.13.

The assumptions about the characteristics of residuals were also met. The homoscedasticity and independent distribution of residuals were demonstrated by the random pattern seen in the residual-explanatory variable and residual-ordered case plots respectively. In addition, the normal distribution of residuals was shown by the pattern of normal distribution in the histogram and q-q plots. All residual-explanatory variable plots, residual-ordered case plots, histogram and q-q plots of residuals are appended – Appendix 7.14.

7.9.3.2 Relative importance of the determinants
Standardised coefficients, β, for each explanatory variable within the corresponding model were examined and compared to ascertain the significant and important determinants of doctors’ likeliness to initiate psychosocial health assessment in three different contexts of consultation (Table 7.26). The magnitude of β corresponded to the magnitude of importance as a determinant.

In the context of acute minor complaint visits, the most important determinant was doctors’ perceptions of male patients’ receptivity to psychosocial health assessment in acute minor complaint visits. A higher degree of perceived receptivity was associated with a higher likeliness to initiate psychosocial health assessment (Table 7.26). The second most important determinant, with a similar positive relationship, was doctors’ attitudes towards psychosocial assessment. Placing a higher degree of medical importance on psychosocial assessment was associated with a higher likeliness to initiate the assessment. However, it was paradoxical to find that a perceived lack of privacy in the clinic was associated with a higher likeliness of psychosocial health assessment.
In the context of follow-up visits, however, the doctors’ attitudes towards psychosocial health assessment was the most important determinant, rather than the doctors’ perceptions of receptivity in follow-up visits; although they were both significant determinants (Table 7.26).

In the context of health check-up visits, the doctors’ attitudes towards psychosocial health assessment was the only significant determinant with a relatively high $\beta$ (Table 7.26). Although doctors’ perceptions of receptivity in the health check-up visits was not significant, it almost achieved the significant threshold of $p < 0.05$. 
Table 7.26 Standardised coefficient (β) for all determinants of doctors’ likeliness to initiate psychosocial health assessment in three different contexts of consultation

<table>
<thead>
<tr>
<th>Determinants</th>
<th>Acute minor complaint visits</th>
<th>Follow-up visits</th>
<th>Health check-up visits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>β</td>
<td>p</td>
<td>β</td>
</tr>
<tr>
<td><strong>External barriers to health check-ups</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time constraint</td>
<td>-0.121</td>
<td>0.195</td>
<td>-0.157</td>
</tr>
<tr>
<td>Lack of clinic system supporting health check-up</td>
<td>0.011</td>
<td>0.908</td>
<td>-0.040</td>
</tr>
<tr>
<td>Lack of privacy in the clinic</td>
<td>0.171</td>
<td>0.041</td>
<td>0.059</td>
</tr>
<tr>
<td>Lack of referral network</td>
<td>-0.008</td>
<td>0.999</td>
<td>0.062</td>
</tr>
<tr>
<td>Cost constraint to men</td>
<td>-0.063</td>
<td>0.394</td>
<td>-0.072</td>
</tr>
<tr>
<td><strong>Doctors’ positive perceptions of men’s help-seeking behaviour in relation to health check-ups</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-0.054</td>
<td>0.451</td>
<td>-0.066</td>
</tr>
<tr>
<td><strong>Doctors’ attitudes towards medical importance of health check-ups</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>-0.010</td>
<td>0.913</td>
<td>0.072</td>
</tr>
<tr>
<td><strong>Doctors’ attitudes towards medical importance of men’s health check-ups</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.043</td>
<td>0.616</td>
<td>-0.093</td>
</tr>
<tr>
<td><strong>Doctors’ perception of receptivity</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived male patients as being receptive to psychosocial health assessment generally</td>
<td>0.054</td>
<td>0.515</td>
<td>0.108</td>
</tr>
<tr>
<td>Perceived male patients as being receptive to psychosocial health assessment in the contexts of consultation</td>
<td>0.312</td>
<td>&lt;0.001</td>
<td>0.224</td>
</tr>
<tr>
<td><strong>Doctors’ attitudes towards proactive psychosocial health assessment</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.199</td>
<td>0.008</td>
<td>0.303</td>
</tr>
<tr>
<td>Perceived as being personally competent in psychosocial health assessment</td>
<td>0.034</td>
<td>0.668</td>
<td>0.004</td>
</tr>
</tbody>
</table>

248
In summary, half of the participants perceived that male patients were generally unreceptive to psychosocial health assessment. However, a large proportion of participants perceived that male patients were receptive to the assessment in follow-up and health check-up visits, but not in acute minor complaint visits. Most of them viewed proactive psychosocial health assessment as being unnecessary, despite most of them perceiving themselves as being competent in the assessment.

Similar to the topic of cardiovascular risk screening and sexual dysfunction enquiry, the models constructed significantly explained 21.9% to 26.1% of doctors' intentions to initiate psychosocial health assessment. Again, the significant explanatory variables which determined the doctors' intention were doctors' perceptions of receptivity in contexts of consultation and doctors' attitudes towards proactive psychosocial health assessment. Consistently, the “attitudinal” determinant was more important in follow-up and health check-up visits than in acute minor complaint visits, whereas the “perceived receptivity” was more important in acute minor complaint visits than the other two contexts.
7.10 Asking about smoking habit in male patients

Section 7.10.1 describes the pattern of the specific determinants of doctors' intention to ask about smoking, whereas section 7.10.2 describes the likeliness of doctors to ask their male patients about smoking habit. The last section summarises the findings of ordinal regression analyses to ascertain the usefulness of the models and the relative importance of the determinants in the models.

7.10.1 Specific determinants of doctors' intention to ask about smoking habit

Similar to the topic of sexual dysfunction and psychosocial health, four specific determinants were conceptualised from the theoretical framework. These were grouped into “doctors' perceptions of male patients' receptivity (generally and in three different contexts)”, “attitudes towards asking about smoking habit” and “doctors' perceived personal competence in managing smoking cessation” (Figure 7.25).

![Graph showing mean scores and 95% confidence intervals for degree of agreement about the perceived male patients' receptivity in different contexts, attitudes towards proactive asking about smoking habit, and perceived personal competency in managing smoking cessation.]

Figure 7.25 Mean scores and 95% confidence intervals for degree of agreement about the perceived male patients' receptivity in different contexts, attitudes towards proactive asking about smoking habit, and perceived personal competency in managing smoking cessation.
In measuring doctors’ perceptions of male patients’ receptivity to questions about smoking habit, higher mean scores indicated a higher degree of perceived male patient receptivity. Generally, male patients were perceived to be receptive to such questions, although more so in the contexts of follow-up and health check-up visits (Figure 7.25). In the frequency distribution chart (Figure 7.26), a great majority of participants agreed or strongly agreed that male patients were receptive to questions about smoking habit, particularly in follow-up and health check-up visits. However, almost a quarter of the participants perceived that male patients were unresponsive to such questions both generally and in acute follow-up visits.

![Figure 7.26 Doctors' perceptions of male patients' receptivity to questioning about smoking habit generally and in three different contexts](image)

In measuring doctors' attitudes towards asking about smoking habit and their perceived personal competency in managing smoking cessation, higher mean scores indicated a higher degree of agreement that asking about smoking habit was necessary and that they were
competent in managing smoking cessation. Generally, participants viewed asking about smoking cessation as important, and that they were competent in managing smoking cessation (Figure 7.25). The distribution charts showed that a great majority of participants agreed or strongly agreed that asking about smoking habit was important and they were competent in managing smoking cessation (Figure 7.27).

<table>
<thead>
<tr>
<th>%</th>
<th>strongly disagree</th>
<th>disagree</th>
<th>neutral</th>
<th>agree</th>
<th>strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Proactive asking about smoking habit is necessary (%)</strong>, n=198</td>
<td>0.5</td>
<td>2.5</td>
<td>3.5</td>
<td>62.6</td>
<td>30.8</td>
</tr>
<tr>
<td><strong>Competent in managing smoking cessation (%)</strong>, n=198</td>
<td>0.0</td>
<td>4.5</td>
<td>7.1</td>
<td>66.7</td>
<td>21.7</td>
</tr>
</tbody>
</table>

**Figure 7.27 Doctors’ attitudes towards proactive asking about smoking habit and perceived personal competent in managing smoking cessation**

7.10.2 Likelihood of doctors to ask about smoking habit

A majority of participants were likely or very likely to ask about smoking habit in all three contexts of consultation (Figure 7.28). The intention was stronger in health check-up visits, where almost 60% of the participants were highly likely to ask about smoking habit. However, almost 13% of participants were unlikely or highly unlikely to ask about smoking habit in acute minor complaint visits.
7.10.3 Usefulness of models and the significant determinants of doctors’ intention to ask about smoking habit

Similar to the other topics of men’s health concerns, three models were constructed to ascertain their usefulness in explaining the doctors’ intention to ask about smoking habit. Again, each model has 12 explanatory variables which included eight general determinants (described in section 7.6) and four specific determinants (described in section 7.10.1). The outcome variables, the intentions, were measured as the degree of likeliness of doctors to ask about smoking habit in three different contexts. Because of the ordinal categorical nature of outcome variables, the usefulness of the models and relative importance of the determinants were analysed using ordinal regression analyses.
7.10.3.1 Relevance of explanatory models

The data in the outcome variables were skewed towards a higher category of likeliness in all three contexts of consultation. Therefore, complementary log-log was used as the link function in the ordinal regression analyses. The details of the statistical outputs are appended—Appendix 7.15.

In the process of ordinal regression analysis, the categories of "highly unlikely" and "unlikely" were merged in the model investigating the contexts of acute minor complaint and follow-up visits, whereas the categories of "highly unlikely", "unlikely" and "not sure" were merged. This was due to the low frequency in these categories.

All three models, corresponding to three contexts of consultation, significantly explained the doctors’ intention to ask about smoking habit; all three models demonstrated significant model fitting statistics of -2log-likelihood $\chi^2$ (Table 7.27). The non-significant goodness-of-fit statistics indicated that the models tested fitted well with the observed data.

Table 7.27 Summary of ordinal regression statistics for three models for determining doctors’ intention to ask about smoking habit corresponding to three contexts of consultation

<table>
<thead>
<tr>
<th>Contexts of the models</th>
<th>Model fitting</th>
<th>Goodness of fit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-2Log-Likelihood $\chi^2$</td>
<td>Significant test, $p$ for Pearson</td>
</tr>
<tr>
<td>Acute minor complaint visits*</td>
<td>46.830 &lt;0.001</td>
<td>0.390 1.000</td>
</tr>
<tr>
<td>Follow-up visits*</td>
<td>49.591 &lt;0.001</td>
<td>0.755 1.000</td>
</tr>
<tr>
<td>Health check-up visits*</td>
<td>60.827 &lt;0.001</td>
<td>0.998 1.000</td>
</tr>
</tbody>
</table>

* link function: Complementary log-log

The models seemed to explain 24.5%, 25.8% and 33.9% (corresponding to pseudo-$R^2$ of 0.245, 0.258, 0.339 in Table 7.27) of the observed variance in doctors’ intention to
ask about smoking habit in acute minor complaint, follow-up and health check-up visits respectively (Table 7.27). The model explained best in the context of follow-up visits as the pseudo $R^2$ is largest compared with the other two models.

Tests of parallelism in all three models showed a non-significant difference between null hypothesis and the models confirming valid use of ordinal regression analysis (Table 7.28).

Table 7.28 Test of parallelism for the three models for determining doctors' intention to ask about smoking habit corresponding to three contexts of consultation

<table>
<thead>
<tr>
<th>Contexts of the models</th>
<th>-2log-likelihood $\chi^2$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute minor complaint visits</td>
<td>35.991</td>
<td>0.055</td>
</tr>
<tr>
<td>Follow-up visits</td>
<td>18.133</td>
<td>0.797</td>
</tr>
<tr>
<td>Health check-up visits</td>
<td>19.584</td>
<td>0.075</td>
</tr>
</tbody>
</table>

7.10.3.2 Relative importance of the determinants

The coefficient estimates of regression, $B$, of the variables within the model were compared alongside their standard errors in order to ascertain the relative importance of the determinants of doctors' intention to ask about smoking habit in their male patients. The standard errors of the determinants within each model were similar (Table 7.29).

In the context of acute minor complaint visits, the significant determinants were doctors' perceptions of male patients' receptivity to questions about smoking habit in the context of consultation and doctors' perceptions of male patients' help-seeking behaviour (Table 7.29). The former determinant has a positive relationship while the latter has a negative relationship. The doctors' positive perceptions of men's help-seeking behaviour were associated with less likeliness of doctors to ask about smoking habit. However, doctors' perceptions of male patients' receptivity was about three
times more important (8 of 0.651 compared with 0.217) as a determinant compared with perceptions of male patients help-seeking behaviour (Table 7.29).

In the context of follow-up visits, again, doctors’ perceptions of male patients’ receptivity to questions about smoking habit in the context of consultation was the most important determinant (Table 7.29). Lack of referral network was also a significant determinant, but, paradoxically, it has a positive relationship, which indicates that a perceived higher degree of it as a barrier was associated with a higher degree of likeliness to ask about smoking habit in male patients. The third most important determinant was the doctors’ attitudes towards the medical importance of men’s health check-ups, which has a positive relationship, and the last significant determinant was perceived lack of clinic system supporting health check-ups, which has a negative relationship (Table 7.29).

In the context of health check-up visits, the doctors’ perceptions of male patients’ receptivity to questions about smoking habit in the context of consultation was positively associated, and lack of referral network was negatively associated with the doctors’ intention to ask about smoking habit (Table 7.29). The third (and last) significant determinant was the doctors’ attitudes towards proactive questioning about smoking habit. A higher degree of emphasis on the importance of proactive asking about smoking habit was associated with a higher likeliness of the intention to ask about smoking habit (Table 7.29).
Table 7.29 Estimates of regression coefficient (B) for all determinants of doctors' likeliness to ask about smoking habit in three different contexts of consultation

<table>
<thead>
<tr>
<th>Determinants</th>
<th>Acute minor complaint visits</th>
<th>Follow-up visits</th>
<th>Health check-up visits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>SE*</td>
<td>p</td>
</tr>
<tr>
<td>External barriers to health check-ups</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time constraint</td>
<td>0.138</td>
<td>0.132</td>
<td>0.294</td>
</tr>
<tr>
<td>Lack of clinic system supporting health check-up</td>
<td>-0.050</td>
<td>0.130</td>
<td>0.701</td>
</tr>
<tr>
<td>Lack of privacy in the clinic</td>
<td>0.001</td>
<td>0.118</td>
<td>0.990</td>
</tr>
<tr>
<td>Lack of referral network</td>
<td>0.116</td>
<td>0.098</td>
<td>0.237</td>
</tr>
<tr>
<td>Cost constraint to men</td>
<td>-0.021</td>
<td>0.093</td>
<td>0.823</td>
</tr>
<tr>
<td>Doctors' positive perceptions of men's help-seeking behaviour in relation to health check-ups</td>
<td>-0.217</td>
<td>0.104</td>
<td>0.038</td>
</tr>
<tr>
<td>Doctors' attitudes towards medical importance of health check-ups</td>
<td>0.165</td>
<td>0.123</td>
<td>0.181</td>
</tr>
<tr>
<td>Doctors' attitudes towards medical importance of men's health check-ups</td>
<td>0.036</td>
<td>0.116</td>
<td>0.759</td>
</tr>
<tr>
<td>Doctors' perception of receptivity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived male patients as being receptive to ask about smoking habit generally</td>
<td>-0.010</td>
<td>0.113</td>
<td>0.933</td>
</tr>
<tr>
<td>Perceived male patients as being receptive to ask about smoking habit in the contexts of consultation</td>
<td>0.651</td>
<td>0.128</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Doctors' attitudes towards proactive asking about smoking habit</td>
<td>0.099</td>
<td>0.112</td>
<td>0.724</td>
</tr>
<tr>
<td>Perceived as being personally competent in managing smoking cessation</td>
<td>0.070</td>
<td>0.114</td>
<td>0.535</td>
</tr>
</tbody>
</table>

* Standard error
In summary, participants perceived that male patients were generally receptive to questioning about smoking habit, especially in follow-up and health check-up visits. A majority of them also agreed that asking about smoking habit was important, and that they perceived themselves as being competent in managing smoking cessation. Again, the proposed models were able to significantly explain 24.5% to 33.9% of the observed variance in doctors’ intention to ask about smoking habit. The doctors’ perceptions of receptivity were again demonstrated as the most important determinant in the context of acute minor complaint visits. In contrast to other topics of men’s health, this perception of receptivity remained the most important determinant, even in follow-up and health check-up visits.

"Attitudinal" determinants played a more important role in the context of health check-ups visits than the other two contexts. Lack of clinic system supporting health check-up was an important determinant in follow-up visits but not in the other two contexts. Paradoxically, lack of referral network was associated with a higher degree of likeliness of doctors to ask about smoking habit in follow-up and health check-up visits.
7.11 Colon cancer screening in male patients

Section 7.11.1 describes the pattern of the specific determinants of doctors' intention to discuss colon cancer screening, whereas section 7.11.2 describes the likeliness of doctors to discuss colon cancer screening with their male patients. The last section (7.11.3) summarises the findings of ordinal regression analyses to ascertain the usefulness of the models and the relative importance of the determinants in the models.

7.11.1 Specific determinants of the doctors' intention to discuss colon cancer screening

Once again, four specific determinants were conceptualised from the theoretical framework. These were grouped into "doctors' perceptions of male patients' receptivity (generally and in three different contexts)", "attitudes towards discussing colon cancer screening" and "doctors' perceived personal competence in colon cancer screening" (Figure 7.29).

Figure 7.29 Mean scores and 95% confidence intervals for degree of agreement about the perceived male patients' receptivity in different contexts, attitudes towards discussing colon cancer screening and perceived personal competency in colon cancer screening.
In measuring the doctors’ perceptions of male patients’ receptivity to discussion about colon cancer screening, higher mean scores indicated a higher degree of male patient receptivity.

Male patients’ were perceived to be receptive to the discussion generally, and their perceived degree of receptivity was higher in the contexts of follow-up and health check-up visits. In the frequency distribution chart (Figure 7.30), although a majority of the participants perceived male patients as being receptive to discussion about colon cancer screening, about a third of them disagreed that male patients were receptive to discussion in acute minor complaint visits.

<table>
<thead>
<tr>
<th></th>
<th>strongly disagree</th>
<th>disagree</th>
<th>neutral</th>
<th>agree</th>
<th>strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generally (%)</td>
<td>0.5</td>
<td>11.1</td>
<td>12.6</td>
<td>66.2</td>
<td>9.6</td>
</tr>
<tr>
<td>in acute minor complaint visits (%)</td>
<td>2.0</td>
<td>31.8</td>
<td>46.5</td>
<td>5.6</td>
<td></td>
</tr>
<tr>
<td>in follow-up visits (%)</td>
<td>0.0</td>
<td>10.6</td>
<td>68.2</td>
<td>12.1</td>
<td></td>
</tr>
<tr>
<td>in health check-up visits (%)</td>
<td>0.0</td>
<td>5.6</td>
<td>68.7</td>
<td>22.2</td>
<td></td>
</tr>
</tbody>
</table>

Figure 7.30 Doctors’ perceptions of male patients’ receptivity to discussion about colon cancer screening generally and in three different contexts

In measuring doctors’ attitudes and competency in discussing colon cancer screening with their male patients, higher mean scores in “attitudes” indicated a higher degree of agreement that the discussion was necessary, whereas higher mean scores in “competency”
indicated a higher degree of agreement that they were competent in discussing it. Generally, the participants viewed that the discussion about colon cancer screening was important and that they were competent in colon cancer screening (Figure 7.29). The distribution chart showed 90% of them agreed or strongly agreed that the discussion about colon cancer screening was important and that they were competent in colon cancer screening (Figure 7.31).

### Figure 7.31 Doctors’ attitudes towards colon cancer screening and their perceived personal competence in colon cancer screening

<table>
<thead>
<tr>
<th>%</th>
<th>strongly disagree</th>
<th>disagree</th>
<th>neutral</th>
<th>agree</th>
<th>strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proactive screening is necessary (%), n=198</td>
<td>0.0</td>
<td>4.0</td>
<td>8.6</td>
<td>69.7</td>
<td>17.7</td>
</tr>
<tr>
<td>Competent in colon cancer screening (%), n=197</td>
<td>0.0</td>
<td>7.6</td>
<td>3.6</td>
<td>73.1</td>
<td>15.7</td>
</tr>
</tbody>
</table>

7.11.2 Likelihood of doctors to discuss colon cancer screening

Despite assigning high importance to, and perceiving themselves as competent in, colon cancer screening, a majority of participants were unlikely or very unlikely to discuss colon cancer screening in the context of acute minor complaint or follow-up visits. On the contrary, a majority of them (59.1%) were likely or highly likely to discuss it in the context of health check-up visits (Figure 7.32). Compared with other topics of men’s health concerns, a
substantial proportion of the participants were unsure whether to discuss colon cancer screening in follow-up and health check-up visits (27.3% and 20.7% respectively).

7.11.3 Usefulness of models and the significant determinants of doctors' intention to discuss colon cancer screening

Three models were constructed to ascertain their usefulness in explaining the doctors' intention to discuss colon cancer screening with their male patients. Each model has 12 explanatory variables which includes eight general determinants (described in section 7.6) and four specific determinants (described in section 7.11.1). The outcome variables, the intentions, were measured as the degree of likeliness of doctors in discussing colon cancer screening in three different contexts. Because of the ordinal categorical nature of outcome
variables, the usefulness of the models and relative importance of the determinants were analysed using ordinal regression analyses.

7.11.3.1 Relevance of explanatory models

While the data in the outcome variables were skewed towards the lower category of likeliness in the contexts of acute minor complaint and follow-up visits, they skewed towards the higher category in the context of health check-visits. Therefore, the link function of negative log-log was used in analysing the models for acute minor complaint and follow-up visits, and complementary log-log was used in analysing the model for health check-up visits. The details of the statistical outputs are appended – Appendix 7.16.

Although all models fitted well with the observed data (the goodness of fit statistics showed \( p < 0.05 \)), only the models testing the contexts of health check-up visits significantly explained the doctors’ intention (Table 7.30). The statistics of \(-2\log\)-likelihood \( \chi^2 \) for the model of health check-up visits was statistically significant as opposed to the statistics for acute minor complaint and follow-up visits (Table 7.30).

Table 7.30 Summary of ordinal regression statistics for three models for determining doctors’ intention to discuss colon cancer screening corresponding to three contexts of consultation

<table>
<thead>
<tr>
<th>Contexts of the models</th>
<th>Model fitting</th>
<th>Goodness of fit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nagelkerke ( \text{pseudo-R}^2 )</td>
<td>(-2\log)-Likelihood</td>
</tr>
<tr>
<td>Acute minor complaint visits*</td>
<td>192</td>
<td>0.078</td>
</tr>
<tr>
<td>Follow-up visits*</td>
<td>192</td>
<td>0.097</td>
</tr>
<tr>
<td>Health check-up visits†</td>
<td>192</td>
<td>0.210</td>
</tr>
</tbody>
</table>

* link function: Negative log-log
† link function: Complementary log-log
The proposed model for health check-up visits seemed to explain 21.0% of the observed variance in the doctors' intention to discuss colon cancer screening with their male patients.

Tests of parallelism in all three models showed a non-significant difference between null hypothesis and the models, confirming valid use of ordinal regression analysis (Table 7.31).

Table 7.31 Test of parallelism for the three models for determining doctors' intention to discuss colon cancer screening corresponding to the three contexts of consultation

<table>
<thead>
<tr>
<th>Contexts of the models</th>
<th>-2log-likelihood χ²</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute minor complaint visits</td>
<td>26.827</td>
<td>0.313</td>
</tr>
<tr>
<td>Follow-up visits</td>
<td>17.330</td>
<td>0.834</td>
</tr>
<tr>
<td>Health check-up visits</td>
<td>23.021</td>
<td>0.519</td>
</tr>
</tbody>
</table>

7.11.3.2 Relative importance of the determinants

The coefficient estimates of regression, B, of the variables within the model were compared alongside their standard errors in order to ascertain the important determinants of doctors' intention to discuss colon cancer screening with their male patients. The standard errors of the determinants within each model were noted as similar (Table 7.32).

In the context of acute minor complaint visits, only one significant determinant was noted; a higher degree of perceived male patients being receptive to discuss colon cancer screening in acute minor complaint visits was associated with a higher degree of intention to discuss it (Table 7.32).

None of the determinants tested significantly explained doctors' intention to discuss colon cancer screening in the context of follow-up visits.
In the context of health check-ups, doctors’ perceptions of being personally competent in colon cancer screening was positively associated with a higher degree of intention to discuss colon cancer screening. On the other hand, lack of referral network acted as a barrier to discussing it, where the estimate had a negative value (Table 7.32).

It is worth noting that lack of referral network also appeared to be a barrier to discussing colon cancer screening in acute minor complaint visits, where the $p$ values were slightly above 0.05 (Table 7.32).
Table 7.32 Estimates of regression coefficient (B) for all determinants of doctors’ intention to discuss colon cancer screening in three different contexts of consultation

<table>
<thead>
<tr>
<th>Determinants</th>
<th>Acute minor complaint visits</th>
<th>Follow-up visits</th>
<th>Health check-up visits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>SE*</td>
<td>p</td>
</tr>
<tr>
<td>External barriers to health check-ups</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time constraint</td>
<td>-0.045</td>
<td>0.121</td>
<td>0.708</td>
</tr>
<tr>
<td>Lack of clinic system supporting health check-up</td>
<td>0.158</td>
<td>0.117</td>
<td>0.177</td>
</tr>
<tr>
<td>Lack of privacy in the clinic</td>
<td>0.027</td>
<td>0.107</td>
<td>0.799</td>
</tr>
<tr>
<td>Lack of referral network</td>
<td>-0.177</td>
<td>0.092</td>
<td>0.055</td>
</tr>
<tr>
<td>Cost constraint to men</td>
<td>-0.052</td>
<td>0.093</td>
<td>0.578</td>
</tr>
<tr>
<td>Doctors’ positive perceptions of men’s help-seeking behaviour in relation to health check-ups</td>
<td>-0.110</td>
<td>0.093</td>
<td>0.236</td>
</tr>
<tr>
<td>Doctors’ attitudes towards medical importance of health check-ups</td>
<td>0.117</td>
<td>0.111</td>
<td>0.293</td>
</tr>
<tr>
<td>Doctors’ attitudes towards medical importance of men’s health check-ups</td>
<td>-0.044</td>
<td>0.108</td>
<td>0.682</td>
</tr>
<tr>
<td>Doctors’ perception of receptivity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perceived male patients as being receptive to discussing colon cancer screening generally</td>
<td>-0.078</td>
<td>0.100</td>
<td>0.434</td>
</tr>
<tr>
<td>Perceived male patients as being receptive to discussing colon cancer screening in the contexts of consultation</td>
<td>0.198</td>
<td>0.091</td>
<td>0.030</td>
</tr>
<tr>
<td>Doctors’ attitudes towards proactive discussing colon cancer screening</td>
<td>-0.051</td>
<td>0.097</td>
<td>0.596</td>
</tr>
<tr>
<td>Perceived as being personally competent in colon cancer screening</td>
<td>0.038</td>
<td>0.101</td>
<td>0.707</td>
</tr>
</tbody>
</table>

* Standard error
In summary, participants perceived that male patients were generally receptive to discussing colon cancer screening, especially in the contexts of follow-up and health check-up visits. Only a third of them perceived male patients as being unreceptive to such discussion in acute minor complaint visits.

Most of the participants also viewed proactive colon cancer screening as necessary, and that they were competent in doing so. However, despite the positive stance on colon cancer screening, most of the participants were unlikely to discuss colon cancer screening in acute minor complaint and follow-up visits. While slightly more than half of the participants were likely to discuss colon cancer screening in health check-up visits, a substantial number of them (40%) were unsure or unlikely to discuss it. The proposed model was unable to explain the doctors’ intentions in discussing colon cancer screening in acute minor complaint and follow-up visits, but it significantly explained 21% of the observed variance in the doctors’ intentions in the context of health check-up visits. However, in spite of the inability of the model to explain doctors’ intention to discuss colon cancer screening in the context of acute minor complaint visits, a significant determinant was identified, which was the doctors’ perceptions of the degree of receptivity of male patients in discussing it. In the context of health check-up visits, perceived receptivity was not a determinant but perceived personal competency was positively associated with the doctors’ intentions.
7.12 Summary of phase II results

The objectives in phase II are to quantify the average impact of the determinants collectively and individually on the doctors’ decision to engage male patient in health check-ups, and also to quantify the patterns of each determinant.

The initial 204 item questionnaire underwent an internal validation process, which resulted in a final 176 item questionnaire that demonstrated good structural validity and internal consistency. A total of 91 participants were recruited in the initial validation process, and the profiles of the participants had a slant towards public sector PCDs with masters degrees. Nevertheless, in the reassessment of the structural validity and internal consistency involving 198 participants in the main survey, the questionnaire also demonstrated excellent structural validity with similarly high internal consistency, with only minor adjustment to the number of items from 176 to 170 items. Therefore, the mean scores and factor scores of the items were valid for further analyses.

In the main survey, the overall response rate of doctors was 70.4% with good representation from both the public-private sectors, male-female doctors and urban-rural practices. On average, PCDs in Malaysia had mixed opinions about the extent to which time constraint, lack of privacy, lack of supportive clinic system, lack of referral network and cost constraint acted as barriers to men’s health check-ups. However, a great majority of them were of the view that while men’s health check-ups were important, men were less keen to have the check-ups.

The participants’ perceptions of male patients’ receptivity to health check-ups varied depending on the topic and context of health check-ups (Figure 7.33). Generally, cardiovascular risk screening, asking about smoking habit and discussing colon cancer screening were well received by male patients, but the level of receptivity was higher in follow-up and health check-up visits. However, male patients were generally unreceptive to the topics of psychosocial health assessment and sexual dysfunction, unless in the context of follow-up and health check-up visits. The participants were divided over male patients’ receptivity to psychosocial health assessment and sexual dysfunction,
with an almost equal proportion of participants either agreeing or disagreeing that male patients were receptive. Generally, very few participants (approximately 10%) took a neutral stance on male patient receptivity.
Figure 7.33 Mean scores and 95% confidence intervals for the degree of agreement that male patients are receptive to different types of men's health check-ups.
The participants generally scored highly on the attitudinal statements about the importance of proactive health check-ups for cardiovascular risk screening, asking about smoking habit, colon cancer screening and psychosocial health assessment, but not for sexual dysfunction (Figure 7.34).

While most participants perceived themselves as being competent in all five topics of health check-ups, the perceived competency levels were lower in the topics of psychosocial health assessment and sexual dysfunction.
Figure 7.35 Likelihood of doctors undertaking different types of health check-ups

Consistent with the pattern of perceived receptivity and medical importance in cardiovascular risk screening and asking about smoking habit, a majority of the participants had a high intention to initiate screening in these topics for all three contexts of consultation (acute minor complaint, follow-up and health check-up visits) (Figure 7.35). However, there was substantial variability in the other three topics of men’s health check-ups. Generally, participants were more likely to initiate the assessments in follow-up and health check-up visits than in acute minor complaint visits. On the topic of colon cancer screening and sexual dysfunction, substantial numbers of participants were unsure of whether to initiate assessment, even in follow up and health check-up visits (Figure 7.35).
Table 7.33 Summary statistics for usefulness of the models in explaining doctors’ intention to initiate health check-ups and their significant determinants

<table>
<thead>
<tr>
<th>Topic of men’s health check-ups</th>
<th>Contexts of consultation</th>
<th>$R^2$ Nagelkerke</th>
<th>Significant determinants arranging, from the left to right, in descending order of importance</th>
<th>$\beta$</th>
<th>$\beta$</th>
<th>$\beta$</th>
<th>$\beta$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiovascular risk screening</td>
<td>Acute minor complaint</td>
<td>0.293</td>
<td>Male patients’ HSB†</td>
<td>0.331</td>
<td>Male patients’ expectation -0.227</td>
<td>Male patients’ comfort 0.193</td>
<td>Referral network -0.152</td>
</tr>
<tr>
<td></td>
<td>Follow-up</td>
<td>0.276</td>
<td>Male patients’ HSB†</td>
<td>0.267</td>
<td>Attitudes towards HCK II 0.195</td>
<td>Male patients’ comfort 0.168</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Health check-up</td>
<td>0.252</td>
<td>Attitudes§</td>
<td>0.231</td>
<td>Receptivity#</td>
<td>0.183</td>
<td></td>
</tr>
<tr>
<td>Asking about sexual dysfunction</td>
<td>Acute minor complaint</td>
<td>0.132</td>
<td>Male patients’ HSB†</td>
<td>0.237</td>
<td>Male patients’ comfort 0.195</td>
<td>Cost constraint -0.399</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Follow-up</td>
<td>0.316</td>
<td>Attitudes§</td>
<td>0.306</td>
<td>Competency‡</td>
<td>0.482</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Health check-up</td>
<td>0.205</td>
<td>Competency‡</td>
<td>0.383</td>
<td>Receptivity#</td>
<td>0.288</td>
<td></td>
</tr>
<tr>
<td>Psychosocial health assessment</td>
<td>Acute minor complaint</td>
<td>0.219</td>
<td>Male patients’ HSB†</td>
<td>0.312</td>
<td>Attitudes§</td>
<td>0.199</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Follow-up</td>
<td>0.261</td>
<td>Attitudes§</td>
<td>0.303</td>
<td>Receptivity#</td>
<td>0.224</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Health check-up</td>
<td>0.247</td>
<td>Attitudes§</td>
<td>0.346</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asking about smoking habit</td>
<td>Acute minor complaint</td>
<td>0.245</td>
<td>Male patients’ HSB†</td>
<td>0.651</td>
<td>Male patients’ HSB† -0.217</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Follow-up</td>
<td>0.258</td>
<td>Competency‡</td>
<td>0.389</td>
<td>Referral network 0.353</td>
<td>Attitudes towards HCK II 0.292</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Health check-up</td>
<td>0.339</td>
<td>Competency‡</td>
<td>0.720</td>
<td>Referral network 0.456</td>
<td>Attitudes§ 0.276</td>
<td></td>
</tr>
<tr>
<td>Discussing colon cancer screening</td>
<td>Acute minor complaint</td>
<td>0.078 *</td>
<td>Male patients’ HSB†</td>
<td>0.198</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Follow-up</td>
<td>0.097 *</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Health check-up</td>
<td>0.210</td>
<td>Competency‡</td>
<td>0.415</td>
<td>Referral network -0.214</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* $p > 0.05$
† Perceptions of male patients’ receptivity to the assessment in the corresponding context
§ Attitudes towards the medical importance of proactive assessment
‡ Attitudes towards medical importance of health check-ups
| Perceived personal competency in the management or assessment
The proposed models significantly explained 13 out of 15 scenarios, other than intention to discuss colon cancer screening in acute minor complaint and follow-up visits (Table 7.33). The range of $R^2$ was from 0.132 to 0.339; most of the $R^2$ values were in between 0.25 to 0.30. Doctors' perceptions of male patients' receptivity to the specific topics and context of consultation was a significant determinant in 12 out of 15 scenarios, especially in the context of acute minor complaint visits (Table 7.33). In many scenarios, this perception of receptivity was the most important determinant (arranged furthest to the left in the column of “significant determinants” in table 7.33). It was not a significant determinant only in psychosocial health assessment in health check-up visits, discussing colon cancer screening in follow-up visits, and discussing colon cancer screening in health check-up visits. “Attitudinal” determinants were the second most important determinants, with significant explanatory variables in seven out of 15 scenarios (Table 7.33). The “attitudinal” determinants were often the significant determinants in follow-up and health check-up visits. Doctors’ perceptions of their personal competency in the assessment of men’s health check-ups was the third most important determinant. Although it was a significant determinant in only three scenarios, it was the most important determinant in two of the three: asking about sexual dysfunction in the context of health check-up visits and discussing colon cancer screening in health check-up visits. Doctors’ perceptions of male patients’ help-seeking behaviour was the fourth most important determinant. However, it has a paradoxical negative relationship, where the participants were more likely to initiate health check-ups if they perceived poor help-seeking behaviour in male patients. This determinant was significant in cardiovascular risk screening (in acute minor complaint and follow-up visits), asking about sexual dysfunction (in follow-up visits) and asking about smoking habit (in acute-minor complaint visits). However, in these scenarios, perception of male patients' help-seeking behaviour was not the most important determinant (they were arranged to the right of the column of “significant determinants” in table 7.33). External barriers were significant determinants but often not the most important determinants. Thus, perception of male patients’ receptivity was the most
important determinant, especially in acute minor complaint visits, whereas “attitudinal”
determinants were important in follow-up and health check-up visits.
8 Discussion and conclusion

8.1 Introduction
This chapter discusses the meaning and implications of the results in phase I and II. The second section of this chapter summarises the justification, research question and methodology of this study.

With these in mind, the following section outlines the key findings of phase I and phase II. Section 8.4 aligns the key findings of this study with the current literature on the issues relevant to doctors’ decision making in men’s health check-ups. Section 8.5 highlights the innovative findings from this study and section 8.6 the strengths and limitations of the study. The chapter ends with a conclusion of this thesis.
8.2 Revisiting the justification, research question and methodology

There is a need to improve the health status of men, and effective preventive health care is identified as one of the means to achieve this goal.\(^{(29-31, 46, 332)}\) While concerted efforts have been made in empowering men to engage with preventive health care,\(^{(203)}\) PCDs should also be encouraged to provide man-friendly preventive health care.\(^{(30, 46)}\) As a result, recommendations and guidelines to engage men in preventive health care have been established for PCDs.\(^{(6, 30, 46)}\) However, as we have learnt from the implementation research, the adoption and implementation of these recommendations faces many challenges.\(^{(231, 258, 261, 333, 334)}\) Strategies for the optimal implementation of these recommendations can be facilitated by understanding the needs and practice behaviours of the doctors,\(^{(335, 336)}\) patients' preferences \(^{(234, 337)}\) and practice environments\(^{(336)}\) in relation to men's health. Although behavioural change theories can provide an in-depth understanding of how to strategise implementation programs, they may not readily identify which changes we should be targeting or which obstacles we should be addressing in a specific context.\(^{(335)}\) Many concepts or determinants in the behavioural theories are generally comprehensive but they do not specifically emphasise a particular set of concepts to address in encouraging PCDs to engage male patients in undertaking health check-ups. In improving men's health check-ups at primary care in Malaysia, there is a need to identify the concepts to be prioritised. Implementation of the recommended health check-ups for male patients is particularly challenging due to the negative perception of men's health-seeking behaviour in society – a society of which doctors are a part. Therefore, merely imparting knowledge and skills,\(^{(335)}\) which practice guidelines have been attempting to address, is insufficient. The potential difficulty of implementing men's health check-up recommendations is relevant in Malaysia, and lead to the conduct of this study.

This study has set out to explore the current determinants and process of decision making by PCDs in undertaking health check-ups for male patients in Malaysia, with the aim of identifying target areas for interventions in order to improve their practice behaviours. This exploratory phase aligns with the
development stage of the UKMRC framework for developing and evaluating a complex intervention program. (51)

This study has successfully employed a sequential exploratory mixed-method design, (52) which was carried out in two phases. Phase I has utilised grounded theory methods (GTM), a qualitative methodology with symbolic interactionism as the basis of its theoretical assumption. (287, 306) GTM is well-suited to identify the determinants and construct the theoretical framework of the decision-making process. By contrast, phase II has utilised a quantitative survey with multivariate regression analysis to quantify the prevalence of the determinants and the impact of each determinant. (307) thereby ranking its importance, on the doctors’ decision-making processes in different contexts and topics of men’s health check-ups. The conception of phase II was based on the findings of phase I.

The results of phase I and II complement each other because of the different theoretical assumptions in qualitative and quantitative studies, with qualitative studies emphasizing individual perspective and quantitative studies attempting to establish a normative pattern in a sample population. (52, 311, 319) The results therefore have to be interpreted in relation to each other.
8.3 Ten key findings

This study has managed to answer its research question. In phase I, a picture of how doctors viewed men's health was obtained. A theoretical model explaining the doctor's decision-making process in engaging men in health check-ups was constructed. Subsequently, phase II has demonstrated that the model was relevant in explaining the decision-making process in a representative sample of PCDs. The relative importance of the determinants in the decision-making process in five topic areas of men's health concerns was also established. Combining the results of phase I and II, 10 key findings are identified and summarised below:

1. Malaysian primary care doctors' views on men's health: an unresolved jigsaw puzzle, but men's health check-ups are important

   The concept of 'men's health' was new and poorly-defined to many Malaysian PCDs. Hence, there was considerable debate over men's health with doctors holding opposing views. While most agreed on the importance of a holistic approach to male patients' health, they differed on the focus, scope and approach to men's health issues and health check-ups; should the focus be holistic or sexual health-oriented, should the scope of men's health be inclusive of all health issues or male-specific, or should the approach be universal or gender-specific.

   Men's health was seen as a piece of an incomplete jigsaw puzzle. While not entirely foreign, as they were already managing male patients' disorders, it remained challenging for PCDs to see men's health as a distinct entity. The missing link (jigsaw piece) was in viewing male patients' medical illnesses in conjunction with men's social roles and men's health-seeking behaviour.

2. The doctors' decision-making process in their intention to offer men's health check-ups primarily requires balancing the weight of perceived patients' receptivity versus medical importance (Figure 5.1, page 108)

   There were four major determinants that affected the doctors' final decision to negotiate health check-ups with their male patients: the perceived receptivity of male patients, the
medical importance of the issues at hand, their perceived personal competency, and the influence of external factors. Their initial intentions were a result of balancing the weight of perceived male patients’ receptivity versus medical importance against an arbitrary threshold. Greater weight on medical importance required less weight on patients’ receptivity to initiate health check-up and vice versa. Final actualisation of negotiating a health check-up further depended on their perceptions of personal competency and various external factors, which acted as either barriers or facilitators. Every doctor evaluated their intention in each consultation based on these four determinants. The weight assigned to these determinants differed depending on each doctor’s values, beliefs, and understanding of men’s health issues, and the context (including the doctor-patient relationship) and content of consultation. This framework explained most instances of each doctor’s decision-making process on this issue. By applying this framework to a random sample population of doctors in 15 scenarios (five topics of men’s health check-ups in three different contexts of consultation – refer to section 6.2), the framework also significantly explained the variance of doctors’ intentions in offering men’s health check-ups in most of the scenarios. The variance explained ranged from 13.2% to 33.9% (excluding the context of colon cancer screening in acute minor complaint and follow-up visits). Most of the variance explained values ranged from 25% to 30%, denoting the model’s strong explanatory power. The value of 2%, 13% and 26% have been proposed by Cohen et. al. as estimates of small, medium and large effect sizes for population variance explained. From the survey, each determinant exerted its impact on the doctors’ intention in men’s health check-ups differently depending on the contents and contexts of the scenarios. This supported the arguments in the qualitative study.

3. **Perceived male patients’ receptivity is one of two major determinants in the doctors’ decision-making process**

To individual doctors, perceived receptivity was the perceived willingness of male patients to negotiate health check-ups. The perception depended on the doctor’s subjective assessment
of four factors: 1) their perception of the sensitivity of the topic; 2) their perception of men’s help-seeking behaviour; 3) their perception of their image to male patients; and 4) the agenda for the visit. Generally (findings from phase II), the concept of perceived receptivity to negotiate men’s health check-ups was the most important determinant; it was a significant determinant in 12 out of 15 scenarios and the most significant determinant in all five topics in the context of acute minor complaint visits.

4. **Assessment of male patients’ receptivity to health check-ups is largely assumptive and subjective**

The doctors’ assessment of the four factors affecting their perceptions of male patients’ receptivity to health check-ups was based on their prior perceptions and experiences of men’s health, their picking up cues from male patients, or their indirect questioning of male patients. Most of the time, they based the assessment on their prior perception and experiences.

5. **Attitude towards the medical importance of men’s health check-ups is another important determinant**

A more important component of the health check-up, as perceived by the doctor, was more likely to be proactively offered to male patients. While the majority of doctors agreed about the importance of general preventive care and men’s health check-ups, the degree of importance varied among the different topics of men’s health. Although attitude towards the medical importance of health check-ups was an important determinant, it was not as important as the concept of perceived male patients’ receptivity. This was a significant determinant in 7 out of 15 scenarios and often the most important in follow-up and health check-up visits, except on the topic of sexual health and colon cancer, where, by contrast, perceived receptivity and personal competency were the most important determinants respectively.
6. Perceived personal competency and external barriers are other factors which may determine doctors' decision-making in engaging men in health check-ups

To individual doctors, personal competency and external barriers, such as cost constraint, time constraint, lack of clinic privacy, lack of referral-network and clinic system supporting preventive health care, were other important factors. These may even have been the deciding factors in individual doctors' decisions. However, generally, these factors played a smaller role with only a few exceptions; perceived personal competency was an important motivator in asking about sexual dysfunction and discussing colon cancer screening in health check-up visits. Despite much concern about external barriers being voiced by participants in phase I, the multivariate analysis in the quantitative survey noted only a minimal impact of these factors on doctors' decisions to initiate men's health check-ups. The descriptive statistics on doctors' perceptions of external barriers also showed a wide distribution in doctors' opinions about them as barriers.

7. Contradictory findings on perceived men's poor help-seeking behaviour in relation to health check-up

The perception of men's poor help-seeking behaviour led doctors to think that men were unreceptive to health check-ups, and hence they were less likely to offer check-ups. By contrast, in the quantitative survey, perceived poor help-seeking behaviour was associated with a greater likeliness to engage men in cardiovascular risk assessment, asking about smoking and asking about sexual dysfunction.

8. High intention to engage men in cardiovascular risk screening and asking about smoking

Generally, proactive cardiovascular risk screening and asking about smoking were perceived as important, and discussing them was well-received by male patients. Doctors perceived themselves as competent and were likely to undertake the screening in their encounters with male patients.
9. **Asking about sexual dysfunction is a sensitive issue**

   Generally, asking about sexual dysfunction was perceived as less important, and male patients were less receptive to this issue. Doctors perceived themselves as less competent and less likely to enquire into this issue, especially in acute minor complaint visits.

10. **Psychosocial health assessment and discussing colon cancer screening are important but the intention to discuss them is not substantial**

    Generally, proactive psychosocial health assessment and discussing colon cancer screening were perceived as important, and male patients were perceived as being receptive to discussing these issues in follow-up and health check-up visits. However, the perceived receptivity was low in acute minor complaint visits. Although the doctors felt they were competent in colon cancer screening, a significant proportion of them did not intend to discuss it in acute minor complaint or follow-up visits.
8.4 Aligning the findings and their implications with the current literature

Literature on the doctors’ decision-making process in men’s health service delivery is scarce. However, there are a substantial number of published works on doctors’ opinions about men’s help-seeking behaviour, illness-specific doctors’ decision making and doctors’ practice behaviour in preventive health care. This section will attempt to map the key findings of this study in relation to this literature in order to identify the contribution of these findings in understanding the doctors’ decision-making process in engaging male patients in health check-ups.

8.4.1 Primary care doctors’ views about men’s health

Literature on doctors’ views about men’s health is limited. Only one quantitative survey has attempted to investigate doctors’ views about the concept of men’s health in Asia.[76] On the other hand, doctors’ perceptions of men’s help-seeking behaviour are more frequently investigated.

In phase I, many doctors were unaware of the formal definition of men’s health. They therefore drew their understanding from the definition of health as stated by the World Health Organization, and see it from the men’s perspective. The WHO defines health as “a state of complete physical, mental, and social well-being and not merely the absence of infirmity”.[338] Although the WHO concept of health is holistic, it ignores gender differences. This is in contrast to the definitions of men’s health provided by various men’s health organisations.[4, 45] All men’s health definitions acknowledge the gender differences between males and females. They stress the social roles and social circumstances[4, 45] that influence the masculine image of men and how these contribute to men’s poor help-seeking behaviour.[37, 42, 44] This unique gender role makes the difference between men’s health and health in general. A survey of doctors’ views about men’s health was conducted by Yates et al. Although Yates et al. suggested that doctors were less clear about men’s health compared to women’s health,[76] the study did not mention what the doctors were unclear about. The quantitative nature of the study may have hampered its ability to explore this
issue. In this present study, one participant coined the term 'bits and pieces of a jigsaw puzzle' as the metaphor for the current understanding of men’s health among PCDs. While the doctors may have all the pieces of the jigsaw as they have been treating many illnesses related to men, they are unable to fit them into a single picture. The oversight and inappropriate understanding of the underpinnings of poor men’s health-seeking behaviour might represent the missing pieces in the unresolved puzzle of men’s health. Hence, the awareness of seeing men in their gender roles and as social beings is crucial (thus seeing the complete jigsaw puzzle), rather than viewing them just as male patients from a bio-medical perspective.

The doctors who argued from the stance of the WHO definition of health were inclined to adopt a holistic approach to men’s health, while those who adhered to a male-specific perspective were inclined to adopt a sexual health approach. However, at both ends of the debate spectrum, doctors noted the connectedness of bio-psycho-social issues. It appears that the debate was really about what the prime focus of attention should be when doctors talk about men’s health. Men’s health authorities propose looking broadly at all health issues that have a specific impact on men or boys, including lifestyle, occupation, home environment and socioeconomic status. From this perspective, it might be seen as a misunderstanding for the scope of men’s health to centre on sexual and urological health. The misunderstanding is foreseeable because erectile dysfunction and male urological disorders are male-specific. The quantitative survey by Yates et al. from Asian countries showed that different specialties have different opinions about the disease conditions and specialist areas associated with men’s health. In the survey, more than 80% of the endocrinologists and cardiologists interviewed mentioned that their own specialties were the main focus for the treatment of men’s health conditions. It appears that differing opinions about the scope and approach to men’s health is also characteristic of doctors from other Asian countries besides Malaysia.
Nevertheless, some doctors who noted men’s unique roles and responsibilities in society acknowledged the importance of having a specific approach to men’s health service delivery. They advocated health services delivery tailored to the needs of men rather than the current system which ignores gender sensitivity. Although there is no clear evidence that a gender-sensitive approach to men’s health service delivery is more effective than a general approach,(215) such gender-sensitive approaches to men’s health service delivery are regarded as necessary by many commentators on men’s health.(29, 46, 48, 173) It seems logical to have a gender-sensitive approach as men’s health-seeking behaviours differ from those of women. On the other hand, doctors who adopted the perspective of a universal approach to service delivery for both men and women might not recognise that such needs require a different approach when dealing with men. While they understand health, they may be unaware of the different health care needs of men.

In this study, doctors thought that men’s poor health status was associated with their poor help-seeking behaviour. Their view resulted in them perceiving men as being unresponsive to health check-ups (see further discussion below). Men were noted to be ignorant about their health. Doctors related poor help-seeking behaviours to the adverse effect of the men trying to maintain their masculine image. Phase II, which built from this concept, also demonstrated that doctors generally perceived men as not being keen for health check-ups. This accords with earlier published studies outlined in the literature review. In 1999, Tudiver et al., using focus group discussions with 18 family physicians,(78) found that doctors viewed men as having poor help-seeking behaviour. Moreover, the study found that men seeking help for health problems was seen by the society as non-masculine and as men giving up control of their bodies. A later 2002 study by Seymour-Smith et al. using discourse analysis with a group of doctors and nurses showed that while poor help-seeking behaviour was seen as undesirable, it was condoned by health care practitioners.(79) This ambivalent attitude towards men’s help-seeking behaviour was again noted by two recent qualitative studies in
2009 and 2010: McKinlay et al., from New Zealand, who used three sequential sets of focus groups,(189) and Hale et al., from the United Kingdom, who used in-depth interviews with 10 male PCDs.(77) Although the doctors acknowledged the importance of promoting men’s health, they were unwilling to engage with men’s health care in general practice more than they did currently.(189) While men’s poor help-seeking behaviour was seen as undesirable, frequent male attendees to primary care clinics were negatively perceived as being less masculine.(77) Thus, the societal image of masculinity and men’s need to uphold this masculine image, which plays a significant role in shaping men’s help-seeking behaviour, must also be ingrained in doctors’ minds. This is not surprising given doctors are themselves very much part of society.

However, doctors’ perceptions of masculinity and its adverse impact on help-seeking behaviour may not reflect how men in the community perceive and experience it. In more recent literature involving interviews with men in the community, it was found that while men appreciated the importance of health, engaging in healthy lifestyles and the appropriate help-seeking behaviour for health-related issues posed numerous challenges. In the United Kingdom, men were noted to be actually interested in taking care of their health;(33, 165) they just need a means to legitimise their visits in order to maintain their masculine image.(165) An Australian study interviewing men about what men valued during medical consultations noted that men have specific needs when communicating with doctors. They preferred doctors to be frank and competent, to demonstrate empathy and to be prompt in problem-solving.(49) Although men engaged less in health promotional activities, a healthy lifestyle and optimal health were seen as priorities in life.(339) Men in an urban setting in Malaysia were also found to value the importance of health check-ups. However, the effort to come forward proved to be an obstacle, and was worsened by the perception that doctors were disinterested.(34) This contrast in perceptions between treating doctors and male patients therefore appears to occur both in the West and Malaysia.
Although men’s health issues may be better understood from a gender-relations approach,(42) and hence the gender of doctors may influence their opinion on men’s health issues and men’s help-seeking behaviour, an analysis of our data did not reveal such differences between male and female doctors. This is consistent with three other studies by Seymour-Smith, Hale, and McKinlay. Although the three studies did not directly compare gender differences in doctors’ opinions about men’s health, Seymour-Smith and McKinlay’s findings, which included both male and female doctors, were similar to Hale’s, which only recruited male doctors. Besides, as shown in this study, the gender of doctors plays a minor role in the decision-making process in offering men’s health check-ups.(340)

However, having said that gender has minor role in the decision-making process, which gender influence could mediate through “perceived doctor’s image to men”, there is a possibility of mismatch between female doctors’ and men’s view on men’s health. This is evident by an incidence where a male patient was annoyed when he was asked about ED during a consultation with a female doctor. This aspect of mismatch needs further clarification in future studies from layman’s perspective.

The concept of men’s health in Malaysia is still relatively new. In line with the findings from the other study referred to earlier,(76) understanding of the concept of men’s health is still relatively poor and fragmented. The opposing views about men’s health may result from variable exposure to men’s health information. Interestingly, doctors’ perceptions of unsatisfactory men’s help-seeking behaviour in Malaysia are very similar to the findings from the West, and are independent of the doctors’ gender. Doctors acknowledge the importance of encouraging men to seek help, but they still maintain many societal beliefs and perceptions about masculinity and men’s help-seeking behaviour. Their beliefs about men’s apparent disinterest in health may therefore be a myth. Acknowledging men’s gender role in society and understanding the reasons behind men’s apparent poor health-seeking
behaviour seem to be crucial in understanding the concept of men’s health. As will be pointed out later, this has a great impact on their decision-making process in engaging men in health check-ups. Thus, besides addressing the misconceptions and cultivating a correct understanding of men’s health-seeking behaviour (as recommended by numerous authors),(29, 31, 70, 165) the findings of this study support the view of Robertson et al. that doctors need to reflect on their own attitudes and beliefs about men’s health as part of the effort to improve preventive health care for male patients in primary care settings.(341)

8.4.2 The doctors’ decision-making process in their intention to initiate men’s health check-ups

The purpose of delineating the doctors’ decision-making process in undertaking men’s health check-ups is to identify the factors or determinants in the process and to demonstrate the interaction between them in bringing about the final decision – i.e. the doctors’ intention to engage male patients in health check-ups. This understanding should identify the weak links in the process that hinder the appropriate decision making. Phase I has identified four important determinants, their relationship with each other, and how they are weighed and balanced. This framework for the decision-making process has proven its applicability in explaining the process in a representative sample of doctors in phase II. This study is not trying to identify a generic theory of doctors’ medical decision making, but rather aims to identify the determinants and processes unique to men’s health check-ups. These findings will be compared to relevant social psychological theories, the suggested model for practicing evidence-based medicine, and the relevant empirical literature.

8.4.2.1 Aligning with social psychological theories

While most social psychological theories are relevant in explaining and understanding the doctors’ medical decision-making process and practice behaviours in some ways,(280) their comprehensiveness has hindered their parsimonious application to the specific context of men’s health check-ups.
Furthermore, these theories fail to provide substantive content in their concepts in relation to offering men’s health check-ups. Three theories have been proposed to help understand medical decision making at the individual level, with each attempting to explain different aspects of decision making. (256, 342) These are: the integrated model by Fishbein M., the transtheoretical model of change and fuzzy trace theory.

The integrated model, which is an extension of theory of planned behaviour and reasoned action, provides the best fit in illuminating the theoretical framework constructed in phase I. Although the theory is about behaviour in general, it is also applicable to doctors’ practice behaviour. (297) The behaviour in this study is specifically about the doctors’ intention to initiate men’s health check-ups. The integrated model describes three variables that influence the intention which is believed to immediately precede the intended behaviour. (276, 297) The three variables are:

1. the attitudes which are affected by the behavioural beliefs and outcome evaluations of the intended behaviour;
2. the norms which are affected by the beliefs and motivation to comply with the intended behaviour;
3. self-efficacy which is affected by the belief in the ability to control the intended behaviour;

and finally, actualisation of the behaviour is affected by skills and environmental factors.
Figure 8.1 Matching theoretical concepts identified in this study with the reasoned action approach

While the integrated model provides a comprehensive framework for explaining human behaviour, it does not provide sufficient detail about what is emphasised in the behaviour of doctors in considering men’s health check-ups during primary care consultations. In this context, the concepts of attitudes, external factors and self-efficacy are emphasised (Figure 8.1). The concept of outcome evaluation preceding attitude is reflected in the concept of weighing men’s receptivity. It is the evaluation of likely success in engaging men in health check-ups. A high degree of receptivity reflects the probability of a positive outcome. As noted in the findings, a perceived high degree of receptivity motivated the doctors to discuss men’s health check-ups. The concept of behavioural belief, which also precedes attitude, is reflected in doctors’ beliefs about the benefit of offering men’s health check-ups. The beliefs influence the assigning of weight to the medical importance of performing the health check-ups. The framework proposed in this study highlights the interaction between the behavioural beliefs and outcome evaluation, and also highlights a specific substantive content of outcome evaluations, which is the perceived male patients’ receptivity. On the other hand,
environmental factors are reflected in external factors such as time, privacy, cost, practice and network support system, whereas self-efficacy is reflected in the perceived personal competency in engaging men in health check-ups. This is different from skills and ability, which reflect the precise skills and ability required to perform health check-ups. Although norms are one of the important determinants in the integrated model,(276, 297) this concept is not reflected in the data in this study. ‘Guideline’ recommendations could act as expected norms from professional bodies on doctors’ practice behaviour. However, guidelines on men’s health check-ups were hardly raised during the interviews or focus group discussions. This could be due to the lack of prompting during the interviews with the participants. Instead, perceived men’s help-seeking behaviour, their sense of their ability to engage men in health check-ups, and external factors dominated the content of the interviews and discussions with doctors. In other words, attitude is central to doctors’ practice behaviour in relation to men’s health check-ups. Environmental factors and self-efficacy are also important determinants. The paucity of data illustrating the norms should be explored specifically in future study. While comparing the findings in phase II with theory of planned behaviour, it is interesting to note that theory of planned behaviour has been shown to explain a wide variety of health behaviours with higher $R^2$ values, ranging from 0.6-0.7,(297) then this study. This suggests presence of other unidentified determinants such as “norms” and “skills and ability” that were not assessed in this study. Furthermore, this could also be due to suboptimal application of TACT principle in defining the intentions in this study. In TACT principle, the measured intentions should have the following elements(276): 1) Target of the action, 2) Action –the action itself, 3) Context where the action is going to take place, and 4) Time when the intention will be taking place. The intentions measured in this study had the former 3 elements
but not the last; male patients were the target, health check-ups activities were the action, contexts of consultation were the context. Hence, further refinement of the theoretical framework mapping the decision making process is warranted.

On the other hand, fuzzy trace theory does not provide sufficient concepts in this context. Fuzzy trace theory states that people depend on the meaning they construct from information, for which Reyna uses the term ‘the gist’ of the information, in making decisions. The gist is a vague representation of the information in a person, incorporating his/her emotions, education, culture, values, worldview and experience. Fuzzy trace theory describes how health information is integrated into the decision-making process, and ultimately, into behaviour. In the decision-making process of undertaking men’s health check-ups, the gist of health information could be reflected in the perceived medical importance of health check-ups in a specific area of men’s health. It could be postulated that if the gist of medical importance is acknowledged by the doctors, proactive health check-ups would be offered (or not offered) in consultations with male patients. This relationship was demonstrated in phase I and II, where perceived medical importance was one of two important determinants in the process of decision making. Doctors perceive the importance of men’s health check-ups based on their philosophical position about health check-ups, experience, views and exposure to men’s health issues. This perspective of the framework is consistent with that of fuzzy trace theory. However, this theory is insufficient to explain many other determinants, such as perceived men’s receptivity, perceived self-efficacy and external barriers, in this process of decision making in engaging men in health check-ups. Nevertheless, it highlights the necessity to present practice guideline information in ways that convey the gist appropriately to the doctors.
The transtheoretical model emphasises different dimensions in decision making than the proposed framework in this study. The transtheoretical framework concerns stages of behavioural change. (281) People are motivated to engage in certain decisions to change through a temporal dimension from pre-contemplation, through to contemplation, preparation, action and maintenance. Each stage is signified by a balance between the pros and cons of a particular behaviour. If a person perceives there being more cons than pros for a particular behaviour, then he/she will be in a pre-contemplation stage. The contemplation stage is when the perceived pros and cons are in equilibrium, whereas the stages of preparation through maintenance are when the perceived pros outweigh the cons. (281) The transtheoretical model is attractive because it provides rationale for different interventions according to stages of change. However, some have criticised this model because some changes can occur suddenly without following the temporal sequence outlined. (342) This model also does not accord with the framework constructed in this study. Although the notion of weighing the pros and cons is portrayed in the findings in this study, whereby all four major determinants outlined above are assigned weights mentally and final decisions to engage male patients in health check-ups are the results of balancing these weights, the stages of change are not portrayed in this study. The main reason is perhaps that the decision made in the context of negotiating men’s health check-ups is a one-off situation in the consultation room. This is in contrast to decisions to change in chronic behaviours such as smoking, medicine compliance and healthy eating, contexts in which the transtheoretical model works well. (281) Furthermore, decision making is often context-specific – e.g. the decision to ask about sexual dysfunction is more readily made in health check-ups than acute minor complaint
visits. The context-specific nature of decision making is emphasised in the reasoned action approach,(276) but not in the transtheoretical model. (281)

8.4.2.2 Aligning with proposed decision-making model for implementing evidence-based medicine

Haynes et al. proposed an updated model for appropriate evidence-based clinical decision making, (337) from the concept of evidence-based medicine proposed by Sackett D et al. (343) However, the proposed model is not reflected in the empirical data of the clinical decision-making process in men’s health check-ups. Haynes et al.’s model for evidence-based clinical decision making identifies three important domains doctors should consider when making correct clinical decisions. Doctors must consider patients’ clinical states and circumstances in order to establish the diagnoses and clinical problems. Then, treatment options should be considered based on research evidence and patients’ preferences. (234, 337) Although, to a certain extent, patients’ preferences (perceived male patients’ receptivity) and research evidence (medical importance of topic for health check-ups) are considered by the doctors in initiating men’s health check-ups, there are considerable assumptions made in assessing patients’ preferences and doctors’ personal beliefs in the medical importance of men’s health check-ups have a considerable influence (see further discussion below). Therefore, in order to translate scientific evidence into clinical practice effectively, the element of assumption and doctors’ personal beliefs should not be overlooked. Haynes et al.’s model does not emphasise the health care providers’ values, beliefs and personal experiences when making clinical decisions, which are highlighted in the field of implementation research.(335, 336) Although Haynes et al.’s model for clinical decision making dictates what ought to be in evidence-based clinical decision making, empirical findings in this and prior studies(235, 344, 345) have revealed the
heavy influence of doctors’ personal perceptions and beliefs, and the lesser influence of evidence-based recommendations. Therefore, in order to realize the effective implementation of evidence-based decision making, the influence of providers’ beliefs needs to be acknowledged first and foremost. Empirical evidence of how decision making works in real-world practice, as in the findings of this study, will offer insights into these beliefs. These may be the obstacles to implementing men’s health check-ups in primary care settings, and are potential targets for improvement strategies. (335)

8.4.2.3 Aligning with empirical studies on doctors’ decision making

The PCDs’ clinical decision-making process is much less investigated than the issues of barriers and motivators to doctors’ practice behaviour. (277) Nevertheless, areas studied in relation to doctors’ clinical decision making include colon cancer screening, (346, 347) lifestyle risk factor management, (348) prescribing practice, (349-351) referral for psychotherapy, (352) referral for dietetic counseling, (353) elderly care, (354), management of low back pain (355, 356) and screening for decisional conflict in clinical practice. (357) Doctors’ decision making in men’s health check-ups has not been studied, thereby making comparison difficult. Studies looking into proactive elements of care such as colon cancer screening, referral to dietetic counseling or psychotherapy are more closely related to this study than the others. Nonetheless, there are some common themes with some differences among these studies. All the studies listed above used a qualitative approach except the study by Grant et al. (351), Honda et al. (347) and Légaré et al., (357) which used quantitative methods, and Pomeroy et al., (353) which used a mixed method design.

Most of the findings, except the study by Légaré et al., noted four conventional classifications of determinants in doctors’ practice behaviour (230, 232, 277): 1)
doctor-related factors include the knowledge, skills, competency, interests and experiences of the doctors; 2) patient-related factors include preferences, health status and clinical conditions; 3) external factors include cost, health system support, times, workloads in the clinic and support resources available; and 4) availability of good evidence to support the clinical decisions and clarity of guidelines. Besides these common themes, there are substantive and distinctive differences in those areas studied below:

1. Colon cancer screening: Patients’ requests for screening and anxiety about cancer are important motivators for doctors to initiate the screening tests. (346)

2. Managing lifestyle risk factors: Doctors’ self-perception of their professional roles and orientation to preventive care influence their actions in the assessment and management of patients’ lifestyle risk factors. (348)

3. Referring patients to psychotherapy and dietetic advice: Patients’ initiative, wish and readiness for a referral or intervention motivate the doctors’ decision to refer. (352, 353)

4. Elderly care: Opinions from patients’ relatives play an important role in doctors’ decisions about management plans, and often conflicts of opinion occur between doctors and patients’ relatives. (354)

5. Drug prescription: Drug listing in the country and locally agreed drug listing influence the choice of medication prescribed. (349, 350) The quantitative survey on doctors’ decision making in diabetic medication prescribing noted that the strong determinants inclined towards qualitative factors such as patients’ adherence, motivation and overall health rather than patients’ metabolic control. (351) This underscores the importance of patient factors over clinical parameters.
6. Managing low back pain: Struggles with patients' requests and the ability to negotiate with patients over their wish influenced doctors' decisions to order spinal X-ray investigation. (355, 356)

The study by Légaré et al. noted a different set of determinants to doctors' intention to screen for decisional conflict in clinical practice. (357) Légaré et al. have found that the attitudes, perceived subjective norm and perceived behavioural control to using decisional conflict scale determined the doctors' intention to use it.

On the issue of men's health, perceived male patients' receptivity to discussing health check-ups is the most important determinant in the doctors' decision to initiate the check-ups. This concept is similar to the concept of "patients' wish and request" in colon cancer screening or referrals for dietetic advice and psychotherapy, as highlighted above. The distinction of men's health check-ups from the other studies lies in the gender-sensitive issue of men's health-seeking behaviour. Patients' wish and request in referrals and colon cancer screening are related to patients' explicit initiative for the procedures or referrals, (346, 352, 353) whereas in men's health, male patients rarely present for health check-ups. Doctors rely on their perception of male patients' receptivity in health check-ups in making the decision to initiate the check-ups. This perception is substantially influenced by common beliefs about men's health-seeking behaviour, such as that men are uninterested in health check-ups. Therefore, these findings demonstrate that on the issue of men's health check-ups, there are substantive factors unique to it over and above the 'conventional' factors affecting doctors' practice behaviour. These factors should be identified and dealt with using measures to encourage doctors to initiate men's health check-ups.
Besides listing the determinants in decision making, some studies have acknowledged the interaction between these determinants and recognised the complex nature of the decision-making process, (346, 350, 356) as in the findings of this study. The interactions described include negotiating with patients over treatment options, (354-356) weighing the benefit and risk of the outcome of a decision, (354) and considering the doctor-patient relationship while making a decision. (346) However, explicit description of these interactions between the particular determinants is not provided in most studies. A small study conducted by Mears et al. in 2000 inquiring into doctors' decision making in general also highlighted similar determinants to those outlined above. However, they acknowledged the complex interaction between these determinants without providing further elaboration. (345) In another study, Pomeroy et al. described the stages of doctors' decision making in referrals for dietetic counseling, which are synthesising management information, forecasting outcomes, planning a referral and action (patient referral), without elucidating the interactions between the determinants. A concept model was then constructed involving four determinants to explain the clinical reasoning process: doctors' knowledge, doctors' experience, patients' nutritional profiles and clinical states. The interaction was described as "the factors operating in concert" without much detail. (353) In this current study, the interaction between medical importance and perceived male patients' receptivity is demonstrated. Thus, besides the study by Honda et al. and Légaré et al., previous studies have attempted to investigate the doctors' decision-making process without providing sufficient theoretical details. The methodology used in this study may offer an explanation for these differences. The grounded theory methods used in this study permitted a systematic analysis of the interaction between the determinants. This is in contrast to other studies, which have been
more descriptive than analytical (further discussion on methodology can be found in section 8.6).

The two key processes involved in doctors' decision making in engaging men in health check-ups are "weighing" and "balancing". The concept of "weighing", which is a cognitive process, illustrates that every male patient is assigned a different degree of receptivity and medical importance based on the doctors' assessment. For example, perceived men's receptivity to discuss erectile dysfunction (ED) is weighed against the medical importance of assessing ED in a diabetic patient. Balancing these two weights determines the doctors' intention to ask about ED in this man. This process of "mental weighing" was introduced in 1999,(358) when Mullaney described how an identity is assigned to an individual. The different acts performed by an individual are weighed differently by the observer in the process of assigning the individual's identity. The same concept is also used to illustrate how people weigh the cues and indicators before they decide to switch roles in their day-to-day activities.(359) While the concept of "weighing" is not new, we need to know what is weighed in different contexts. Here in the context of deciding whether to engage men in health check-ups, the concept of weighing can be extended to weighing perceived male patients' receptivity and medical importance.

On the other hand, the concept of balancing is a more universal process in decision making and is also not new in the literature. More importantly, however, this study has identified the determinants being balanced, which are the weight of perceived male patients' receptivity and medical importance.

Quantitative evaluation of theoretical models in predicting or explaining PCDs' decisions is even rarer than the study of the decision-making process. As argued in the methodology (section 3.4), quantifying the impact of the determinants on the
doctors' decision is crucial to identifying the significant targets for intervention. However, the quantification of impact is valid if the theoretical model used has significant explanatory property in the doctors' decision making. Honda et al. evaluated a model for PCDs' decision making in recommending colonoscopy, whereas Légaré et al. evaluated the models for doctors' intention to use decisional conflict scale.

The model used by Honda et al. was built on three major social psychological theories: the transtheoretical model of change, social cognitive theory and the theory of planned behaviour (an extension of the theory of reasoned action). The model was not empirically developed. Instead, it was a hypothesised model with two groups of determinants: 1) background factors, which include physician demographics, patient ethnic mix in the clinic and external barriers; and 2) mediating factors, which include negative behaviour beliefs, perceived behavioural control, self-efficacy and normative beliefs. The fundamental difference between this study and Honda et al.'s study is that one focuses on a gender issue (men's health check-ups) and the other on a health topic (colon cancer screening using colonoscopy). Honda et al.'s model explained 14% of the variance observed in doctors' intention to recommend colonoscopy. The variance explained is lower than the findings in the section on colon cancer screening in health check-up visits in this study, which is 21%. Section 8.4.4.4 will further discuss the similarities and differences between the determinants in Honda et al.'s model and this study. It is sufficient at this stage to note that the better variance explained in this study is likely due to the way the theoretical model has been developed. The model in this study was built from empirical data, in contrast to Honda et al.'s model which is theoretically derived. Also, the patients' gender may influence the doctors' practice behaviour, a factor not taken into consideration in Honda et al.'s model. The third
difference is the target behaviour measured in Honda et al.'s study. The
behavioural intention (doctors' contemplation) measured by Honda et al. is not
specific to any context of consultation. Specifying the context is important as colon
cancer screening is more encouraged in health check-up visits than in other
contexts of consultation. (360-363) Besides, people's behaviour is context-
dependant. (276) Certainly, this study showed that doctors' intention to initiate
discussion about colon cancer is much higher in health check-up visits than in the
other two contexts. The variance explained in Honda et al.'s study might have been
different and more comparable with this study if the context of consultation had
been considered in the model. By considering the context of consultation (i.e.
health check-up visits), the model in this study performed better than Honda et al.'s
model. The attempt to identify a suitable theory to explain doctors' practice
behaviour is done in order to encourage theory-based interventions which arguably
may yield better outcomes. (256, 278) This study has demonstrated that a
theoretical framework necessary for intervention strategies can also be derived
empirically, which may be more relevant than using hypothesised theory.

On the other hand, Légaré et al. evaluated the doctors' intention to use decisional
conflict scale based on the theory of planned behaviour (an evolved version of the
theory of reasoned action), the diffusion of innovations model and the physicians'
reaction to uncertainty model. (357) It is interesting to note that, although the
model constructed by Légaré et al. was theoretically derived, it explained up to 78%
of the observed variance in the doctors' intention, much higher than the variance
explained in current study. It is possible that the large portion of variance explained
was due to the strict application of the TACT principle (target, action, context and
time) (276) to elaborate the theory based items. Her findings underscore the
importance of choosing appropriate theories in constructing models to evaluate the
determinants of doctors' behaviour.

In summary, theories relevant to medical decision making and human behaviour can
illuminate the understanding of doctors' decision making in engaging male patients in health
check-ups. However, they rarely provide substantive content in their concepts. The
integrated model provides the best fit to portray the findings of this study, and four of its
concepts—behavioural beliefs, outcome evaluation, self-efficacy and environmental
factors—stood out as important determinants in this particular context. On the other hand,
the ideal, evidence-based decision-making process, proposed by Haynes et al., does not
reflect what is found empirically in this study. In comparison with other empirical studies into
the doctors' decision-making process, distinct differences can often be identified due to
contextual differences. On the topic of men's health check-ups, which has not been explored
in the literature, the distinct difference is the perceived male patients' receptivity to health
check-ups along with other conventional determinants found in other contexts. The existing
concepts of weighing and balancing in the social psychology literature can be extended to
understand the processes involved in the doctors' decision making in engaging male patients
in health check-ups. Understanding this process of decision making in men's health check-ups
helps doctors to be aware of, and to reflect on, the weaknesses within the process. The
quantitative findings in phase II further confirm the applicability of the theoretical framework
in explaining the doctors' decision making in men's health check-ups in the representative
group of PCDs. The findings in phase II also demonstrate that an empirically-derived model
may work as well as, or better than, theoretically-derived models in explaining doctors'
practice behaviour.

8.4.3 Determinants of the decision to engage male patients in health check-ups
In this section, each of the four important determinants will be discussed in greater depth.
While doing so, we must keep the relationship between them in mind as doctors' decisions
rely on these interactions more than just on the weight of the individual determinant. Each of them will be discussed in relation to the literature surrounding medical decision making and preventive care delivery, as there is no prior literature specific to men's health check-ups in this area.

8.4.3.1 Perceived male patients' receptivity to discuss health check-ups: the main determinant

Perceived male patients' receptivity is the most important determinant in doctors' decision making in engaging male patients' in health check-ups. It is also the main area of concern in promoting men's health check-ups due to the way patients' receptivity is assessed. Phase I identifies the concept of perceived receptivity as one of the keys to the doctors' decision making, whereas phase II shows that the concept is a significant determinant in 13 out of the 15 models tested, and is often the most important determinant. Compared with the literature, perceived male patients' receptivity is similar in principle to considering patients' preference, values and beliefs, which are advocated in the broader contexts of medical decision making (337, 364) and shared decision making (365, 366)

The concept of patients' preference is not new. However, patients' preferences, values and beliefs are broad categories of concepts. In men's health issues, the concept of perceived receptivity is a specific perspective of preference, values or beliefs that doctors are assessing. It is through this perspective that patients' preference to discuss men's health is assessed. Furthermore, although patients' preference (248, 346, 348) or patients' refusal (237, 241, 242, 246) has already been noted to be an important determinant in doctors' practice behaviour in general preventive health care, the process of assessing patients' preference or refusal is often not highlighted. Patients' preference to discuss men's health is closely connected to their socio-cultural beliefs and values. Explicit discussion of patients' preference is important, even though doctors are practicing within the same socio-cultural group as their patients,
in order to achieve common ground(337, 364) and avoid misunderstandings with their patients. In the model of shared decision making, explicit assessment of patients' preference is central to the process.(367) Hence, in improving men's health check-ups, assessing patients' preference or perceived patients' receptivity should receive greater emphasis, especially in sensitive areas of men's health.

Acknowledging male patients' receptivity in health check-ups is important as the final decision to engage them in a check-up requires mutual agreement between them and their doctor. However, in this study, the concern is that the assessment of patients' expectations and preference (to discuss health check-ups) seems to be implicit, with a heavy reliance on elements of subjectivity and assumption. Doctors draw their perceptions and assumptions from their cultural and social beliefs about men's health and men's help-seeking behaviour. This finding in the current study is consistent with the literature. As discussed above, the existing literature has pointed out that such societal perceptions of men's health have had a strong influence on doctors' attitudes and beliefs towards male patients. (77, 189)

Perceptions of patients' preference based on assumption are also documented in other areas outside men's health. Pomeroy et al. noted that doctors based their decisions on dietetic counseling referral on their perceptions of patients' capacity to modify their dietary habit, and the authors commented that this could be an unfounded assumption.(353) These elements of assumption could well equate to recent literature about the role of "gut feeling" in doctors' decision making.(368, 369) Although the authors state that this may not be totally harmful, gut feeling may predispose doctors to misjudgment in clinical decision making. This study and the related literature point out that although assumptions and subjective judgment are undesirable for appropriate clinical decision making, they happen in real-world practice, and certainly in this context of men's health check-ups in Malaysia. The
other point of concern is the accuracy of such assumptions about men’s help-seeking behaviour. As highlighted earlier, men are not necessarily uninterested in health or health check-ups. They should not therefore be stereotyped as being un receptive to discussing health check-ups in primary care clinics. The contrasting opinions of doctors and male patients pose a significant risk to the effort to engage male patients in health check-ups. Thus, there is a need to improve this miscommunication between doctors and male patients so that male patients’ receptivity is not based on perception but instead on non-judgmental and more objective assessment.

Besides being able to identify this concept as an important determinant, this study has also managed to quantify the normative pattern of its importance on doctors’ decision making in different contexts of consultation. In phase I, perceived high receptivity is noted to motivate doctors to discuss health check-ups with their male patients. The perceived high receptivity is associated with good doctor-patient relationships, the context of health check-up visits, positive perceptions of male patients’ help-seeking behaviour, and less gender-sensitive topics such as cardiovascular risk assessment. These findings were reflected in the data of phase II. In phase II, the concept of perceived receptivity is assessed in three components corresponding to phase I: 1) receptivity in relation to the context of consultation within a specific topic of men’s health (context-topic-specific); 2) men’s general receptivity specific to the topic of men’s health (topic-specific); and 3) help-seeking behaviour in relation to health check-ups (receptivity in general) (see conceptual framework on page 163). Generally, perceived context-topic-specific receptivity is crucial to the doctors’ decision making in engaging men in health check-ups, not the latter two. Its significance in the respective topics will be elaborated in section 8.4.4.
Perceived context-topic and topic-specific receptivity are noted to be high in cardiovascular risk assessment, colon cancer screening and smoking. The high level of perceived receptivity is most likely due to the lesser taboo associated with these topics compared to the more sensitive topics of sexual and psychosocial health assessment. Generally, across all five topics, perceived receptivity was also noted to be high in follow-up and health check-up visits, but low in acute minor complaint visits. In follow-up visits, the doctor-patient relationship is usually more established than in acute minor complaint visits, thereby explaining the perceived higher receptivity in follow-up visits compared to acute minor complaint visits. By contrast, the high receptivity in health check-ups visits is clearly due to the patients’ request in health check-ups; it is the agenda for the visits. However, in health check-up visits, the doctors’ perception of male patients’ receptivity was noted to be less important than other determinants. This is logical because, with such a high degree of receptivity in health check-up visits, it should no longer be a decisive determinant. Instead, attitude towards the importance of health check-ups and perceived personal competency become the stronger determinants, as shown in the findings where attitudes towards the medical importance of cardiovascular risk assessment, attitudes towards the medical importance of psychosocial health assessment, perceived personal competency in asking about sexual dysfunctions, and perceived competency in discussing colon cancer screening were the more important determinants in their respective topics. In studies of decision making beyond the issue of men’s health, the influence of the interaction between patient receptivity and doctor-patient relationship on doctors’ practice behaviour has also been demonstrated. Patients’ request (equating to ultimate receptivity) and good doctor-patient relations are noted to motivate doctors’ adherence to guideline recommendations such as colon cancer screening. (346) referral to
psychotherapy (352) and dietetic counseling (353). While patients' request can result in doctors fulfilling their patients' wishes (352, 353), doctors were also noted to negotiate with patients' wishes if their request was contradicted by guideline recommendations. This can be further facilitated by good doctor-patient relationships. As Dahan et al. noted, patients' request for non-indicted lower vertebral X-ray examination for low back pain can be avoided if the doctor-patient relationship is well-established (356). Mears et al. also noted that doctors sometimes have to give in to their patients' request for medication if the relationship has yet to be established (345). Therefore, patients' receptivity has already been shown to be an important determinant in doctors' medical decision making for guideline adherence. However, most studies did not attempt to quantify and rank the relative importance of these determinants compared to the other determinants. Hence, unlike this study, they are unable to demonstrate the importance of patient receptivity in doctors' decision making.

As noted above, the doctors' perception of men's help-seeking behaviour also contributes to their perception of receptivity in health check-ups; male patients exhibiting poor help-seeking behaviour are unlikely to be receptive to help check-up. In phase I, a majority of the doctors perceived male patients as not being keen for health check-ups. This is in keeping with the literature that doctors perceive men as having poor help-seeking behaviour (78, 79, 189). In the findings from a qualitative study, perceived men's poor help-seeking behaviour is linked to reduced doctors' intention to provide further proactive services to them (189). By contrast, in phase II, perceived help-seeking behaviour is noted to be inversely associated with doctors' intention to offer cardiovascular risk assessment (in the context of acute minor complaint and follow-up visits), asking about smoking habit (in the context of acute minor complaint visits), and asking about sexual dysfunction (in
the context of follow-up visits). This association appears to suggest that doctors who perceive male patients as poor help-seekers are more likely to engage them in the respective health check-ups. However, this is likely due to the suppression effect of perceived help-seeking behaviour in the regression analysis rather than a true association. The characteristics that suggest this effect include(307):

1. No significant bivariate correlation between perceived help-seeking behaviour and doctors’ intention to engage male patients in cardiovascular risk assessment (Table 8.1), and no association between perceived help-seeking behaviour and the intention to ask about sexual dysfunction or smoking habit (Table 8.2)

2. Inverted (negative) sign of regression coefficient for perceived male patients’ help-seeking in regression analysis (Table 7.33; page 269).

3. Significant positive correlation between perceived help-seeking behaviour and other explanatory variables in the regression model (Table 8.1; Table 8.3; Table 8.4; the tables list only the results with significant correlation).

Table 8.1 Bivariate correlation between doctors’ perceptions of men’s help-seeking behaviour and the corresponding variables in cardiovascular risk assessment

<table>
<thead>
<tr>
<th>Variables</th>
<th>Bivariate correlation, r</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Explanatory variable:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men perceived as comfortable in the discussion</td>
<td>0.318</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td><strong>Outcome variables:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Likeliness of doctor undertaking cardiovascular assessment in acute minor complaint visits</td>
<td>-0.093</td>
<td>0.196</td>
</tr>
<tr>
<td>in follow-up visits</td>
<td>-0.107</td>
<td>0.133</td>
</tr>
<tr>
<td>in health check-up visits</td>
<td>0.076</td>
<td>0.287</td>
</tr>
</tbody>
</table>

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Table 8.2 Analysis of variance (ANOVA) between doctors’ perceptions of men’s help-seeking behaviour (continuous variable) and likeliness of doctors to engage men in corresponding health check-up topics and contexts of consultation (categorical variables)

<table>
<thead>
<tr>
<th>Topics of health check-up</th>
<th>Context of consultation</th>
<th>ANOVA, F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>asking about sexual dysfunction (5 Likert-scale categories)</td>
<td>in acute minor complaint visits</td>
<td>1.267</td>
<td>0.287</td>
</tr>
<tr>
<td></td>
<td>in follow-up visits</td>
<td>1.000</td>
<td>0.409</td>
</tr>
<tr>
<td></td>
<td>in health check-up visits</td>
<td>0.790</td>
<td>0.533</td>
</tr>
<tr>
<td>asking about smoking habit (5 Likert-scale categories)</td>
<td>in acute minor complaint visits</td>
<td>0.505</td>
<td>0.679</td>
</tr>
<tr>
<td></td>
<td>in follow-up visits</td>
<td>1.182</td>
<td>0.318</td>
</tr>
<tr>
<td></td>
<td>in health check-up visits</td>
<td>0.881</td>
<td>0.416</td>
</tr>
</tbody>
</table>

Table 8.3 Bivariate correlation between doctors’ perceptions of men’s help-seeking behaviour and corresponding variables in the topic of asking about sexual dysfunction

<table>
<thead>
<tr>
<th>Explanatory Variables</th>
<th>Bivariate correlation, r</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctors’ attitudes towards proactive asking about sexual dysfunction</td>
<td>0.239</td>
<td>0.001</td>
</tr>
<tr>
<td>Perceived male patients as being receptive to questioning about sexual dysfunction generally</td>
<td>0.491</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Perceived male patients as being receptive to questioning about sexual dysfunction in the follow-up visits</td>
<td>0.216</td>
<td>0.002</td>
</tr>
<tr>
<td>Perceived male patients as being receptive to questioning about sexual dysfunction in the health check-up visits</td>
<td>0.184</td>
<td>0.009</td>
</tr>
</tbody>
</table>

Table 8.4 Bivariate correlation between doctors’ perception of men’s help-seeking behaviour and corresponding variables in the topic of asking about smoking habit

<table>
<thead>
<tr>
<th>Explanatory Variables</th>
<th>Bivariate correlation, r</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived male patients as being receptive to asking about smoking habit generally</td>
<td>0.251</td>
<td>0.000</td>
</tr>
<tr>
<td>Perceived male patients as being receptive to asking about smoking habit in acute minor complaint visits</td>
<td>0.165</td>
<td>0.021</td>
</tr>
</tbody>
</table>

Therefore, the negative association in the models may be spurious and doctors’ perceptions of men’s help-seeking behaviour may be a suppressing mediator or
confounder. However, the variable is still included in the models as its inclusion may lead to better estimates of the association of other variables and doctors’ intention.

In summary, perceived male patients’ receptivity is the most important determinant in doctors’ decisions to engage them in health check-ups, albeit with some variation depending on the context and topic of health check-ups. Although the concept of male patients’ receptivity is similar to patients’ preference, the general concept of patients’ preference does not provide in-depth nuance within the context of men’s health. This study has also identified the assumptive and subjective nature of this perception. While other empirical studies may also have highlighted this, they have not done so in the context of men’s health check-ups. More importantly, phase II has shown that perceived male patients’ receptivity is the most important determinant in the doctors’ decision making. Although the importance of this perception as found in a quantitative survey may not be applicable to an individual doctor due to individual variability, it represents an overall pattern among PCDs. Therefore, perceived receptivity should be the focus of cost-effective intervention strategies. Specific information on its variation in the topics and contexts of consultation also provides guidance to tailor appropriate intervention strategies.

8.4.3.2 Attitudes towards medical importance: a significant determinant
While doctors’ attitudes towards the medical importance of an issue is related to their experience and knowledge, it also depends on their personal beliefs and values. In this study, attitudes towards the medical importance of men’s health check-ups is influenced by PCDs’ exposure and experience with men’s health issues and their philosophical stance on preventive health care. In many reviews, the doctors’ attitude (towards the medical importance of a medical issue) has often
been implicated as the underlying reason for not promoting the recommended preventive care to patients (230, 232) or adhering to practice guidelines. (277) Lack of awareness of preventive guidelines (presumably due to inadequate exposure) is argued to be an important factor associated with poor preventive care deliveries. (232, 277) However, older and more experienced physicians are also noted to be less inclined to adhere to guidelines than younger doctors. (277) This may be related their personal stance against the guidelines or confidence and ability to operate outside of the guidelines in specific circumstances. (370) Thus, the findings from phase I accord with the reviews that the two important factors—knowledge (related to exposure and experience) and personal values and belief (related to philosophical stance)—are important in influencing doctors' attitudes towards the medical importance of men's health. Two qualitative studies on preventive care deliveries have also highlighted the importance of doctors' personal beliefs and values in the success of health care deliveries. (235, 344) Rebelsky et al. noted that doctors who believe in "opportunist prevention focus" adopted a more efficient and effective system to deliver preventive care compared to doctors who believe in "request only focus" and "health maintenance visit focus". (344) Opportunistic prevention focus involves promoting preventive care at every possible opportunity, whereas request only focus involves promoting preventive care based on the request of patients, and health maintenance visit focus involves promoting preventive care primarily during health check-up visits. The important influence of doctors' values and beliefs is also highlighted by Donald et al. and Marteau et al. in their arguments about the important factors to consider in implementing research findings in clinical practice. (335, 336) Donald et al. use the term "local knowledge" of the practitioners to denote the local values, beliefs and practices into which the new knowledge is supposed to be integrated. (336) Hence,
doctors' attitudes towards medical importance, as a determinant in doctors’ practice behaviour, also extends to the area of men’s health check-ups. The impact of doctors' personal values, beliefs and philosophical stance on practice behaviours should be recognised in addition to their knowledge of, and exposure to, men’s health.

However, once we begin to compare the magnitude of its importance with other determinants of practice behaviour, attitude towards medical importance may not be as important as is often cited. In the findings of phase II, although the majority of PCDs embrace the importance of general preventive health care and men’s health check-ups, their stance may not substantially affect their decision to engage male patients in health check-ups. As outlined in the findings of phase II, although doctors' attitudes towards the medical importance of health check-ups is the most important determinant in the three contexts of men’s health check-ups (i.e. cardiovascular risk assessment in health check-up visits, psychosocial health assessment in health check-up visits, and psychosocial health assessment in follow-up visits), in other contexts and topics of men’s health check-ups, attitude towards medical importance is a less important determinant. In the other four contexts (cardiovascular assessment in acute minor complaint visits, psychosocial health assessment in acute minor complaint visits, and asking about smoking behaviour in follow-up, health check-up visits), perceived receptivity was more important. In the remaining 8 out of 15 contexts, attitude towards medical importance was not even a significant determinant. It is logical and possible that attitude towards medical importance acts as a background factor that positively affects perceived receptivity and personal competencies, thus affecting doctors’ practice behaviour indirectly. Another possible explanation is that the medical importance of health check-ups is already acknowledged by the doctors and is therefore not the decisive determinant.
in doctors’ intention to engage male patients in health check-ups. This supports the
literature on general preventive care, where doctors regard preventive care highly
but find it difficult to translate this positive regard into action. (240, 243) However,
no study has attempted to quantify and compare doctors’ attitudes towards
medical importance relative to other determinants in doctors’ practice behaviour
and decision making. Therefore, although attitude towards medical importance is
often cited as an important determinant in doctors’ practice behaviour in relation
to preventive health care, (232) it is difficult to be certain of it being a decisive factor
relative to other determinants. In men’s health, it is certainly not the most
important determinant in doctors’ decisions to engage male patients in health
check-ups.

To an individual doctor, his/her attitude—comprising beliefs and philosophical
stance—towards men’s health check-ups can be an important factor in his/her
decision to engage male patients in health check-ups, as shown in phase I. Other
empirical studies in preventive care deliveries also stress the importance of doctors’
personal values, beliefs and philosophical stance in influencing the doctors’ practice
behaviours (i.e. whether to engage in preventive care deliveries). Generally,
however, as shown in phase II, attitude towards medical importance may not have
a substantial impact on doctors’ decision making in engaging male patients in
health check-ups, albeit variations in the pattern are certainly observed in different
topics of men’s health (see further discussion in section 8.4.4). Hence, improving
doctors’ knowledge with the hope of changing their attitudes towards men’s health
check-ups may not be sufficient, due to the existence of other important
determinants in doctors’ decision making to engage male patients in health check-
ups.
8.4.3.3 *Perceived personal competency as a determinant*

Phase I of this study noted that perceived personal competency is one of the four determinants in the doctors' decision making to engage male patients in health check-ups. This is especially so in more sensitive areas of men's health check-ups such as sexual health assessment. As in the case of attitude towards medical importance, perceived personal competency or self-efficacy has often been implicated as the major determinant in doctors' practice behaviours.\(^{(232, 241, 242, 277)}\) In a review by Cabana et al., and a meta-review by Francke et al., perceived self-efficacy was reported as an important factor in determining guideline adherence in preventive health care and counseling.\(^{(232, 277)}\) Low self-efficacy due to lack of confidence or lack of preparation in following the guidelines may lead to low recommendation of the services.\(^{(232)}\) In phase I, the perception of being competent in engaging men in health check-ups is noted to be associated with the proactive engagement of male patients in health check-ups. Doctors frequently emphasise the importance of their competency when faced with sensitive topics of men's health check-up such as sexual health. This is particularly an issue when doctors need to learn new skills such as sexual health assessment, in which they receive only minimal training in undergraduate curricula. Skills also include their ability to negotiate with male patients over undertaking health check-ups. As noted in the literature, male patients may have preferred communication styles such as being direct, the thoughtful use of humour and prompt resolution of health issues besides generic skills such as empathy.\(^{(49)}\) These are the skills that doctors may need to learn when dealing with male patients. Hence, naturally, perceived personal competency is an important determinant. Therefore, with better exposure and knowledge about men's health, doctors can improve their confidence and self-efficacy in relation to handling certain issues surrounding men's health check-ups.
However, the findings in phase II do not show perceived personal competency to be as important a determinant as expected when the study involved a representative sample of doctors. Its degree of importance as a determinant is noted to vary with different contexts and topics of consultation. First of all, it is an important determinant in doctors’ decisions to ask about sexual dysfunction and to discuss colon cancer screening in health check-up visits. In both topics, doctors need to learn a relatively new set of skills compared to cardiovascular risk screening, asking about smoking and psychosocial health assessment. This also explains the relative insignificance of perceived personal competency as a determinant in doctors’ decision making in the latter three topics of men’s health check-ups. Furthermore, less controversy surrounds the benefits of cardiovascular risk reduction and smoking cessation. Again, no other study has attempted to quantify and compare the relative importance of this determinant against other determinants in doctors’ decision making in men’s health check-ups.

Thus, perceived personal competency is an important determinant in individual doctors’ decision making in men’s health check-ups as highlighted both in phase I and the literature on preventive care deliveries. While providing skills training and improving the level of competency in men’s health check-ups is vital, when compared to other determinants it generally has a less decisive role in the doctors’ intention to engage men in health check-ups than perceived male patients’ receptivity and medical importance. It may be an important determinant in the topics of sexual health and colon cancer screening, where a specific set of new skills are needed. Hence, improving skills in men’s health check-ups alone is unlikely to be sufficient.
8.4.3.4 External factors as determinants

External factors are almost always implicated as important determinants in doctors’ practice behaviours in relation to preventive health care. However, understanding how external factors are perceived as barriers or motivators is likely to be more helpful than just reiterating the list of external factors.

In phase I, external factors were often cited as barriers to engaging male patients in health check-ups. These factors can largely be classified into cost constraint, time constraint, lack of network supports, lack of resources and lack of patient privacy. These findings are consistent with many studies looking at barriers to preventive health care service deliveries. In a meta-review of factors influencing the broader issue of guideline implementation, Cabana et al. noted that time constraints, limited personnel resources and work pressure are frequently cited factors that restrict preventive guideline implementation. As established in the literature review, many studies have also shown that general preventive care in primary care settings, including in Malaysia, is often faced with time constraints, cost constraints, competing interests and heavy workloads during consultation. Furthermore, proactive care such as preventive care often has to compete with other priorities in the clinic, such as curative care, personnel resources and space. However, external factors may not always be the obstacles to preventive care delivery. In the findings of phase I, there are instances where external factors such as cost constraints were surmounted by referring male patients to public facilities for necessary health check-ups, thereby taking advantage of lower costs in the public facilities. Rebelsky et al. also demonstrated that opportunistic, preventive-focused doctors can minimise the impact of external barriers by creating an organised

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environment for optimal preventive care delivery.\(^{(344)}\) Therefore, while external or environmental factors can be obstacles, they need not be, depending on the attitudes, experience and skills of the doctors.

In phase II, five domains of external factors were investigated for their impact on doctors’ decision making in engaging men in health check-ups. The descriptive data show that PCDs have diverse views about these five external factors as barriers, with some agreeing and some disagreeing about them being barriers. This may be a reflection of the diverse variety of clinic settings in the random sampling. Time constraint as a barrier to men’s health check-ups needs further attention. Although it has always been implicated in the literature as the barrier in preventive health care,\(^{(237, 241, 242)}\) about 40% of the participants disagreed with it being a barrier. The questionnaire in this project asked specifically whether it limits their ability to raise health check-ups matters to men. Hence, the participants needed to decide whether time was truly a barrier in this specific matter. Such high proportion of participants disagreed with it being a barrier could be due to way they ranked health screening in their priority list because time constraint is really an issue of priority during consultation. Although majority (about 55%) stated that time constraint was a barrier to health screening, the regression models stated otherwise. Time constraint was not a significant determinant in all the 15 models. These findings challenge the common belief of time constraints. Cost constraint was a barrier to doctors’ intention to ask about sexual dysfunction and lack of clinic support system was a barrier in asking about smoking habit. These barriers are less important determinants (occupying fourth place) than perceived male patients’ receptivity in their respective contexts. Lack of referral network had a mixed effect in the 15 models examining doctors’ intention in men’s health check-ups. It was a barrier in cardiovascular risk screening (in acute minor complaint visits) and colon...
cancer screening (in health check-up visits), but a motivator for asking about smoking habit (in follow-up and health check-up visits). This could be due to a lack of validity in the questionnaire on this particular topic (see section 8.6 for further discussion). Thus, the findings in the topic on smoking habit have to be treated cautiously. Similarly, lack of referral network is a less important determinant in the corresponding contexts. As a group, in 9 of the 15 models, external barriers are insignificant determinants. Therefore, while external barriers could be significant determinants, other determinants, especially perceived receptivity, attitude towards medical importance and perceived personal competency, are more important and exert a greater influence over doctors’ decision making in men’s health check-ups.

In summary, external barriers are often a concern in doctors’ practice behaviour as optimal implementation of preventive care depends on organisational structures and functions. Preventive care often takes a lower priority because of ‘more urgent’ competing demands in clinical consultations. To reiterate, this may also hold true in individual doctor’s decision making in engaging men in health check-ups. However, generally on the issue of men’s health check-ups, other determinants may be more important than external barriers. Targeting an intervention to reduce the impact of external barriers, such as creating an environment conducive to discussion of men’s health check-ups, may be insufficient, and external barriers should not be the main target.

The determinants in doctors’ practice behaviour in preventive care deliveries have been studied over many years. Besides sex-specific topics such as sexual health, most have not taken a male gender perspective, and certainly not on the issue of men’s health check-ups. Among all four major determinants identified, doctors’ perceptions of male patients’
receptivity to health check-ups is the most important determinant in doctors' decision making in engaging male patients in health check-ups. Perceived male patients' receptivity is unique and distinctive as it is a gender-sensitive issue, and thus underscores the impact of male gender issues on doctors' practice behaviour in health check-ups. This is unavoidable due to the common perceptions that doctors share with society about men's help-seeking behaviour. The impact of perceived male patients' receptivity is so prominent that it may undermine the other determinants of doctors' practice behaviour in relation to health check-ups. The assumptive and subjective assessment of perceived male patients' receptivity also becomes a concern in relation to miscommunication between doctors and patients. Therefore, this determinant has to be considered in intervention strategies to improve men's health check-ups. More importantly, the determinants highlighted in this study have dynamic impacts on doctors' decision making depending on the context and content of the consultations. The interactions between them (as discussed in section 8.4.2) should not be ignored.

8.4.4 Significant determinants in important areas of men's health check-ups

Phase I and II have provided an understanding of the process involved and the interaction between the determinants in the doctors' decision to engage male patients in health check-ups. It also identifies the possible weak links and significant determinants in the doctors' decision making, which can be targets for intervention. However, in phase II, subtle differences in the significant determinants between the topics of men's health are observed. This is not surprising because, as informed by the theoretical framework in phase I, the topics of men's health have a substantial influence on perceived male patients' receptivity and doctors' attitudes towards their medical importance. The five topics chosen in phase II represent important areas of men's health with their own unique properties, as outlined in table 6.1. In the following sections, each of these five topics will be discussed in detail, in relation to the appropriateness of the model in explaining doctors' intentions, the significant
determinants specific to the topics and the topics’ importance in the agenda of improving men’s health check-ups. Having a valid model that explains the doctors’ decision-making process and acknowledges the significant determinants in the process will facilitate intervention strategies to improve health check-up deliveries in the respective topics. Cardiovascular risk screening and asking about smoking habit are discussed together due to their similarity in the findings and the fact that they share the common complication of cardiovascular disease.

8.4.4.1 Cardiovascular (CVS) risk screening and asking about smoking habit

CVS risk screening and asking about smoking habit have been standard preventive care measures recommended by major guidelines (5, 6, 371) due to the associated high cardiovascular disease burden. (18) Furthermore, optimal CVS risk management reduces CVS mortality. (5, 371) In this study, the majority of PCDs had a high intention to engage men in CVS risk screening and to ask about smoking habit, especially during follow-up and health check-up visits. These high intentions are not a surprising finding due to the emphasis that has been given to cardiovascular risk screening over many years. The great majority of the doctors have already noted the significance of it. As shown in phase II, only 1% and 3% of the doctors disagreed that proactive CVS risk screening and asking about smoking habit are important respectively.

The high intention rates are well explained by the model constructed in phase I. The observed variances explained by the model with all the determinants included ranged from 25% to 34%. Although a large proportion of the variances are unaccounted for, the model is considered to have strong explanatory property in psychological research (307). The large proportion of unaccounted variances could be the result of a high variability in individual doctor’s emphasis on a determinant in the model, as shown in the scatter plots in appendix 7.4. One doctor may emphasise...
medical importance, another external barriers in his/her decision to engage male patients in CVS risk screening. This implies that an average picture can only approximate the reality in each individual doctor’s practice. An individual doctor’s decision-making process does not necessarily conform to the normative pattern of the decision-making process. This explanation is relevant for all the models constructed in the rest of the topics of men’s health check-ups.

Using this model, perceived male patients’ receptivity, perceived male patients’ help-seeking behaviour and attitudes towards medical importance of proactive screening are significant determinants in explaining the doctors’ intention on these issues. The perceived male patients’ receptivity and attitude towards the medical importance of proactive screening are rated highly. The perceived male patients’ receptivity is measured in two components; general perception and perception related to contexts of consultation. The general perception of receptivity also has two constructs from factor analysis (see explanation in section 8.6): “male patients expect being asked about CVS risk” and “male patients are comfortable in discussing CVS risk”. All three are also rated highly. The context-specific perceived receptivity was rated highest during health check-ups visits compared to follow-up and acute minor complaint visits. On the other hand, the construct of medical importance comprises “attitude towards proactive CVS screening” and “attitude towards doctor initiating CVS screening”. Generally, the participants agreed that proactive CVS screening is important but disagreed that doctors should initiate CVS risk screening. Although these two constructs are similar, the participants may have interpreted the items within each construct differently. This may have lead to the contradictory findings. Despite the difference, “attitude towards doctor initiating CVS screening” is not a significant determinant in the model. The high ratings of these determinants explain the doctors’ high intention to engage men in CVS risk screening and to ask about
smoking habits. The perceived high receptivity to CVS risk screening (and asking about smoking habit) and positive attitude towards the medical importance of proactive screening are not surprising as they are the main focus in preventive care, and doctors have been exposed to CVS risk prevention for some time. Lay persons (including men) are also being exposed to numerous health campaigns on heart disease prevention, healthy lifestyles and smoking cessation organised by the Malaysian Government or non-governmental organisations. As a result, these issues are no longer taboo in society or in the clinics.

However, CVS risk screening in Malaysian primary care settings may still be suboptimal despite the high doctors' intentions noted in the findings. There could be two reasons for this. The intention to engage men may not reflect the actual performance of engaging men. The measured intention is correlated with the actual behaviour if the intentions are specific to behaviour of interest, and the behaviour has to be defined in four dimensions: action, the target of the action, the context in which action is undertaken, and the timing of the action. The statements in phase II have attempted to achieve this aim by specifying the particular action, target and context, for example, "likeliness to take blood pressure measurement (action) in a middle-aged man (target) in acute minor complaint visits (context)". However, the dimension of time (e.g. when five minutes remain in the consultation) was not factored in, as, by doing so, it may further complicate the already complex design in phase II. The other reason CVS screening in Malaysian primary care settings may still be suboptimal could be the presence of other variables which hinder actualisation of the behaviour, such as external factors and the actual skills of the doctors. Therefore, despite high intentions, the behaviour may not be executed. Any attempt to improve doctors' knowledge or attitude in the hope of increasing their intentions in CVS risk screening and asking about smoking is likely to
be futile. External factors and the skills required to implement the program may be the critical factors.

Thus far, doctors’ practice behaviours and their determinants in relation to CVS risk screening in male patients have not been investigated. Most of the literature has disregarded gender differences on this issue. Investigating the doctors’ practice behaviour in relation to patient gender may be important as some studies have indicated that male patients receive different rates of cardiovascular risk screening than female patients. (372, 373) Nevertheless, in general, the identified determinants that influence the doctors’ practice behaviour in CVS risk management include personal perception of the feasibility of lifestyle management, (241, 374) lack of knowledge, (374) time constraints, lack of remuneration, (241, 374, 375) lack of organisational support, (374) patient non-compliance and their relationship with the patients. (375) These determinants were similar to the determinants in doctors’ practice behaviour in preventive care in general, as discussed above. These determinants do not acknowledge gender issues as in perceived male patients’ receptivity, which is the most important determinant in cardiovascular risk screening and asking about smoking habit. Hence, the strong influence of gender issues cannot be ignored.

Phase II has shown that the conceptual framework derived in phase I is applicable in explaining the doctors’ decision-making process in engaging male patients in cardiovascular risk screening and asking about smoking habit. While the doctors’ intention to engage patients is high, this may not translate into high rates of cardiovascular risk screening. Other factors beyond doctors’ intention such as external factors and implementation skills should be the targets of intervention to
improve men’s CVS risk screening and asking about smoking habits, rather than targeting improvement in doctors’ intentions.

8.4.4.2 Sexual health

Sexual dysfunction, and erectile dysfunction (ED) in particular, is considered a sensitive subject and is seldom talked about in primary care outpatient encounters in Malaysia(376) despite its significant impact on health. ED is increasingly recognised as a surrogate marker for CVS diseases.(377-379) It also entails psychological morbidities for men and their spouses.(108) However, it remains under-diagnosed both in Malaysia and in other countries.(141, 380-383) PCDs seldom actively seek out sexual history in their consultations with men, (384-388) unless there is a need to address a specific issue (389) such as at the initiative of the male patient (387) during family planning sessions, in encounters with sexually transmitted disease,(386, 390) chronic illnesses and smoking.(386, 391, 392) It is less commonly undertaken as a routine assessment (389, 392, 393) despite awareness of its importance.(386, 389) In this study, a majority of the doctors were also unlikely to ask about sexual dysfunction unless in a specific visit for health check-ups. Even then, a quarter of doctors were unsure whether to ask about sexual dysfunction in health check-up visits.

The explanation for doctors’ intention to ask about sexual dysfunction is present in the findings of this study. Although the model constructed explains 13% to 32% of the variance in their intention to ask about sexual dysfunction, it is considered a good explanatory model. The explanation for the unaccounted variance is similar to the case of CVS risk assessment. The reason for their low intention is mainly due to the perceived low male patients’ context-specific receptivity to asking about sexual dysfunction and doctors’ personal competency in assessing sexual dysfunction. More than half the doctors in this study perceived male patients as being unresponsive to
asking about sexual dysfunction, especially in the context of acute minor complaint
visits. The majority were also not confident in assessing sexual dysfunction. The
finding of perceived male patients being unreceptive to talking about sexual
dysfunction is similar to many other studies on the barriers to asking about sexual
dysfunction in primary care settings. (376, 386, 387, 391, 392) These studies have
highlighted the issue of men’s discomfort in talking about sexual dysfunction. PCDs
presumed that men would feel uncomfortable talking about sexual health if the
issues were not initiated by them, thereby keeping the doctors from proactively
talking about it. (386) They preferred that patients raise the issue of sexual
health, (387, 392) worrying that their male patients would be suspicious of their
intentions if sexual health issues were raised without apparent reason. (391) Similar
findings on this issue relating to erectile dysfunction have also been revealed in a
qualitative study among 28 PCDs in Malaysia. In that study, the doctors regarded ED
as a non-serious illness and one that was taboo. They were more comfortable if male
patients raised the topic for discussion, seeing themselves as mere facilitators and
being concerned at being stigmatized as drug pushers if active screening for ED was
undertaken. (376) However, these are descriptive studies and the impact of these
doctors’ opinions on their practice behaviour has not been confirmed. On the other
hand, the current study, by using regression analysis, provides stronger evidence that
the doctors’ negative perceptions of male patients’ receptivity, which included
perceived patient comfort in discussing sexual dysfunction, is negatively affecting
their practice behaviour – i.e. they are less likely to raise the issue of sexual
dysfunction. Similarly, while doctors’ personal competency in addressing ED is also
described in other studies as a barrier to initiating discussion about ED, (384, 390,
391, 393-395) this study demonstrates that a perceived higher degree of personal
competency is positively correlated with doctors’ intention to ask about sexual
dysfunction in health check-up visits. It is interesting to note that perceived personal competency is not the most significant barrier in acute minor complaint and follow-up visits. Instead, perceived male patients' receptivity is the main barrier as described above. Therefore, this study has further stratified the important determinants specific to the contexts of consultation which other studies have not shown. In other studies, the barriers identified in addressing sexual health in clinic settings include lack of time,(384, 390, 392, 394) resources constraints and lack of confidentiality during consultation.(390, 394) These barriers are also described in phase I, but the regression analysis in phase II only shows the significant negative impact of cost constraints on doctors' intention to ask about sexual dysfunction in follow-up visits. Again, the significance of external factors as barriers may be overestimated. Nevertheless, the findings from phase II may not represent the views of individual doctors, but rather the average views of all doctors. To an individual doctor, all the barriers described may appear to significantly impact his/her practice.

However, doctors' views of male patients may not reflect male patients' opinions. In fact, doctors' perceptions can be inaccurate, as in the case of doctors' perceptions of men's help-seeking behaviour. On the contrary, most male patients would like their doctors to raise the issue (34, 105, 386, 396, 397) and preferred that their family doctors be the source of help.(398) They see the proactive role of GPs in asking about sexual history as a license to talk about sexual health.(105) Hence, doctors' perceptions of male patients' non-receptivity and discomfort in discussing sexual dysfunction may be a myth.

Managing male sexual dysfunction in primary care settings is challenging because it is a sensitive issue and a taboo subject for male patients. Although the issue of managing sexual dysfunction from the doctors' perspective has drawn considerable
attention in an attempt to improve diagnostic rates and service delivery, most of the studies tend to be descriptive. This study has managed to demonstrate the impact of perceived male patients’ receptivity and personal competency on doctors’ intentions to ask about sexual dysfunction in primary care clinic settings. This study has also managed to identify the relative importance of these determinants in different contexts of consultation. Contrary to the doctors’ perceptions, male patients’ appear to be receptive to questions about sexual dysfunction. Therefore, the unfounded perception of men being unresponsive to questioning about sexual dysfunction is an area that needs serious attention in order to improve the management of ED. In addition, doctors’ competency in managing sexual dysfunction, ED in particular, should be a focus of attention.

8.4.4.3 Psychosocial health

Psychosocial health is one of the key men’s health concerns,(4, 53) yet it is seldom discussed in consultations with male patients. Psychosocial health in men covers a broad range of issues from ‘conventional’ mental health problems (e.g. depression, anxiety, and suicide), drug abuse and violence, to social challenges such as fatherhood, employment, occupational health and marital problems.(44, 399) Many of these issues are under-acknowledged both by health care providers and laymen.(399-401) The fact that men have higher rates of suicide but paradoxically have lower rates of reported depression and anxiety than women suggests that men do not readily seek help in the early stages of mental illness.(400) Psychosocial problems may be more prevalent than we know. The reported rate of psychological problems in primary encounters in Australia was 11.1 per 100 encounters.(402) Similar data from Malaysia is not available, but the community prevalence of chronic suicidal ideation was 25% in men,(57) indicating a high prevalence of psychosocial problems. Hence, many commentators on men’s health advocate proactive
psychosocial health assessment, which includes enquiring into male patients’ mood, work and family health during consultation. (30, 31, 401) However, initiating the discussion of psychosocial issues, let alone mental health, can be difficult and challenging for doctors. In phase II, a majority of PCDs intended to assess male patients’ psychosocial health in follow-up and health check-up visits, but not in acute minor complaint visits. There has been comparatively little published on doctors’ practice behaviour in relation to men’s psychosocial health assessment in male patients.

The model constructed in phase II attempted to explain doctors’ intentions in assessing psychosocial health. The observed variances explained by the model range from 22% to 26%, indicating a strong explanatory model. In acute minor complaint visits, the low intention of doctors to assess psychosocial health assessment is mainly due to perceived low male patients’ context-specific receptivity. A negative attitude towards the importance of psychosocial health assessment and a lack of privacy in the clinics also contribute to the low intentions. The strong influence of perceived receptivity in the context of acute minor complaint visits is understandable since psychosocial issues are considered sensitive issues in society. Complaining and seeking help for psychosocial issues can be seen as weakness in men and a challenge to their masculine image. (37, 400) It is of concern that only less than half of the PCDs perceived their male patients as being receptive to psychosocial assessment, as some evidence suggests otherwise. Although men tend not to seek help for psychological problems, there is evidence from Australia showing that men wish their doctor would pick up their problems without them having to disclose these problems. (403) While no similar study has been conducted in Malaysia, the situation may be analogous due to similarities in the concept of masculinity between the West and Asian countries (as highlighted in the literature review). In follow-up visits, a majority of the doctors...
perceived male patients as being receptive to psychosocial health assessment, and an even greater majority of doctors perceived it as such in the context of health check-up visits. As discussed earlier, given the better rapport in follow-up visits and the presence of a clear agenda in health check-ups visits, the perceived receptivity is likely to be high. However, up to 23% and 10% of doctors still did not intend to assess psychosocial health in follow-up and health check-up visits respectively. In these contexts, the attitude towards medical importance of psychosocial health assessment becomes more important than perceived receptivity as the determinants of doctors’ intentions. In the context of follow-up visits, while perceived receptivity is also a significant determinant, it has less impact on the doctors’ intention compared to attitude towards medical importance of psychosocial health assessment. In this context, a quarter of the doctors did not think that male patients were receptive to psychosocial health assessment. Overall, this is in keeping with the general trend in the five areas of men’s health check-ups investigated in this study, that attitude towards medical importance is more of an issue in the context of follow-up and health check-up visits than in acute minor complaint visits, albeit with some variability between the topics of men’s health. Although a majority of the PCDs felt that proactive psychosocial health assessment was important, about 15% of PCDs were unsure about it. This variability in attitude may explain the smaller proportions of doctors who did not intend to assess psychosocial health in follow-up and health check-up visits.

Similar to the topic of sexual dysfunction, psychosocial health assessment is perceived as being a sensitive topic and male patients are often perceived as being unreceptive to discussion about it unless there is some rapport and a clear agenda. Therefore, the intention to assess psychosocial health is low. The proposed model has once again significantly explained the doctors’ decision making in relation to
psychosocial health assessment and has demonstrated the significant impact of perceived male patients’ receptivity and attitude towards medical importance on the doctors’ intentions in different contexts of consultation.

8.4.4.4 Colon cancer screening
Colon cancer is one of the few cancers in men that may warrant screening in primary care settings in Malaysia. Colon cancer is the most common male cancer in Malaysia with an incidence rate of 20.9/100,000 population in 2003-2005,(123) compared to developed countries where incidence rates were above 30/100,000 population in 1998-2002.(404) Colon cancer screening has been shown to reduce cancer incidence(405) and cancer mortality in many randomized controlled trials.(7, 8, 406, 407). Although colon cancer in Malaysia is currently less prevalent than in developed countries, it is recognised that the incidence of colon cancer is fast catching up with developed countries, especially in men.(8, 404) A colon cancer screening program is not yet available in Malaysia. However, opportunistic colon cancer screening is a feasible approach, especially among high risk patients, (408) and doctors’ recommendations to screen are positively associated with colon cancer screening rates. (361) This is particularly important as general awareness of colon cancer among Malaysian clinic attendees is low(409) and many patients with rectal bleeding still present late to clinics.(410) Therefore, proactively discussing colon cancer screening should be an agenda in primary care consultation with eligible male patients.

However, implementing colon cancer screening in primary care settings presents many challenges. In this study, while a great majority of the PCDs acknowledged the importance of colon cancer screening, the majority were unlikely to engage men in discussing colon cancer screening. Even in health check-up visits, only half the doctors had the intention to discuss colon cancer screening. Hence, the actual rate...
of screening is unlikely to be high, although there is as yet no published literature to support this claim. Comparing with other literature, while PCDs in many other countries also acknowledge the benefit of colon cancer screening, a sizeable majority also express a willingness to discuss and recommend some form of colon cancer screening to their patients. However, studies from the United States and Canada looking specifically at the actual uptake of colon cancer screening by chart review demonstrated that only up to 50% of screening tests are being offered to eligible patients. A nationwide telephone survey in France, where an organized screening program is available, also demonstrated poor initiative in offering the screening test among PCDs. Therefore, although the importance of colon screening is widely acknowledged, initiating discussion or uptake of the screening is more complicated.

Phase II attempted to explain and identify the determinants in the doctors' intention to discuss colon cancer screening with their male patients. However, the model constructed in phase II only significantly explains the doctors' intention in the context of health check-up visits and not in the other two contexts. In the context of health-check-up visits, the model with all determinants included explains a significant 21% of the variance in the doctors' intention. The significant determinants are perceived personal competency and the availability of referral networks. Perceived male patients' receptivity is not a significant determinant, as, in this context, the perceived receptivity is invariably expected to be high, and is shown to be such in the findings. Hence, it is logically not a deciding factor.

Therefore, increasing doctors' competency in colon cancer screening may result in greater intentions to screen in health check-up visits. On the other hand, in the contexts of acute minor complaint and follow-up visits, the model with all determinants included poorly explains the doctors' intention to discuss colon
screening with their male patients. These are the only two contexts in which the proposed model in this study does not significantly explain the variance observed in the doctors’ intention to initiate health check-ups. In acute minor complaint visits, although perceived male patients’ receptivity to colon cancer screening is a significant determinant, it correlates weakly with the doctors’ intentions, with only a small regression coefficient being noted. While 50% of the doctors perceive their male patients as being receptive to discussing colon cancer screening, only 14% intend to discuss it. In follow-up visits, none of the determinants are significantly associated with doctors’ intention to discuss colon cancer screening. These indicate that the determinants for doctors’ intention in these two settings are not captured in the model.

In the literature, the factors determining the doctors’ decision to offer colon cancer screening have been extensively studied. Among the factors identified are lack of guideline agreement, inadequate knowledge and skills, cost constraints, patients’ reluctance, and organisational barriers (including availability of referrals). However, thus far, a theory-based quantification of the determinants’ impact on the doctors’ practice has only been investigated by Honda et al. Honda et al. showed that the model built from the three social psychological theories (the transtheoretical model of change, social cognitive theory and the theory of planned behaviour) explained 14% of the variance observed in doctors’ intention to recommend colonoscopy. Significant determinants identified by Honda et al. using the model include physicians’ belief about the benefit of colon cancer screening, perceived self-efficacy in discussing colon cancer screening and negative beliefs about colonoscopy recommendations. Physicians’ belief about the benefit is closely related to attitude towards medical importance, which is not a significant determinant in this study. Its insignificance
can be attributed to the non-deciding nature of the determinant, as most doctors (>85%) have a positive attitude towards the importance of colon cancer screening.

The self-efficacy measured by Honda et al. is similar to perceived competency, which is also a significant determinant in the context of health check-up visits in this study. The negative belief about colonoscopy in Honda et al.’s study is specific to the screening procedure, where clear guidelines about colonoscopy are available. This concept is not measured in this study as there is no clear recommendation provided in Malaysia for PCDs about colon cancer screening. Therefore, the availability of guidelines and beliefs about the guidelines may be important determinants not captured in this study.

The model in this study does not explain the doctors’ intention to discuss colon cancer screening in acute minor complaint and follow-up visits. The insignificance of the model in explaining colon cancer screening in acute and follow-up visits could be due to several reasons. However, it is unlikely to be due to measurement error as the validity of the questionnaire pertaining to this section is good. The doctors scored highly in perceived male patients’ receptivity, attitude towards medical importance and perceived personal competence, and yet the intention to discuss colon cancer screening was low. This indicates that the important determinants may be other than those measured and may not relate to gender issues. One of the important determinants could be the unavailability of clear guidelines for colon cancer screening in Malaysia as described above. Having clear guidelines is noted to be an important determinant in the literature on colon cancer screening.(361) Availability of guidelines (as in when and how to offer screening) is important so that doctors have some guide to rely on in providing proactive care such as proactive discussion of colon cancer screening in acute minor complaint and follow-up visit. On the other hand, in health check-up visits, cancer screening is often
understood as one of the agendas and the issue of proactive care does not arise. These likely explain the significance of the model in health check-up visits but not in the other two contexts.

Although important, opportunistic colon cancer screening for male patients is unlikely to be discussed by the majority of PCDs in Malaysia. Phase II has only identified the possible determinants for such low intention in the context of health check-up visits, which are perceived personal competence and availability of support networks. The proposed model does not explain the low intention in acute minor complaint and follow-up visits as other possible determinants, such as availability of clear practice guidelines, were not incorporated into the model. Nevertheless, perceived male patients' receptivity has a small but statistically significant impact on doctors' intention in acute minor complaint visits. This study also demonstrates the significant impact of contexts of consultation on the doctors' decision-making process in relation to colon cancer screening.

This appears to be the first study to quantify, based on a substantive theory, the impact of determinants on doctors' intention to engage male patients in the five topics of health check-ups. Besides sexual health, studies in the past have not investigated these topics from a men's health perspective. Even in the studies on sexual health, while the determinants of doctors' practice behaviour in relation to male sexual dysfunction have been investigated, the studies have been descriptive. Each of the topics in men's health check-ups presents different challenges. The doctors' intention to engage men in cardiovascular risk assessment (including smoking habit) is already high. The next task is to facilitate action by addressing the skills and external barriers, which include clinic organisational skills. On the other hand, doctors' intention to ask about sexual dysfunction and psychological health assessment are low. The main factor hindering doctors' intentions is the misconception about male patients' receptivity,
whereas low perception of self-efficacy is more of a problem in asking about sexual dysfunction. These are the potential areas to be addressed in improving health check-ups in relation to men’s sexual dysfunction and psychosocial health. Colon cancer screening poses a different set of challenges. First, the doctors’ intention to discuss colon cancer screening is high only in follow-up and health check-up visits. Second, the model only significantly explains the doctors’ intentions in health check-up visits. Third, in acute minor complaint and follow-up visits, the main determinants hindering doctors’ intentions are not captured in the proposed model. While improving doctors’ competency and providing clearer guidelines for colon cancer screening may be the step forward, further study may still be needed to explore other determinants in the context of acute minor complaint and follow-up visits. As an average, the proposed model has performed reasonably well in explaining doctors’ intentions in major areas of men’s health check-ups. Generally, the doctors’ intention to engage men in health check-ups is lower in acute minor complaint visits than in the other two contexts of consultation. Balancing perceived male patients’ receptivity and attitude towards the medical importance appears to be the key to explaining many incidences of doctors’ intention to engage male patients in health check-ups.
8.5 The novel findings in this thesis

Prior to this thesis, there have not been any published studies focusing on the doctors' decision-making process in men's health check-ups. However, doctors' practice behaviour in relation to disease-specific screening and male-specific disorders such as erectile dysfunction has been explored. Some of the key findings in this study are therefore consistent with the current literature as discussed in previous sections. The theoretical framework proposed in phase I is not novel in explaining doctors' practice behaviour as such. However, it highlights the prominent determinants in relation to doctors' practice behaviour in relation to engaging men in health check-ups. Nevertheless, some of the findings represent a step forward in our understanding of Malaysian doctors' practice behaviour in relation to men's health check-ups, and they may be relevant to countries outside Malaysia. These are listed below:

1. Men's health may not be understood as straightforwardly as the term implies by PCDs in Malaysia. The doctors' understanding of men's health is like an unresolved jigsaw puzzle. While they have been treating many male-specific conditions and male patients in general, they have not quite grasped the whole concept of men's health. They seem to be familiar with, and yet still some distance from fully understanding what men's health actually is. Understanding men's health involves acknowledging the male gender and its impact on men's health. Characteristics of the male gender, as opposed to the genetically-defined male phenotype, are socially-defined and hence men's poor health is largely a consequence of social construction and co-construction with men. (37, 43) The understanding of this concept among PCDs is variable.

2. The intention of PCDs in engaging male patients is largely a result of balancing the weight of perceived male patients' receptivity versus the medical importance of health check-ups against an arbitrary threshold. Greater weight on medical importance required less weight on patients' receptivity to initiate health check-ups and vice versa.
Although the perception of men’s non-receptivity to health care among doctors is well 
documented, (77-79, 189) how these perceptions are conceived has not been adequately 
explored. The perception of male patients’ receptivity by Malaysian PCDs is largely based on 
assumption and subjective assessment. This assessment is greatly influenced by stereotyped 
societal perceptions of men’s help-seeking behaviour and the taboo associated with men’s 
health topics. They also assume low receptivity in acute minor complaint and follow-up visits. 
This may present a potential risk of misunderstanding between doctors and male patients.

The perception of male patients’ receptivity plays a major role in doctors’ decision making in 
many topics of men’s health check-ups, which include cardiovascular risk screening, asking 
about smoking, psychosocial health assessment, asking about sexual dysfunction, and to a 
certain extent, colon cancer screening.

While external barriers and skills may be important determinants in the doctors’ decision to 
engage male patients in health check-ups, they may be over-emphasised as decisive factors 
when compared to doctors’ perceptions of male patients’ receptivity.

Some of the findings may be of particular interest in the Malaysian setting and they confirm many of 
the findings in the published work outside Malaysia:

1. PCDs are positive about health check-ups in general, and they endorse the importance of 
   men’s health check-ups.
2. PCDs view men as having poor help-seeking behaviour.
3. The intention to engage male patients in cardiovascular risk screening and asking about 
   smoking are high in all three contexts of consultation (acute minor complaint visits, follow-up 
   visits and health check-ups visits).
4. A majority of doctors hesitate to assess psychosocial health in acute minor complaint visits.
5. A majority of doctors hesitate to engage male patients in asking about sexual dysfunction 
   and colon cancer screening in acute minor complaint and follow up visits.
8.6 Strengths and limitations of the study

The strength of this study lies in the use of a mixed method design, which taps into the power of both qualitative and quantitative approaches. (52, 295) Because of the theoretical assumptions in each of the approaches, they set the boundaries for the valid inferences of the research findings. The inductive nature of GTM, (299) which the quantitative approach is incapable of providing, enables the exploration and development of a theoretical framework in the uncharted area of doctors' decision making in men's health check-ups. It focuses on the individual doctor's decision-making process. The concepts constructed in phase I provide a comprehensive and in-depth explanation of the doctor's decision making. However, it is not the aim of the methods to generalise an individual concept and quantify the impact of the determinants on the outcome for all Malaysian PCDs. On the other hand, the quantitative approach is able to provide numerical quantification and to test the generalisability of the concepts (295, 420) in relation to Malaysian PCDs, which qualitative approaches are incapable of doing. The quantitative approach can be of value in the effort to prioritise areas for intervention by ranking the impact of the determinants on the outcome. The weakness of the quantitative approach, which relies on the comprehensiveness and validity of its conceptual framework, (52, 295) can be overcome by having a prior exploratory qualitative approach as in phase I. With this design, we gain both an in-depth understanding of the process involved for an individual doctor and a representative picture of the decision-making framework and the important determinants of the process for Malaysian PCDs. Therefore, the mixed method design—and the sequential exploratory qualitative approach in particular—provides synergy in answering the research question of this study.

The adoption of pragmatism as an overarching philosophy in this study has the advantage of directing the analysis to discovering the meaning of ideas that have practical consequences. (282, 295) It directs the analysis to unearthing concepts that are useful for intervention instead of emphasising unmodifiable factors. For example, doctors' gender, socio-cultural background and qualifications are not the main focus of analysis. In contrast, the analysis focuses on the meaning embodied in these unmodifiable factors which influence the doctors' decision making in engaging male patients in
health check-ups. Therefore, doctors’ gender, training and experience are not the main concepts, but are rather background factors in influencing doctors’ perceptions about men’s health and their attitudes towards the medical importance of men’s health check-ups. Perceptions and attitudes are useful as the foci of analysis because they influence the actions of doctors. For the same reasons, while the background characteristics of the doctors, such as age, gender and qualifications are collected in phase II to describe the group characteristics, they are not included in the regression models. These factors could be included if the objective of phase II was to develop a predictive model. However, that is not the aim of this study. The aim of this study is to serve a pragmatic purpose; that of understanding and explaining the process of decision making in order to inform practical intervention strategies.

In phase I, the determinants and process leading to doctors’ practice behaviour in relation to health check-ups are appropriately explored using GTM. Although barriers and motivators to engaging patients in disease screening or health check-ups can be explored with a thematic qualitative approach, the mere listing of them thematically may not reflect the dynamic interactions between the barriers and motivators in a practice. Listing of the barriers and motivators, which many studies have attempted as outlined in section 2.8.1, has ignored these complex interactions. Furthermore, the extent of engagement of patients in disease screening or health check-ups cannot be attributed to how many barriers and how many motivators exist, but is rather attributable to which factors play a central role. This can be achieved, as has been proven in this study using GTM. The coherent use of GTM has lent credibility to the findings. I have applied the steps in GTM as much as possible to maximise the rigour of the findings (see section 4). The steps comprise a systematic approach in the inductive development of the theoretical framework and, at a later stage, the deductive testing of the framework. More importantly, these steps were applied as a ‘package’, where the sampling, data collection and analysis were done in an iterative process. This iterative process acted as a feedback mechanism to test the ability of earlier concepts to subsume newer sets of data. It was this iterative process that ensured the final fit of the theoretical framework with the data. However,
there are issues during data collection and analysis which may pose a threat to the rigour of the findings.

During data collection, data obtained from the interviews and focus groups could have been influenced by the dynamics in the interviews and focus groups. I have therefore been careful with the preparation of interview settings and attentive to the interviewer-participant relationship as described in section 4.4. For example, the very fact that I am an academic PCD may have caused anxiety among younger PCDs during my interaction with them. To minimise this effect, all the sessions with younger PCDs were conducted as focus group discussions. This may have provided peer support among the participants and reduced the dominant figure of the moderator in the focus groups. Hence, the information provided by the participants was believed to be optimum. Although the rigour of the findings could have been strengthened by including direct observation of the participants' behaviours during clinic encounters, I believe that further observation would not have yielded any significant advantage. This is because the observations would compromise the confidentiality of the encounters and possibly influence the doctor-patient interactions. The iterative process of theoretical sampling, data collection and analysis has also provided, as far as possible, the variations in incidences for saturating the concepts and categories from data.

Although I have attempted to be as objective as possible, I acknowledge that the research process can never be totally objective and value free. (295) Objectivity was strived for through reflexive notes (memoing), which is a legitimate method in GTM. (313) For example, “blaming male patient”, which is value laden, was used in the initial open coding. Upon reflection, the code was subsequently changed to “perceiving male patient” to minimise my influence on the interpretation. It also helped in keeping the codes close to the data without undue abstraction. The initial analysis and memo from the first three transcripts were also read and examined with my supervisors. Moreover, the results from the IDIs in stage 2 and the participant validation sessions, which supported the relevance of the model constructed, provided further evidence of the rigour of the analysis. Finally, although phase II is not...
exactly aimed at confirming the theory constructed from phase I, it has nevertheless proven its applicability in explaining the doctors' decision making in general.

In phase II, which was a cross-sectional survey, the external validity of the findings are determined by the validity of the conceptual model, probabilistic sampling, measurement tools and statistical methods used. Each of these can pose a threat to the conceptual model's validity and hence be limitations of the findings. The conceptual model is substantially valid for phase II as it is constructed from empirical data in phase I, which shares the same sampling frame and issues of men's health check-ups. The conceptual model accepts that the important common factors are already accounted for. The model also accepts that background factors such as doctors' demographic characteristics act through the concepts identified in the framework. Although there may be other potential determinants such as peer influence in the practice of men's health check-ups, the possibility is currently small as phase I has achieved considerable rigour as outlined above. However, we need to acknowledge the changing scene of men's health in Malaysia. Other important determinants may emerge in the future when men's health awareness becomes more widespread among doctors and laymen. The perception of male patients' receptivity will change as society's awareness of men's health concerns increases. Therefore the framework, although developed from empirical data, is relevant to the current state of men's health awareness.

On the issue of sampling, the stratified random sampling and good response rate (70%) enhance the external validity of this study. The stratification in sampling strategy was done along a public-private divide in order to gain a fair representation from both sectors, as private clinics outnumber public clinics tenfold. Although there is no agreed threshold for a good response rate, 70% can be considered excellent since random surveys among PCDs often have less than a 50% response rate. The representativeness of the data in private clinics in Kuala Lumpur/Selangor may be slightly lower as 26 (12%) private clinics from the sampling in the region were noted to have closed down. This may reflect a fast turnover rate of private primary care services in the region as the registry used was just
updated two years prior to the clinic visits (the registry used being the latest available). However, its impact on the representativeness is considered small due to the excellent response rate. Further on the issue of sampling, the sample size calculated did not account for clustering effect, where all doctors in the clinic sampled were invited to participate. Given the clinics were the sampling unit rather than the doctors and the doctors in a same clinic may share similar characteristics, the standard errors may be inflated hence affect the statistical significance of the result. Sample size could have been larger to minimise type I error in this study. This might be an issue for public clinics because private clinics would usually have only one resident doctor as opposed to 3-5 doctors in public clinics. However, the clustering effect is likely small because in this survey, only one private clinic has 2 participating doctors and the mean number of participating doctors in public clinic was 2.75 (with a maximum of 7). Furthermore, the characteristics and clinic workload of the respondents are comparable with previous random surveys of Malaysian PCDs. (421, 422) Mean number of patients seen per day in a survey among PCDs in 1998-2003 ranged from 43.0 (421) to 44.7 (422) compared to 52.7 in this study. From the national statistics, ethnic distributions of all doctors in Malaysia in 2007 were about 40.7% Malays, 26.1% Chinese and 19.7% Indians (143) compared to 49.0%, 22.2% and 28.3% respectively in this study. In another survey in 1998, the proportion of PCDs with post-graduate qualification was 6% (422) compared to 10.1% in this study. These comparisons suggest a good representativeness of Malaysian PCDs in this study because of similarity in the patient load and ethnic distribution.

There are two issues about measurement tools used. First, the questionnaire used in this study might limit the external validity of the study findings. This is because the questionnaire has been developed specifically for this project. This is necessary as the questionnaire for phase II has to be based on the findings in phase I. The concept of “perceived male patient receptivity” is also novel and has not been measured in the literature. Furthermore, in order to fulfill the objective of phase II, the questionnaire has to be content and context specific - i.e. focusing on the male gender and different contexts of consultation. Although the questionnaire used has undergone content and structural
validation, and internal consistency assessment, these are internal validation processes. The external validation process necessitates another research project and hence is beyond the scope of this study. The validation cohort was invited participants through convenient sampling, hence over sampling of the doctors from public sector and female gender. Although the validation cohort differed substantially with the main cohort, the findings of the initial validation are likely valid because the findings of re-evaluation of validity were similar to the initial validation. (Section 7.5) In the process of structural validation, two constructs were noted for the section measuring "attitude towards cardiovascular risk screening" and "general perception of male patients' receptivity to cardiovascular risk screening". The choice was to either drop one of the constructs in each concept or to adopt them as they were. The latter option was adopted as the former option may limit some of the information in the concepts intended to be measured. The concept relating to network referral may represent a limitation of the questionnaire. The initial three items in this section were reduced to two items after a series of factor analyses. The items assess network referral support for ED and family counseling. Hence, this section may not be valid for topics of men's health other than erectile dysfunction and family counseling. Network referral as an external barrier may warrant more precise investigation in future. No additional steps were taken to refine this section further as it constituted a small section of the entire questionnaire. However, the finding of the small role played by external barriers as a whole is likely to be valid as the questionnaire on other sections of external barriers is internally valid. Other than this limitation in the questionnaire, the rest of the questionnaire is arguably internally valid. Second, there is a concern with the length of the questionnaires. By asking the participants to answer 176 items may lead to participants' fatigue, the validity of the responses at the later parts of the questionnaires may be reduced. However, this concern may be unwarranted as the descriptive statistics for responses in all five topics were different with non-overlapping of 95% confidence intervals (Figure 7.33 and 7.34). These differences are expected because the topics being examined have different characteristics as in table 6.1. Participants' fatigue may be present if the patterns across all five topics were similar, denoting participants not paying attention to the differences.
In the analysis of phase II, the choice and justification of regression model was explained in section 6.10.4. Besides the statistical assumptions, which were fulfilled in this study, the multiple regression model also assumes that the measurements included are free of error. However, in reality, all measurements, such as the questionnaire used in this study, contain systematic errors. These errors may underestimate the effect size of the determinants. Therefore, the impact of each determinant on the outcome in this study may be greater than estimated. This may imply that the significant determinants have a greater impact (higher regression coefficient) on the outcome, and a greater number of significant determinants may be elicited than presently estimated.

There are another two issues in the analysis that may pose a threat to validity of study which are not related to the choice of regression models. First, too many multiple regression analyses may increase the possibility of finding statistical significance by chance, hence, overestimating the significant variables. This error could be overcome by setting a lower statistical significant level, $p$, to <0.01. By doing so, a great majority (12 out of 13 initial significant models and 22 out of 35 initial significant determinants) of the statistical significant tests still remained as they were. Therefore, finding statistical significance by chance may be a small concern in this study. Second, because of each doctor was required to complete 15 small sets of questionnaires relating to 15 contexts of consultations within a setting, correlation in the responses within each doctor may occur. Adjustment of correlation within doctor was not carried out. The potential correlation within participants can be better addressed with methodological adjustment where participants could be asked to respond to different sets of questionnaires at different time. This was not carried out because of logistic difficulty in asking the participants to answer the questionnaires several times. However, correlation within participants' responses may be of greater concern if the responses in different sets of questionnaires were similar, which did not happen in this study. The same argument applies with the issue of participants' fatigue as discussed above.
Taking all four components of validity discussed, phase II has achieved substantial internal validity.

The external validity of the findings can be tested by experimenting with an intervention program to improve men’s health check-ups based on the findings. This will be the next step. Lastly, as a general limitation of quantitative study, the findings may be far from being relevant at an individual level. Nevertheless, the findings are a valid representation of an average or normative pattern in the decision-making process and the determinants in doctors’ intention to engage male patients in health check-ups for Malaysian PCDs.

Taking phase I and II together, the important limitation is defined by the subject and sampling frame of this study. This study is about Malaysian PCDs’ decision making in engaging male patients in health check-ups within primary care settings. Thus, any inference outside this boundary runs the risk of undue assumption. Although there are similarities in doctors’ perceptions about men’s help-seeking behaviour between Malaysia and the West, we should still refrain from generalising the findings to PCDs outside Malaysia. Likewise, doctors from non-primary care backgrounds, such as internal physicians or urologists, may exhibit a similar decision-making process when encountering male patients. However, these remain to be investigated and confirmed.

In summary, although there is a concern about the validity of a small section of the questionnaire measuring “network referral support”, the overall findings of the study are likely to be the same even after the concern is addressed. Therefore this study has achieved substantial methodological rigour and validity, and hence the findings are relevant to the present state of Malaysian health care delivery.
8.7 Conclusion

This study has attempted to develop a substantive theoretical framework to explain the process of decision making by PCDs in undertaking health check-ups for male patients in Malaysia. This represents a first step in developing an intervention strategy to help doctors engage male patients in health check-ups and to improve men's health generally. The framework facilitates the understanding and identification of the weak links in the process wherein the potential targets of intervention lie.

Given that the issue has never previously been extensively researched, I have employed a sequential mixed method design in this study which provides the substantial advantage of giving an account of the doctors' decision-making process in their 'real-world' practice. The use of grounded theory methods in phase I has enabled construction of the substantive theoretical framework which explains the interaction between the determinants beyond merely identifying them. On the other hand, the probabilistic quantitative survey with regression analyses has provided the representative findings of the determinants and the applicability of the framework in explaining the decision-making process across five major areas of men's health concerns in Malaysia. This study's methodology proves that important substantive discoveries can be made by going beyond descriptive qualitative study and quantitative survey. Mixed methods, when used with justification, can illuminate the issue under investigation more than when the methods are used individually.

The first point to note in the findings is the fragmented view of men's health among PCDs. This relates to variable levels of exposure to and experience with men's health in Malaysia. This fragmented view also indicates the relative newness of the concept of men's health in Malaysia.

This study has demonstrated that the individual doctor's intention to engage male patients in preventive health check-ups depends on the crucial balance between the perceived receptivity of male patients and the medical importance of the issues in mind. Greater weight on medical importance required less weight on patients' receptivity to initiate health check-ups and vice versa.
Actualisation of the intended behaviour (i.e. negotiating a health check-up with male patients) further depends on the perceived personal competency and perceived external barriers in performing the health check-ups. This framework accords with the integrated model approach as it relates to the individual doctor's practice behaviour. However, the framework in this study offers the significant advantage of highlighting the prominent determinants and providing substantive content in relation to men's health check-ups. This study has also demonstrated that perceived male patients' receptivity has the greatest impact on the doctors' decision making, especially in the context of acute minor complaint visits compared to follow-up and health check-up visits. On the other hand, in follow-up and health check-ups visit, attitudes towards medical importance and perceived personal competency are also important determinants. Although external barriers may be important in an individual doctor's decision making in engaging male patients in health check-ups, they generally play a less decisive role in the doctors' decision making than perceived male patients' receptivity and attitude towards medical importance.

This study is innovative in the way it has made the issue of gender the focus of investigation. Besides the topic of male sexual dysfunction, most studies on doctors' practice behaviour in relation to cardiovascular risk screening, asking about smoking, psychosocial health assessment and colon cancer screening are not gender-specific. As demonstrated in this study, the male gender of the patients plays an important role in the doctors' decision to engage them in health check-ups. Fundamentally, the stereotyping of men's poor help-seeking behaviour is observed to affect the doctors' perceptions of their patients' receptivity. Taboo in relation to some topics of men's health is also observed to affect the doctors' perceptions of male patients' receptivity. It is striking to note that their perception of male patients' receptivity is to a large extent based on these assumptions and subjective assessments, which are often unfounded. Perceived low receptivity is especially evident in the gender sensitive topics of sexual dysfunction and psychosocial health. This is alarming and may perpetuate unfavourable men's help-seeking behaviour. Doctors need to be aware of their
assumptions and the validity of the cues they use in assessing male patients’ receptivity to health check-ups, in order not to misjudge the needs of their patients.

Among the five topics investigated in phase II (cardiovascular risk screening, asking about smoking habit, psychosocial health assessment, asking about sexual dysfunction and discussing colon cancer screening), perceived male patients’ receptivity and attitude towards medical importance are the most important determinants in the doctors’ decision to engage male patients in health check-ups in their respective topics. Perceived personal competency is particularly important in the topics of sexual dysfunction and colon cancer screening. More importantly, PCDs are relatively less confident about psychosocial health assessment and asking about sexual dysfunction, and a substantial proportion of them are also noted to dispute the medical importance of proactively asking male patients about sexual dysfunction. These are important concerns as psychosocial health and sexual dysfunction also constitute significant morbidity and mortality rates in men besides cardiovascular disease.

This study also highlights the fact that doctors’ decision making in engaging male patients’ in health check-ups is a complex process and depends on the dynamics within consultation. Therefore, addressing knowledge, skills and external factors (by having man-friendly clinics) may be insufficient in promoting doctors’ efforts to engage more men in health check-ups. The fundamental problem of potential miscommunication with men about their needs also needs to be addressed.
9 Recommendation

The findings of this study have provided some directions for practices to improve men's health check-ups. They also reveal some unanswered issues in the effort to improve men's health check-ups in primary care settings, which warrant further investigation.

9.1 Implications for practice

According to the points made in the discussion section of this thesis, the major issues in engaging male patients in health check-ups are an understanding of men’s health, potential miscommunication over male patients' receptivity to health check-ups, the multifactorial and complex nature of the decision making, and the subtle variation in the determinants in different topics of men’s health. Each of these issues has an implication for practice.

Doctors are noted to have fragmented views about men's health. A more holistic picture of men’s illness and their help-seeking behaviour should be provided. Although a good understanding of the concept of men’s health alone is insufficient to improve service delivery to male patients, the absence of one can only result in stalemate. It is analogous to treating a disease without understanding the pathophysiology of the disease. Therefore, diverse and opposing views about men's health need to be addressed. The comprehensive non-gender-specific holistic view of bio-psycho-social-spiritual health, which most primary care doctors hold, is insufficient. Primary care doctors in Malaysia need to be aware that men's poor help-seeking behaviour is neither inevitable nor an inherent characteristic of being male. Men's help-seeking behaviours are the result of their social upbringing and socialisation in the community. (37, 42, 43) Doctors are themselves part of a society that perpetuates this unfavourable help-seeking behaviour. (77, 79) Therefore, health care delivery is one of the factors that has a substantial impact on men’s help-seeking behaviour. (29, 40) Besides addressing men's illness, promoting men's health should also include the negotiating and sharing of health decisions with male patients. This is so as to respect and embrace men's autonomy and their desire to remain in control of their lives, which plays a major role in their
health-seeking behaviour. (15, 179) While the concept of shared decision making is not new in the literature, (365, 366) it has great potential in men’s health service delivery and hence should be extended to service delivery.

Another unprecedented finding is the concept of perceived male patients’ receptivity as a determinant in doctors’ decision making in engaging male patients in health check-ups, and how this perception is conceived. Primary care doctors need to reflect on these issues when consulting with male patients. This potential source of miscommunication calls for a strategy to bridge the communication gap between doctors and their male patients. Although it may indeed be true that male patients are unresponsive to discussion about health check-ups, their intentions, whatever these may be, need to be clearly assessed in order to develop further appropriate management plans. While there is currently no evidence-based communication tool to address the issue of male patients’ receptivity to health check-ups, at the very least, doctors need to be aware of the assumptive and subjective nature of their assessments in order not to deprive patients of their wishes in health check-ups.

Efforts to improve men’s health check-ups in primary care settings need to adopt a multifaceted approach. The theoretical framework constructed in phase I can be used to guide this effort. Although generally the emphasis should be on the doctors’ perceptions of male patients’ receptivity as outlined above, the complex interactions between multiple determinants in the doctors’ intention to engage male patients in health check-ups imply that any effective intervention to improve the doctors’ efforts has to be multifaceted, tackling a few determinants simultaneously. (231, 277) This is especially important when designing an intervention strategy targeting a single clinic. The complex nature of the interactions necessitates a correspondingly complex intervention strategy which can be fine-tuned to meet the needs of the individual practice while addressing the important determinants relevant to the clinic. (51) While the framework constructed in phase I can
provide an overall understanding of the individual doctor’s decision making process, the important determinants for an individual doctor may be different, and hence warrant a tailored program. Thus, besides organising workshops and seminars to improve skills and knowledge about illness-specific men’s health check-ups, doctors’ personal attitudes towards men’s health check-ups, their assumptions about men’s help-seeking behaviour, and external barriers all have to be considered on an individual basis. Over-emphasis on a man-friendly environment may be unwarranted, as external factors are only one of the many determinants in promoting men’s health check-ups.

The effort to improve men’s health check-ups needs to be tailored to the topic concerns. Among the five topics of men’s health investigated, doctors already demonstrated a high intention to screen male patients for cardiovascular risk factors, which include asking about smoking habit. Therefore, efforts should focus on actualising the intention to pursue action. On the other hand, the priority for the gender-sensitive topics of sexual dysfunction and psychosocial health assessment is to address potential miscommunication between doctors and patients, as the patients’ perceived low receptivity may be unfounded. However, improving the initiation of discussion about colon cancer screening may require an emphasis on skills training besides considering all other determinants. Colon cancer screening also requires further investigation in Malaysia, as other important determinants may be missed in the model.

### 9.2 Future directions for research

The findings in this study have substantial implications for the direction of improvements in the delivery of men’s health check-ups. However, this study is only at the developmental stage of the UKMRC framework to improve men’s health check-ups. Further evidence is required to ensure the effectiveness of interventions based on the proposed theoretical
framework. Here, I am proposing four future directions to advance the research into improving men’s health check-ups.

Male patients are the other key players in the effort to improve men’s health check-ups. This study has only provided findings from the doctors’ perspective. Bridging the communication gap may not be successful if we fail to understand men’s perspectives on health check-ups in primary care settings. Laymen are noted to be interested in health check-ups in Malaysia. (34)

However, the specific issue of how they would like to be engaged in a primary care set-up has gone unexplored. From the primary care doctors’ perspective, male patients’ receptivity is an important factor. It is therefore important to investigate the male patients’ perspective in order to establish whether this concept is indeed a gap to be bridged – i.e. how receptive they are to doctors’ suggestions of health check-ups. A similar mixed method design is an appropriate approach, as we are interested in the process of how male patients make their decision to ask for health check-ups. The findings will clarify the myth about men’s help-seeking behaviour in relation to health check-ups in primary care settings, which will in turn provide the answer to whether a communication tool to bridge this gap is indeed necessary.

With this, interventions to improve men’s health check-ups will be further substantiated. If men are indeed unreceptive to health check-ups in primary care settings, public health approaches through community intervention programs may be the solution to improve men’s health check-up rates, instead of through primary care settings.

In line with the philosophy of pragmatism, the final proof of the concepts in the theoretical framework should come from studies with an experimental design. The experimental design also serves as external validation of the study findings. Using the UKMRC framework, (51) small-scale pilot testing of intervention strategies addressing the determinants in the framework should take precedence. For example, pilot testing can take the form of using communication tools (to address the issue of perceived receptivity) as well as providing
knowledge and skills training (to address perceived personal competence and attitudes towards the medical importance) to improve the rate of men’s health check-ups. As outlined in the framework, all external factors that are of concern to a particular practice should also be addressed in the pilot study. As pointed out above, due to the complex interaction between determinants, intervention packages should be multifaceted and tailored to local needs. Besides providing external validation of the theoretical framework, pilot testing also permits feedback to refine the theoretical framework. With more theoretically-informed intervention, there is a greater chance of achieving a positive outcome.

As highlighted above, the model constructed does not seem to apply well in relation to the topic of colon cancer screening in acute minor complaint and follow-up visits. This warrants further investigation with a focus on colon cancer screening as important determinants may be missed in the model. A further exploratory approach using grounded theory methods is still the best option as the data may contribute further to the construction of the present theoretical framework. As argued by Glaser, a valid theoretical framework should also be modifiable using new sets of data. (306)

Lastly, the role of perceived men’s help-seeking behaviour in doctors’ intention to engage male patients’ in health check-ups also warrants further investigation. As argued in the discussion, perceived men’s help-seeking behaviour could be a suppressing mediator or confounder. This can be explored further using other statistical methods, such as path analysis or structural equation modeling, which is beyond the scope and objectives of this study.
Afterword

The journey of undertaking my PhD has profoundly changed my perspective on research. As many would have experienced in their medical career, I was nurtured in a positivist environment, which assumes objectivity in scientific knowledge and that ‘truth’ can be revealed by objective measurement and experimentation in a controlled environment. In my first year of candidature in Sydney, I was granted the opportunity to be exposed to the discourses of epistemology and ontology and their theoretical assumptions underlying research. I must thank my colleague, Judith, for this opportunity. I quickly became disillusioned with my prior positivist position about knowledge. After much reading about the philosophical theory of knowledge and nature, and attending a course on qualitative health research, I began to critically re-examine my philosophical position. Consequently, I adopted pragmatism. As explained in chapter 3, pragmatism is not simply about ‘practicality’; rather, it is a philosophy that states knowledge is meaningful when it potentially informs succeeding human behaviour. Although I still maintain an objectivist style of conducting and reporting, I assume a constructivist position and emphasise pragmatism.

The second aspect that I discovered is the potential of qualitative research. A good qualitative approach should not just be about generating themes; it should aim at constructing more abstract and subsumable concepts, which provide greater depth to the analysis. This will require the analysis to be anchored in some theoretical assumptions. A qualitative approach also offers great potential in primary care research, where the social variables to be explored are often so dynamic and numerous that they can incapacitate the quantitative approach. As demonstrated in this thesis, the process of decision making is so complex that modeling it using quantitative methods can explain at best only 30% of the variance of doctors’ decisions. Nevertheless, quantitative methods are still valuable in offering population representative data. Therefore, a good qualitative study represents a great option in addressing many issues concerning primary care.

The third aspect is that the knowledge generated in this thesis merely identifies the hurdles that we can tackle at the present time. Many more hurdles still await ‘discovery’ in the future as current
interventions will change future social variables. Thus, exploratory and intervention research will always go in tandem. One cannot afford to wait for completion of exploratory research before any attempt to intervene. These new perspectives will serve as the guiding principles in my future research projects.

Reference (Volume II)
Appendixes (Volume II)