EXPLORING AND EXPANDING PHARMACY PRACTICE AND EDUCATION IN MENTAL HEALTH VIA SIMULATED PATIENTS

Tina Xu Ung

BPharm (Hons I)

A thesis submitted to fulfil requirements for the degree of Doctor of Philosophy

The University of Sydney School of Pharmacy

Faculty of Medicine and Health

The University of Sydney

2024

The research reported in this thesis was supported by an Australian Government Research Training Program (RTP) Fees Offset and the award of the Elizabeth Wunsch Postgraduate Research Scholarship in Mental Health and Pharmacy Services to the PhD Candidate.

STATEMENT OF ORIGINALITY

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

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

Tina Ung

BPharm (Hons I)

25 September 2024

ACKNOWLEDGEMENTS

My first heartfelt thanks goes to my supervisors, Associate Professor Claire O'Reilly, Dr Sarira El-Den and Professor Rebekah Moles. What a privilege completing my candidature under your supervision; I really have done this with the best team and feel that I have grown both professionally and personally under your guidance. Claire, I am ever grateful for your mentorship, and will always be amazed at how things have come full circle – from me being one of your PhD project participants, to you supervising my own PhD to completion. Thank you for understanding my juggles and struggles, in working, researching, and raising two little ones at the same time. Sarira, I am so grateful for the friendship that we have fostered while working together, thank you for your endless encouragement and your clear and thorough feedback, guidance and support. You are a true role model for early career researchers like me. Bek, you have been with me since the very beginning of my research journey in 2010 when I was your Honours student. Thank you for your patience, waiting 10 years for me to finally "come back to do a PhD". Thank you for helping make big steps achievable, and for easing my worries when I feel overwhelmed.

This thesis would not have been possible without the collaboration of many people and organisations. I would like to acknowledge the Schizophrenia Fellowship of NSW Ltd Peter Meyer Fund for funding the co-design, content validation and student evaluation of the work resulting from this thesis. Thank you to all the mental health consumers and carers from One Door Mental Health and Bipolar Australia, actors from the Sydney University Drama Society and Roleplay4Solutions, and final year pharmacy students who participated in the projects – it was a joy to work with you all. Thank you to The Pharmaceutical Society of Australia for hosting our workshop with pharmacists, and to the pharmacists who were involved.

During (and even before) my candidature I had the privilege of working as an academic staff member at Sydney Pharmacy School. Thank you to Professor Andrew McLachlan and Professor Bandana Saini, for your support to attend and present at national and international conferences to share this research. Thank you to my Sydney Pharmacy School workmates, especially my S303 buddies – past and present – for your support on this journey. Special thanks to Shweta Kumar, Simmie Chung, Dr Maya Saba, Dr Janet Cheung, Dr Irene Um, Dr Jack Collins, Dr Jessica Pace, and Dr Megan Anakin for your listening ears and sage advice. To my fellow HDR friends, especially Dr Ricki Ng, Duha Gide, and Lily Pham, thank you for our conference hangouts and chats, it was so lovely to share in this journey with you.

Thanks to the Thursday team at Pharmacy 4 Less Glebe, for your support. I miss you all.

To my church friends, especially Michelle and Gavin Truong, Karen Fu, Colette Read, Janice Lim, and Catherine Zuza, thank you for the countless cups of tea and late Friday night prayers.

To my wonderful family – my Mum Evelyn and Dad Michael, thank you for your love. To my parents-in-law Kimberley and Philip, thank you for your support. To my husband Andrew, and children Xavier and Beatrix, I love you more than these 341 pages of words could ever say. This thesis (book) is for you.

To my original fur-baby, Pat! You have been most patient, lazing on the garage floor while I type away in the adjacent study, or at the foot of the bed while I work late into the night.

Finally, I thank God for leading me here in His faithful goodness over these four fruitful years and forevermore. All Glory be to Christ. ♥

For Andrew, Xavier and Beatrix

TABLE OF CONTENTS

Statement of originality i

Acknowledgements ii

Dedication iv

Table of contents v

List of abbreviations xi

Notes xiii

List of figures xv

List of tables xvi

Authorship attribution statements xviii

Dissemination of research xxi

Scholarly awards and prizes xxv

Abstract xxvi

PART A – BACKGROUND AND LITERATURE REVIEW 1

Overview of Part A 2

CHAPTER ONE – Introduction 3

1.1 Mental illness 4

1.2 Mental health treatment and support 6

1.3 Pharmacists and mental healthcare 7

1.4 Mental health education in pharmacy 11

1.5 Simulation in healthcare 13

1.6 Authentic simulation-based education in mental health 15

1.7 Aim of the thesis 18

1.8 Thesis outline 20

1.9 References 21

CHAPTER TWO – The use of mental health simulation in pharmacy practice and education: a systematic review 36

Overview of Chapter Two 37

Abstract 38

Introduction 38

Methods 39

Results 39

Discussion 41

Conclusion 53

References 53

PART B – CO-DESIGN AND CONTENT VALIDATION 55

Overview of Part B 56

CHAPTER THREE – Co-designing psychosis simulated patient scenarios with mental health stakeholders for pharmacy curricula 57

Overview of Chapter Three 58

Abstract 59

Introduction 59

Method 60

Results 62

Discussion 63

Conclusion 64

References 64

Supplementary material 67

PART C – EVALUATION WITH STUDENTS 71

Overview of Part C 72

CHAPTER FOUR – Evaluation of Mental Health First Aid training and simulated psychosis care role-plays for pharmacy education 73

Overview of Chapter Four 74

Abstract 75

Introduction 75

Methods 76

Results 76

Discussion 78

Conclusion 79

References 79

Supplementary material 81

CHAPTER FIVE – Simulated psychosis care role-plays for pharmacy curricula: a qualitative exploration of student experiences 83

Overview of Chapter Five 84

Abstract 85

Introduction 85

Methods 86

Results 87

Discussion 90

Conclusion 91

References 92

Supplementary material 94

PART D – EVALUATION WITH PHARMACISTS 97

Overview of Part D 98

CHAPTER SIX – Pharmacists' mental health support behaviours with simulated patients: a mixed methods study 99

Overview of Chapter Six 100

Abstract 101

Background 102

Methods 102

Results 103

Discussion 104

Conclusion 108

References 108

Supplementary material 110

PART E – DISCUSSION AND CONCLUSIONS 115

Overview of Part E 116

CHAPTER SEVEN – Discussion, conclusions, and future directions 117

7.1 Mental health simulation in pharmacy practice and education 118

7.2 Co-design and development of authentic simulation-based educational material 120

7.2.1 Lived experience in co-design 120

7.2.2 SP actors 125

7.3 Content validation 127

7.4 Evaluation of MHFA training and SP role-plays 129

7.4.1 SP role-play performances 130

7.4.2 Impact of SP role-plays on self-reported measures 131

7.4.3 Qualitative exploration of SP workshop experiences 134

7.5 Considerations for future MHFA training and simulation-based education 138

7.5.1 Mystery shopping as a potential training method 140

7.5.2 Challenges associated with future mystery shopping involving mental health scenarios 142

7.5.3 Increasing the scalability of simulation 143

7.5.4 Evaluating the impact of mental health education on real-life patient outcomes 145

7.6 Strengths and limitations 146

7.7 Conclusions 148

7.8 References 150

APPENDICES 163

Appendix I – Letters of ethics approval 164

Appendix II – Description of journals 175

Appendix III – Award: Runner up – Best student oral presentation at International Social Pharmacy Workshop (Sydney hub) 2022 177

Appendix IV – Award: Best oral presentation in pharmacy and pharmaceutical science education at Australasian Pharmaceutical Science Association Annual Conference 2021 179

Appendix V – Certificates of accreditation: Mental Health First Aid 181

Appendix VI – Certificate of attendance: Australian Consortium for Social and Political Research Inc. Fundamentals of Statistics 184

Appendix VII – The use of mental health simulation in pharmacy practice and education: a systematic review (PROSPERO) 186

Appendix VIII – Ethics approved documents for Project No. 2020/776 (co-design and content validation) 192

Appendix IX – Scenario 1 for student and pharmacist evaluation 252

Appendix X – Scenario 2 for student evaluation 258

Appendix XI – Scenario 3 for student and pharmacist evaluation 264

Appendix XII – Ethics approved documents for Project No. 2015/626 (pilot-testing) 269

Appendix XIII – Ethics approved documents for Project No. 2021/507 (student evaluation) 277

Appendix XIV – Scenario 2 for pharmacist evaluation 289

Appendix XV – Scenario 4 for pharmacist evaluation 293

Appendix XVI – Ethics approved documents for Project No. 2023/148 (pharmacist evaluation) 297

LIST OF ABBREVIATIONS

AI	Artificial Intelligence
ALGEE	**A**pproach, assess and assist a person who is developing or experiencing mental health symptoms or crises, **L**isten and communicate non-judgementally, **G**ive appropriate information and support, **E**ncourage professional help, and **E**ncourage other supports such as self-help strategies
ANOVA	ANalysis Of VAriance
BPharm	Bachelor of Pharmacy
CI	Confidence Interval
CISS	Considerations for In Situ Simulation
COREQ	COnsolidated criteria for REporting Qualitative research
CPD	Continuing Professional Development
CVR	Content Validity Ratio
DSM	Diagnostic and Statistical Manual of Mental Disorders
EBCD	Experience-Based Co-Design
FIP	International Pharmaceutical Federation
GP	General Practitioner
HCP	Healthcare Professional
IBM	International Business Machines
I-CVI	Item Content Validity Index
MHCE	Mental Health Consumer Educator
MHFA	Mental Health First Aid
MHSS	Mental Health Support Scale

min(s)	minute(s)
MMAT	Mixed Methods Appraisal Tool
MPharm	Master of Pharmacy
NGT	Nominal Group Technique
OSCE	Objective Structured Clinical Examination
P/F	Pass/Fail
PharmD	Doctor of Pharmacy
PRISMA-P	Preferred Reporting Items for Systematic review and Meta-Analysis Protocols
PROSPERO	International Prospective Register of Systematic Reviews
PSA	Pharmaceutical Society of Australia
RAND/UCLA	Research ANd Development/University of California, Los Angeles
S-CVI/Ave	Scale-level Average Content Validity Index
S-CVI/UA	Scale-level Content Validity Index by Universal Agreement
SD	Standard Deviation
SDS	Social Distance Scale
SE	Standard Error
SP	Simulated Patient
SPSS	Statistical Package for the Social Sciences
STROBE	Strengthening the Reporting of Observational Studies in Epidemiology
TREND	Transparent Reporting of Evaluations with Nonrandomized Design
US	United States
VR	Virtual Reality
WHO	World Health Organization
WIL	Work Integrated Learning

NOTES

This thesis consists of seven Chapters divided into five Parts (A – E). Each Part and Chapters 2 – 6 are prefaced with an overview, contextualising the Part or Chapter to the overall research plan and thesis aims and objectives for the reader. References are listed at the end of each Chapter rather than continuously throughout the thesis. Figures and Tables are numbered sequentially for each Chapter rather than continuously throughout the thesis. Appendices at the end of the thesis contain supplementary material not already published as part of Chapters 2 – 6. All studies included in this thesis were approved by the Human Research Ethics Committee of The University of Sydney – Project No. 2020/776 and 2015/626 (Chapter 3), 2021/507 (Chapters 4 and 5), and 2023/148 (Chapter 6). Letters of ethics approval are included in Appendix I. Any research funding that contributed to this thesis is listed in the respective Chapters for which the funding was received.

Several terms are used interchangeably throughout this thesis, depending upon journal preferences and the context in which the term is used:

- ‘Mental health consumer/carer’ describes a person with lived experience of mental illness, either as a person living with mental illness, or caring for somebody living with mental illness.
- Terms such as ‘patient’ or ‘service user’ are used in this thesis as part of an existing term, or when directly citing previous literature e.g. ‘simulated/standardised patient’, ‘virtual patient’, ‘patient/service user involvement’, ‘patient outcomes’. Outside of such situations, ‘mental health consumer/carer’ is used.

- ‘Mental health stakeholders’ includes mental health consumers/carers as well as health professionals with interest and expertise in providing and/or supporting mental healthcare.
- ‘Mental health consumer educator’ describes a person who shares their lived experience of mental illness for educational purposes.
- ‘Simulated patient (SP) role-play’ (noun) refers to the pedagogical method, and ‘role-play’ used by itself refers to the verb.
- ‘Simulation-based education’ refers to the pedagogical practice involving SP role-plays.
- ‘(Simulation-based) educational material’ refers to SP role-play scenarios and marking rubrics used to assess learners in their role-play performances.
- ‘(Simulated) psychosis care role-plays’ are the scenarios that were co-designed, content validated, and evaluated with final year pharmacy students.
- ‘(Simulated) mental health role-plays’ are the scenarios that were evaluated with pharmacists in the educational workshop, which included psychosis care role-plays.
- ‘Tutor’ describes an educator in the university classroom. All tutors involved in this thesis were pharmacists who had received Mental Health First Aid (MHFA) training.
- ‘(Workshop) facilitator’ describes a tutor, outside of the university classroom setting but in the educational workshop settings with pharmacists. All workshop facilitators involved in this thesis were pharmacist researchers who had received Mental Health First Aid (MHFA) training.

LIST OF FIGURES

CHAPTER ONE

Figure 1. Thesis outline including relevant publications 20

CHAPTER TWO

Figure 1. Article selection process 40

CHAPTER SEVEN

Figure 1. Towle's taxonomy of patient involvement, with terminology adapted for this thesis 123

Figure 2. Tew's ladder of involvement in mental health education, with terminology adapted for this thesis 124

LIST OF TABLES

CHAPTER TWO

Table 1. General characteristics of studies using mental health simulation in pharmacy education (university) setting 41

Table 2. Aims, content, evaluation and key results or outcomes of studies using mental health simulation in pharmacy education (university) setting 42

Table 3. General characteristics of studies using mental health simulation in pharmacy practice (community pharmacy) setting 48

Table 4. Aims, content, evaluation and key results or outcomes of studies using mental health simulation in pharmacy practice (community pharmacy) setting 49

CHAPTER THREE

Table 1. Examples of co-design panel quotes that informed scenario medical/social histories 62

Table 2. Average and universal agreement scores per scenario (n=9 stakeholders) 62

CHAPTER FOUR

Table 1. Confidence and stigma scores across 3 survey timepoints using matched data (n=70) 77

Table 2. Role-play scores awarded by each rater type across the 3 scenarios 77

Table 3. Mean role-play scores awarded for each scenario by each rater 78

CHAPTER SIX

Table 1. Changes in survey item scores for all participants, non-MHFA and MHFA-trained participants alone 104

Table 2. Themes, narrative points, and quotes from interviews 105

AUTHOR ATTRIBUTION STATEMENTS

Chapters 2 – 6 of this thesis are published in peer-reviewed journals. The following authorship attribution statements are written in accordance with the Contributor Roles Taxonomy (CRediT).

Chapter 2 of this thesis is published as:

Ung TX, El-Den S, Moles RJ, O'Reilly CL. The use of mental health simulation in pharmacy practice and education: a systematic review. American Journal of Pharmaceutical Education. 2023;87(6):100058.

My roles in this study were conceptualisation, data curation, formal analysis, investigation, methodology, project administration, validation, visualisation, writing – original draft, and writing – review & editing.

Chapter 3 of this thesis is published as:

Ung TX, O'Reilly CL, Moles RJ, El-Den S. Co-designing psychosis simulated patient scenarios with mental health stakeholders for pharmacy curricula. International Journal of Clinical Pharmacy. 2023;45(5):1184-91.

My roles in this study were conceptualisation, data curation, formal analysis, investigation, methodology, project administration, validation, visualisation, writing – original draft, and writing – review & editing.

Chapter 4 of this thesis is published as:

Ung TX, O'Reilly CL, Moles RJ, Collins JC, Ng R, Pham L, Saini B, Ong JA, Chen TF, Schneider CR, El-Den S. Evaluation of Mental Health First Aid training and simulated psychosis care role-plays for pharmacy education. American Journal of Pharmaceutical Education. 2024;88(11):101288.

My roles in this study were conceptualisation, data curation, formal analysis, investigation, methodology, project administration, validation, visualisation, writing – original draft, and writing – review & editing.

Chapter 5 of this thesis is published as:

Ung TX, El-Den S, Moles RJ, O'Reilly CL. Simulated psychosis care role-plays for pharmacy curricula: a qualitative exploration of student experiences. Social Psychiatry and Psychiatric Epidemiology. 2024;59(7):1269-77.

My roles in this study were conceptualisation, data curation, formal analysis, investigation, methodology, project administration, validation, visualisation, writing – original draft, and writing – review & editing.

Chapter 6 of this thesis is published as:

Ung TX, El-Den S, Moles RJ, Collins JC, Ou K, Chen J, O'Reilly CL. Pharmacists' mental health support behaviours with simulated patients: a mixed-methods pilot study. Journal of the American Pharmacists Association. 2025;65(1):102263.

My roles in this study were conceptualisation, data curation, formal analysis, investigation, methodology, project administration, validation, visualisation, writing – original draft, and writing – review & editing.

In addition to the statements above, in cases where I am not the corresponding author of a published item, permission to include the published material has been granted by the corresponding author.

Tina Ung

25 September 2024

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

Associate Professor Claire O'Reilly

25 September 2024

DISSEMINATION OF RESEARCH

The following is a list of publications, manuscripts, and conference proceedings resulting from this thesis. A description of the journals in which the publications appear, or manuscripts are submitted to, is included in Appendix II.

Peer-reviewed publications

1. **Ung TX,** El-Den S, Moles RJ, Collins JC, Ou K, Chen J, O'Reilly CL (2025) Pharmacists' mental health support behaviours with simulated patients: a mixed-methods pilot study. J Am Pharm Assoc 65(1):102263. https://doi.org/10.1016/j.japh.2024.102263
2. **Ung TX,** O'Reilly CL, Moles RJ, Collins JC, Ng R, Pham L, Saini B, Ong JA, Chen TF, Schneider CR, El-Den S (2024) Evaluation of Mental Health First Aid training and simulated psychosis care role-plays for pharmacy education. Am J Pharm Educ 88(11):101288. https://doi.org/10.1016/j.ajpe.2024.101288
3. **Ung TX,** El-Den S, Moles RJ, O'Reilly CL (2024) Simulated psychosis care role-plays for pharmacy curricula: a qualitative exploration of student experiences. Soc Psychiatry Psychiatr Epidemiol 59:1269–77. https://doi.org/10.1007/s00127-023-02598-7
4. **Ung TX,** O'Reilly CL, Moles RJ, El-Den S (2023) Co-designing psychosis simulated patient scenarios with mental health stakeholders for pharmacy curricula. Int J Clin Pharm 45:1184–91. https://doi.org/10.1007/s11096-023-01622-9
5. **Ung TX,** El-Den S, Moles RJ, O'Reilly CL (2023) The use of mental health simulation in pharmacy practice and education: a systematic review. Am J Pharm Educ 87(6):100058. https://doi.org/10.1016/j.ajpe.2023.100058

Manuscripts currently under review

1. Chen J, Collins JC, Scanlan JN, McCloughen A, Howard R, Ashton-James C, O'Reilly CL, Moles R, **Ung TX,** Schneider CR, Saini B, Ong J, Beckett P, Watson K, McGrath M, Chen TF, El-Den S. Co-design and content validation of psychosis care assessment material for medical, pharmacy, nursing, and occupational therapy curricula. BMC Med Educ.

Conference Oral Presentations

1. **Ung TX,** El-Den S, Moles RJ, Collins JC, Ou K, Chen J, O'Reilly CL. Supporting people experiencing mental health symptoms or crises: evaluation of a simulated patient workshop. In: Pharmaceutical Society of Australia National Conference, 2024 August 2 – 4; Sydney, Australia.
2. **Ung TX,** O'Reilly CL, Moles RJ, Collins JC, Ng R, Pham L, Saini B, Ong JA, Chen TF, Schneider CR, El-Den S. Evaluating simulated psychosis care role-plays in pharmacy curricula with MHFA-trained students. In: International Social Pharmacy Workshop, 2024 July 7 – 11; Banff, Canada. Abstract available from: https://sites.google.com/ualberta.ca/ispw2024/submission/abstract-booklet
3. Chen J, Collins JC, Scanlan J, McCloughen A, Howard R, Ashton-James C, O'Reilly C, Moles R, Beckett P, **Ung T,** Schneider CR, Chen TF, Saini B, Ong J, McGrath M, Watson K, El-Den S. Psychosis care education for healthcare curricula: co-design and content validation with mental health stakeholders. In: TheMHS Conference, 2023 August 15 – 18; Adelaide, Australia. Abstract available from: https://www.themhs.org/resource/s29-education-research-workforce/
4. **Ung T,** O'Reilly C, Moles R, El-Den S. Engaging mental health consumers and actors to co-design and deliver simulated patient role-plays of psychosis care for pharmacy students. In: Life Long Learning in Pharmacy Conference, 2023 July 2 – 5; Denver, Colorado, United

States. Abstract published in Pharm Educ 24(4):1-40. https://doi.org/10.46542/pe.2024.244.140

5. **Ung T,** O'Reilly C, Moles R, El-Den S. Partnering with people with lived experience to design and deliver pharmacy education. In: TheMHS Conference, 2022 October 11 – 14; Sydney, Australia. Abstract available from: https://www.themhs.org/resource/s36-panel-presentations-peer-workforce-tertiary-education/
6. O'Reilly C, El-Den S, Moles R, **Ung T.** Engaging consumers and actors to deliver mental health education and assessment in the classroom: a pharmacy case study. In: Sydney Teaching Symposium, 2022 July 18; Sydney, Australia. Abstract available from: https://educational-innovation.sydney.edu.au/teaching@sydney/2022-sydney-teaching-symposium/
7. **Ung T,** Moles R, O'Reilly C, El-Den S. Simulated schizophrenia role-plays for pharmacy students: Co-design and content validation by mental health stakeholders. In: International Social Pharmacy Workshop, 2022 July 11 – 14; Sydney, Australia. Abstract available from: https://az659834.vo.msecnd.net/eventsairseasiaprod/production-expertevents-public/56011dfa2a3f40069682f0fd406f8622
8. **Ung TX,** Moles RJ, O'Reilly CL, El-Den S. Content validation of simulated schizophrenia role-plays for pharmacy education. In: Australasian Pharmaceutical Science Association Annual Conference, 2021 Dec 6 – 8; Online. Abstract available from: https://www.apsa-online.org/wp-content/uploads/2022/04/APSA-2021-Conference-Proceedings.pdf
9. **Ung TX,** Moles RJ, O'Reilly CL, El-Den S. Partnering with mental health stakeholders to co-design and content validate simulated schizophrenia role-plays for pharmacy education. In: Sydney Pharmacy School Higher Degree Research Conference, 2021 Nov 11 – 12; Online.

10. **Ung T,** Moles R, O'Reilly C, El-Den S. Co-design and content validation of simulated schizophrenia role-plays to educate and assess pharmacy students. In: Faculty of Medicine and Health Higher Degree Research Oral Presentations, 2021 Jul 21; Online.

Conference Posters

1. **Ung TX,** El-Den S, Moles RJ, Collins JC, Ou K, Chen J, O'Reilly CL. Exploring pharmacists' mental health support behaviours via simulated patients: mixed-methods pilot study. In: ASCEPT, APFP & APSA Joint Congress, 2024 Dec 1 – 4; Melbourne, Australia.
2. **Ung TX,** El-Den S, Moles RJ, O'Reilly CL. A systematic review exploring how mental health simulation is utilised in pharmacy practice and education. In: The 81st International Pharmaceutical Federation World Congress of Pharmacy and Pharmaceutical Sciences, 2023 Sep 24 – 28; Brisbane, Australia.
3. **Ung TX,** O'Reilly CL, Moles RJ, El-Den S. Engaging mental health consumers to co-design and deliver simulated psychosis care role-plays for Mental Health First Aid-trained pharmacy students. In: The 81st International Pharmaceutical Federation World Congress of Pharmacy and Pharmaceutical Sciences, 2023 Sep 24 – 28; Brisbane, Australia.

Conference Workshops

1. **Ung T,** El-Den S, Moles R, O'Reilly C. Supporting people experiencing mental health symptoms or crises: A simulated patient workshop. In: Pharmaceutical Society of Australia National Conference, 2023 July 30; Sydney, Australia.

SCHOLARLY AWARDS AND PRIZES

Below is a list of scholarly awards and prizes awarded during the period of candidature.

1. Elizabeth Wunsch Postgraduate Research Scholarship in Mental Health and Pharmacy Services, 2020 – 2024
2. Postgraduate Research Support Scheme (The University of Sydney), 2021 – 2023
3. Runner up – Best student oral presentation at International Social Pharmacy Workshop (Sydney hub), 2022 July 11 – 14; Sydney, Australia (Appendix III)
4. Best oral presentation in pharmacy and pharmaceutical science education at Australasian Pharmaceutical Science Association Annual Conference, 2021 Dec 6 – 8; Online (Appendix IV)

Other related training and education

1. Accredited Standard Mental Health First Aider (Appendix V)
2. Australian Consortium for Social and Political Research Inc. Fundamentals of Statistics: Online (Appendix VI)

ABSTRACT

Introduction Mental Health First Aid (MHFA) training improves self-reported skills, confidence, and preparedness to provide mental health support. Little research involves observation of actual MHFA behaviours, especially in relation to providing psychosis care. Simulated patient (SP) role-plays enable behavioural assessment, and involving mental health consumers/carers to co-design scenarios enhances authenticity. This thesis aimed to co-design and evaluate simulated mental health role-plays for pharmacy education and practice.

Methods A systematic review explored mental health simulation in pharmacy education and practice. Three psychosis care scenarios and marking rubrics were co-designed and content validated with mental health stakeholders, then evaluated with final year pharmacy students post-MHFA training. SP role-play scores and their impact on students' mental health confidence and stigma were evaluated. Focus groups explored students' experiences. Simulated mental health role-plays were adapted and evaluated in an educational workshop with pharmacists, who were then interviewed about their workshop experiences and opinions on using mental health role-plays in clinical settings (mystery shopping).

Results Few simulation studies involved psychosis care. Simulated mental health role-plays provided a safe, authentic learning experience for students and pharmacists to practise MHFA skills, and were associated with improved confidence, stigma, and intended behaviours relating to mental illness. Pharmacists desire mental health skills practice via mystery shopping in clinical settings, however safeguards are needed to support the mental health of all participants.

Conclusions SP role-plays could complement MHFA training for learners to practise skills. Co-design of educational material should continue with people with lived experience. SP role-plays in clinical practice may be an acceptable, feasible way to observe and shape mental health support behaviours over time.

PART A –

BACKGROUND AND LITERATURE REVIEW

OVERVIEW OF PART A

Part A (Chapters 1 and 2) provides the context of the thesis. It begins by introducing the global impact of mental illness, an overview of mental health services in Australia, pharmacists' roles in mental healthcare, and the need for mental health training to equip pharmacy students and practitioners with the skills, knowledge, attitudes, and confidence to deliver and support mental healthcare. Part A gives an overview of mental health education programs, such as Mental Health First Aid (MHFA) training. MHFA training has positive effects on learners' self-reported skills, knowledge, attitudes, and confidence in supporting people experiencing mental health symptoms or crises. However, there is a lack of research that explores how MHFA training impacts actual mental health support behaviours post-training. Part A explores how simulated patient (SP) role-plays enable learners to 'show how' they would respond to scenarios as though in real-life, and how they can be an effective means of observing and assessing behaviours, as well as providing education. Mental health education, however, needs to be authentic, and an effective means to make education more authentic is to involve people with lived experience of mental illness in the design, delivery, and evaluation of the educational material. Chapter 1 of Part A, therefore, explores these concepts as an introduction to the thesis and outlines the further Parts and Chapters of the thesis. Then, Part A concludes with a systematic review exploring how mental health simulation has been used in pharmacy education and practice (Chapter 2).

CHAPTER ONE –
INTRODUCTION

CHAPTER ONE – INTRODUCTION

1.1 Mental illness

Mental illness is a global health priority, associated with significant human health, societal, and economic burden worldwide.[1] According to the World Health Organization (WHO), almost one billion people around the world are living with a mental illness.[2] It is estimated that by 2030, mental illness will cost the world economy US $6 trillion per year.[3] Specifically, in Australia, 1 in 5 people and 1 in 7 young people experienced a mental illness in the previous 12 months, and 4.8 million people (18% of the Australian population) received mental health-related prescriptions for psychotropic medicines in 2022-23.[4] The most prevalent mental illnesses in Australia include anxiety disorders (17% of the Australian population), affective (mood) disorders such as depression (8% of the Australian population), and substance use disorders (3% of the Australian population),[5] and suicide is the leading cause of death in young Australians.[6] In light of recent and persisting global events, such as the COVID-19 pandemic, geo-political events, and climate change, there is an urgent need for global, national and local programs, services, and policies to support mental healthcare, in an effort to alleviate the significant morbidity and mortality of mental illness.[1,7] Improvements in morbidity and mortality are warranted not only for people living with the aforementioned mental illnesses of highest prevalence, but for all mental illnesses.

Psychotic illnesses such as schizophrenia are of lower prevalence (approximately 0.5% of the Australian population[8,9]), however they are associated with severe and significant burden of disease and disability.[5,10] Schizophrenia, with clinical features such as disordered thinking, hallucinations, and delusions,[5] as well as social withdrawal, cognitive dysfunction, and motor disturbances,[11] can cause severe functional impairment, leading to psychiatric comorbidities

such as depression and substance use disorder, poor quality of life, loneliness, and unemployment.[11–13] While schizophrenia is associated with severe psychiatric impact, there are also detrimental physical health implications, especially as people living with schizophrenia are inclined to a sedentary lifestyle, higher quantity yet lower quality dietary food intake, and harmful health behaviours such as smoking.[14] People diagnosed with schizophrenia die on average 10 to 20 years earlier than the general population,[2,15] mostly due to preventable physical diseases relating to cardiovascular health, respiratory health, cancer, diabetes, obesity, and being overweight.[15,16] The significant burden and inequalities in health outcomes attributed to schizophrenia warrant urgent attention, pertaining to effective treatment and support for people living with schizophrenia.[17] Furthermore, not only are there significant health, social, and economic impacts upon individuals living with mental illness, especially schizophrenia, carers of people living with mental illness themselves have poorer mental health outcomes and quality of life than non-carers.[18–20] It is therefore critical to recognise that both people living with mental illness as well as their carers require ongoing support.

1.2 Mental health treatment and support

In terms of where people living with a mental illness (hereon referred to as mental health consumers) access treatment and support, there has been a gradual shift from institutionalisation to community-oriented services, especially in high-income countries.[21] Since the early 1990s psychiatric care was deinstitutionalised in Australia under the National Mental Health Strategy,[22] shifting mental health services from institutions to local communities.[23] Currently, mental healthcare in Australia is accessible in both the public (government/Medicare-funded) and private sector, such as specialised hospitals, residential mental health services, community mental health services, and primary care settings, especially through general practitioners (GPs) and psychologists. The most prevalent mental illnesses, such as depression and anxiety, are more likely treated in community settings. Schizophrenia, however, is the most frequently reported principal diagnosis in public sector hospitals with specialised psychiatrist care, and in residential mental healthcare services.[24] Nonetheless, core management of mental healthcare services in Australia occurs in primary care in the community; 85% of all psychotropic medicines prescribing was conducted by GPs in 2022-23.[25] Crisis and information support services are also available for mental health consumers, such as Lifeline,[26] Kids Helpline,[27] Head to Health,[28] ReachOut,[29] and Beyond Blue.[24,30] These avenues of support may be accessed by mental health consumers themselves via self-referral, or their need for access may be recommended by the people they interact with, such as colleagues, loved ones, and healthcare professionals.

1.3 Pharmacists and mental healthcare

Following the deinstitutionalisation of mental healthcare provision, the role of primary healthcare professionals in community settings has evolved. Mental healthcare provision in primary care settings enhances timely access for people who require psycho-social support, especially those who live in rural and remote communities, which may be isolated with limited access to specialised mental health services.[7,31] Amongst the most accessible and highly trusted healthcare professionals are pharmacists[32]; whom members of the public see in general between 1.5 to 10 times more frequently than their GPs.[33] Over recent years the scope of practice for community pharmacists, particularly in Australia, has expanded to include providing services such as MedsChecks/Diabetes MedsChecks (one-on-one consultations held in the pharmacy between a pharmacist and consumer, whereby the pharmacist reviews the consumer's medicines and addresses medicines-related questions or concerns[34]), clinical interventions, dose administration aids, vaccinations, opioid substitution therapy, sleep apnoea services, and absence from work certificates.[35] Pharmacists' roles in mental healthcare are also expanding.[36] Not only are pharmacists involved in dispensing an annual volume of 45.6 million mental-health related prescriptions for Australians in 2022-23,[24] due to their accessible and trusted position in the community they may be involved in early detection of mental health symptoms, encouraging access to specialised mental health services, optimising adherence to pharmacological treatment[37] and support strategies.[36–38] The International Pharmaceutical Federation (FIP) recognises and advocates for pharmacists, on a global scale, to use their existing skills and training to actively participate in mental healthcare as part of standard practice.[39] Mental healthcare support is an important area of pharmacists' scope of practice.

Pharmacists regularly interact with people experiencing mental health symptoms or crises in the community,[40] yet may not feel comfortable or confident in their abilities to provide or support optimum mental healthcare.[41] For example, research has shown that 85% of Australian and Canadian pharmacists cared for somebody at risk of suicide on at least one occasion, however did not feel comfortable in the way they handled the situation, citing lack of training and confidence.[42] Aside from such crisis scenarios, pharmacists are trained to provide accurate, reliable information and education on the safe and appropriate use of medicines.[43,44] Mental health consumers and carers expect pharmacists to provide advice on managing side effects of psychotropic medicines and to conduct regular medication reviews.[44] Although they agree with their expanding roles in mental healthcare and are motivated to work with mental health consumers,[45] pharmacists have expressed less confidence and comfort in providing pharmaceutical care for mental illness compared with cardiovascular disease.[46,47] Pharmacists' reported lack of confidence and skills to effectively communicate with mental health consumers may lead to hesitancy to discuss medication-related matters directly with mental health consumers,[45,48] which may have implications for clinical outcomes for people living with mental illness.

Within mental healthcare, accurate diagnosis and timely treatments are paramount to recovery, but these can often be delayed.[49] Pharmacists may play an important role in recognising mental health symptoms in the community, however are less likely to recognise symptoms of schizophrenia than depression.[50] This may be attributed to the notion that schizophrenia is associated with higher stigma and stigmatising attitudes than other mental illnesses such as depression.[47,50] Internalised stigma (or self-stigma) may be experienced by a person living with schizophrenia, involving negative beliefs about the self, with feelings such as shame and a sense of alienation,[51] which disempower and delay the individual to seek help, treatment, or to

access services.[52–54] Interpersonal stigma, experienced by healthcare professionals such as pharmacists, relates to issues with mental health knowledge, attitudes, and behaviour,[51] which may hinder pharmacists in providing quality care and support for people living with schizophrenia,[53] and hence impede recovery.[55] There is an interplay between both self-stigma and interpersonal stigma, which may have significant implications on a person's willingness and action to seek mental healthcare, as well as the quality of mental health support provided.

Healthcare professionals' behaviour can exacerbate or improve self-stigma experienced by people living with mental illness.[51] For example, mental health consumers have described instances of being ignored, and having their mental illness diagnosis disclosed in the presence of other consumers.[56] People living with schizophrenia have expressed in a qualitative study[57] that they felt rejected by healthcare professionals who focussed only on diagnostic tests and symptoms, without showing interest in the holistic person. These discriminatory behaviours of avoidance and rejection create barriers to personal recovery.[51] Therefore, mental health skills training is essential to equip the pharmacist workforce with knowledge, confidence, attitudes, and competence to support people in the community experiencing mental health symptoms and crises. This is particularly important as factors that influence members of the Australian general public to engage with mental healthcare providers include their accessibility and affordability, as well as relational qualities (such as trust, feeling listened to and not stigmatised) demonstrated by the provider; these qualities foster consumer trust and willingness to seek mental healthcare and support.[58] Mental health skills training needs to be embedded in pharmacy curricula to support students and graduates as they enter the workforce, as well as in continuing professional development (CPD) programs for practising pharmacists. Adequate and effective mental health training would enable pharmacists to deliver accessible care and

support for people living with mental illness, especially schizophrenia, with the hopes of improving their clinical outcomes and hence narrowing the gap in life expectancy.

1.4 Mental health education in pharmacy

Mental health education in pharmacy curricula is embedded in core subjects such as pharmacology, pharmacotherapy, and pharmacy practice.[59,60] Knowledge content is usually delivered via didactic lectures and videos (about the prevalence, causes, signs and symptoms of mental illness), workshops (involving group discussions, case-based scenarios, and role-plays), and experiential learning (clinical placements and visits to hospitals).[31,59] Mental health education involving direct contact and engagement with people living with mental illness (as guest speakers or sharing their personal stories during group discussions) has shown to significantly reduce stigma levels amongst pharmacy students.[61–63] There is however considerable variation across pharmacy programs in terms of the extent of mental health education content covered, format and duration of delivery, practice application, and intended competency outcomes, with a need for standardisation for all new pharmacy graduates preparing for their expanding roles in mental healthcare.[59] Moreover, while mental health education in pharmacy curricula equips students with knowledge about mental illnesses and their treatment options, it may not adequately prepare them to communicate with mental health consumers and provide person-centred care.[60] This same issue may extend to mental health education for practising pharmacists and staff, within CPD programs, which are often delivered in a similar style to tertiary curricula via didactic learning.[31] Given the current nature and gaps in existing mental health training in both pharmacy curricula and CPD programs, there is a need to expand mental health education to enhance pharmacists' skills and confidence in supporting people experiencing mental health symptoms or crises in the community.

Mental Health First Aid (MHFA) training is a prime example of mental health skills education. MHFA training equips learners with skills and confidence to support someone "experiencing an emerging or worsening mental health problem or a mental health crisis, until appropriate

professional help is received or the crisis resolves."[64] Following a structured action plan (ALGEE), 'MHFAiders' are taught to **A**pproach, assess, and assist a person who is developing or experiencing mental health symptoms or crises, **L**isten and communicate non-judgementally, **G**ive appropriate information and support, **E**ncourage professional help, and **E**ncourage other supports such as self-help strategies.[65] MHFA training improves self-reported skills, knowledge, confidence, and stigma in supporting people experiencing mental health symptoms or crises.[66,67] MHFA training is available internationally, and while it was originally developed and evaluated with members of the general public,[68] it has since expanded to many population groups including high school teachers,[69] church members,[70] and university students[71] such as in medical,[72] nursing,[73,74] and physiotherapy curricula.[75] In pharmacy education specifically, MHFA training improves pharmacy students' mental health knowledge, attitudes, and confidence,[76] as well as empathy and self-efficacy[77] in supporting people requiring or seeking mental healthcare. Importantly, because of pharmacists' expanding roles in mental healthcare yet lack of confidence in supporting people experiencing mental health symptoms or crises in the community, MHFA training is embedded in various pharmacy curricula[78] to equip the future pharmacy workforce with adequate mental health skills, knowledge, and confidence.

While MHFA training improves self-reported outcomes, little research explores actual mental health support behaviours post-MHFA training, nor has the impact of MHFAiders' behaviours on the mental health of recipients been explored, generally, nor over time.[66,67,79] Observing actual MHFA behaviours in real-life clinical practice may be challenging, due to ethical reasons; it also relies on the MHFAider to come in contact with a person experiencing mental health symptoms or crises, and for an objective observer to be present at the exact time.[66,80] One method to resolve this challenge is to use simulation, to evaluate the impact of MHFA training on actual mental health support behaviours.

1.5 Simulation in healthcare

Simulation in healthcare involves using a "tool, device, and/or environment that mimics an aspect of clinical care",[81] that "allows participants to experience a realistic situation without real-world risks."[82] With an extensive history in health education, numerous simulation techniques such as simulated/standardised patients, manikins, and computer-generated models of virtual patients or environments (virtual reality) are used in health education and practice.[81,82] Participants may actively interact or passively observe simulation activities to acquire clinical knowledge and skills.[82] Simulated patients (SPs), a term often used interchangeably with 'standardised patients' depending upon the research setting (e.g. country),[83] are individuals who are trained to enact a person with a pre-determined profile and set of symptoms with learners, as though they are real patients or clients.[83] In line with Miller's pyramid,[84] SP role-plays enable learners to 'show how' they would behave in a particular scenario, going beyond self-reporting of knowledge or of actions they would apply in response to a written vignette, which may be discrepant with actual behaviours.[85] A crucial element of simulation-based education is debriefing after the simulation activity with an instructor, for learners to receive constructive feedback and engage in discussions to foster self-reflection and consolidation of knowledge and skills application.[86,87]

SPs are used extensively in health education to develop students' clinical competence,[83] especially in nursing curricula to enhance students' mental health confidence[88,89], assessment, and communication[90,91] before entering clinical practice. Simulation interventions are effective in psychiatry training for medical doctors.[92] In pharmacy education, SP role-plays improve pharmacy students' confidence, knowledge, and engagement in performing clinical and communication skills.[93,94] Specific to mental health education in pharmacy, SPs have been used to assess students' post-MHFA training behaviours, especially in responding to symptoms of

depression and suicidal thoughts.[85,95] There is a paucity of literature exploring post-MHFA training behaviours relating to psychosis, highlighting a research gap especially in light of pharmacists' uncertainties when engaging in such mental health crisis situations.

SPs in pharmacy practice, also known as 'mystery shoppers',[96] are commonly used in cross-sectional studies to observe and assess pharmacists' skills and practice behaviours, especially during the provision of non-prescription medicines.[96,97] Performance feedback and coaching may be integrated into the mystery shopping process,[96,97] whereby the SP leaves the pharmacy at the conclusion of the pharmacist interaction, then immediately scores the interaction and reports to a member of the research team, who then immediately returns into the pharmacy to engage the pharmacist in debriefing, performance feedback, and discussion in relation to the mystery shopping interaction.[98,99] Repeated mystery shopping visits, with immediate feedback and coaching, are associated with pharmacy staff improvement in managing non-prescription medicine requests over time.[99] This methodology has not been explored with mental health-specific scenarios in pharmacy practice, and may have potential to monitor and shape pharmacists' mental health support behaviours.

1.6 Authentic simulated-based education in mental health

Simulation-based education provides a realistic yet safe environment for students to learn and practise MHFA skills,[100] and it is important that the simulated experience is authentic to best prepare students to appropriately and effectively support people experiencing mental health symptoms or crises in their future clinical practice. Increasing effort is being invested to include people with lived experience of mental illness (mental health consumers/carers) in co-design processes, to enhance the relevance and authenticity of research, public services, and policies.[7,101] Mental health consumers and carers have been actively involved in delivering mental health simulation-based education to pharmacy students, by enacting SPs, as well as assessing student performance, delivering feedback, and facilitating debrief discussions.[95,100,102] It is important that the SP is unknown to the students,[103] as role-playing with a familiar person such as a peer or regular tutor often feels artificial.[100,104] Students and mental health consumers/carers alike acknowledge the benefits of embedding lived experience in the pharmacy curricula, as it exposes students to the real-life experiences of mental illness, and mental health consumers/carers have voiced that their participation empowers them in their recovery.[100] However, there may be concerns that enacting a past experience may be triggering for mental health consumers and carers, and hence trained actors may be useful as independent and 'unknown' SPs. To maintain authenticity in learning, the work presented in this thesis involves mental health consumer educators (MHCEs), i.e. those with lived experience of mental illness, actively providing their own real-life experiences during the performance feedback and debriefing discussions immediately post-roleplay.

To further enhance the authenticity and relevance of simulation-based education, considerations must involve the development process of the simulated scenarios, as well as their evaluation. Scenarios developed and used in simulation-based education are commonly

designed and endorsed by content experts in the field such as academic staff,[105] however it is important for mental health consumers/carers to have input from the beginning of developing the educational material, through to its delivery and evaluation.[106] There has been however, little direction in how to do this.[107] Experience-based co-design (EBCD) is a structured yet flexible approach to involve stakeholders with lived experience and expertise with the topic at hand, to design (with the intention to improve) education or services with the research team.[108,109] EBCD in its fullness contains eight stages[109,110]: i) direct observations of clinical care and processes; ii) interviews with service providers and consumers/carers; iii) filming and editing consumer/carer interviews to create a 'trigger film' exploring their real-world healthcare experiences and challenges ('touchpoints'); iv) a feedback event with service providers; v) a feedback event with consumers/carers; vi) joint feedback with all stakeholders; vii) co-design groups to refine the touchpoints and set priorities to implement solutions; and viii) a celebration event to report on and evaluate the outcomes.

EBCD is a growing field of research,[101] with elements adapted and implemented in a variety of projects, initially to improve the treatment experience of patients with head and neck cancer and their carers, and has since expanded to services in areas such as blood and bone marrow transplant, brain injury rehabilitation, urinary incontinence, intellectual disability, palliative and end-of-life care.[111,112] Relating specifically to the area of mental health, elements of EBCD have been adopted in the development and improvement of child and youth mental health services,[113] an online mental health resource for university students,[114] and even in ways to improve the experience of hospitalisation for early psychosis.[115] EBCD is increasingly being adapted in the development and improvement of new and existing mental healthcare experiences, to meet the needs of mental health consumers/carers, with the potential to improve clinical outcomes.[109] However, EBCD has predominantly been used for quality improvement

of services,[110] rather than specifically used or reported in the development of mental health education, let alone for mental health simulation activities. Simulated scenarios should be realistic and reflect the experience of mental health consumers and carers.[116] There is a need to integrate the lived experiences of mental health consumers/carers in the development and evaluation of mental health education. EBCD is a flexible approach; a systematic review exploring the use and reporting of EBCD studies in healthcare settings revealed that adherence to all eight stages of EBCD methodology ranged from 40-100%.[110] There is however particular emphasis on retaining the elements of stakeholder interview (meetings), and interaction between consumers/carers and staff (the research team).[117] These important elements of EBCD informed the co-design and content validation of the simulated scenarios for this thesis, to enhance the authenticity of the content to meet both the educational needs of learners, as well as support needs of people in the community living with mental illness and their carers.

1.7 Aim of the thesis

The aim of this thesis was to co-design and evaluate simulated mental health role-plays for pharmacy education and practice.

Specific objectives were to:

- Explore the literature relating to how mental health simulation has been utilised in pharmacy education and practice (Chapter 2);
- Partner with people with lived experience of mental illness and healthcare professionals to co-design and content validate simulated psychosis care scenarios, to educate and assess pharmacy students' behaviours post-MHFA training (Chapter 3);
- Evaluate the impact of MHFA training and the co-designed psychosis care role-plays with pharmacy students, on their attitudes and confidence in providing mental health support (Chapter 4);
- Explore student experiences of participating in and observing the psychosis care role-plays (Chapter 5);
- Adapt the co-designed and pilot-tested educational material into a workshop with pharmacists, to explore the impact of the SP role-plays on pharmacists' intended behaviours when supporting mental healthcare (Chapter 6); and
- Explore the acceptability and feasibility of utilising the SP method with immediate performance feedback and coaching, as a means of upskilling pharmacists' mental health support provision and practice in clinical settings (Chapter 6).

1.8 Thesis outline

This thesis consists of seven Chapters, divided into five Parts (A – E). Figure 1 presents a visual outline of the thesis. Part A (Chapters 1 and 2) introduces the thesis in context and explores via a systematic review how mental health simulation has been utilised in pharmacy practice and education. The systematic review explores the types of simulation used and the topic areas covered, identifying gaps in scenarios relating to psychosis care and with limited detail on the design of the simulated scenarios, leading on to Part B. Part B (Chapter 3) documents the co-design and content validation process of three simulated psychosis care role-plays and associated marking rubrics, in partnership with mental health stakeholders, including mental health consumers/carers and mental health professionals. Part C (Chapters 4 and 5) reports on the evaluation of the psychosis care role-plays, delivered with trained actors and MHCEs, with final year pharmacy students in the classroom, post-MHFA training. Chapter 4 involves the quantitative analyses of psychosis care role-play scores and explores changes in survey scores collected pre-MHFA training, post-MHFA training, and post-roleplay in relation to students' confidence and attitudes in supporting people experiencing mental health symptoms and crises. Chapter 5 includes the qualitative analyses of students' experiences of MHFA training and the simulated psychosis care role-plays, conducted via focus groups. Part D (Chapter 6) describes the adaptation of simulated mental health role-plays, coupled with immediate performance feedback and debriefing, into an educational workshop with registered pharmacists. It involves quantitative analyses of SP role-play scores, the impact on pharmacists' intended behaviours when providing mental health support, collected from pre-and post-workshop surveys, and qualitative analyses of interviews exploring pharmacists' opinions of the acceptability and feasibility of adapting the SP methodology into clinical settings to upskill and shape the mental health support behaviours of pharmacists in practice. Part E (Chapter 7) provides a discussion of the overall results of the thesis, future directions, and conclusions of the thesis.

PART A - BACKGROUND AND LITERATURE REVIEW

Chapter 1 Introduction

Chapter 2 The use of mental health simulation in pharmacy practice and education: a systematic review
Ung TX, El-Den S, Moles RJ, O'Reilly CL (2023) Am J Pharm Educ 87(6):100058. https://doi.org/10.1016/j.ajpe.2023.100058

PART B - CO-DESIGN AND CONTENT VALIDATION

Chapter 3 Co-designing psychosis simulated patient scenarios with mental health stakeholders for pharmacy curricula
Ung TX, O'Reilly CL, Moles RJ, El-Den S (2023) Int J Clin Pharm 45:1184–91. https://doi.org/10.1007/s11096-023-01622-9

PART C - EVALUATION WITH STUDENTS

Chapter 4 Evaluation of Mental Health First Aid training and simulated psychosis care role-plays for pharmacy education
Ung TX, O'Reilly CL, Moles RJ, Collins JC, Ng R, Pham L, Saini B, Ong JA, Chen TF, Schneider CR, El-Den S (2024) Am J Pharm Educ 88(11):101288. https://doi.org/10.1016/j.ajpe.2024.101288

Chapter 5 Simulated psychosis care role-plays for pharmacy curricula: a qualitative exploration of student experiences
Ung TX, El-Den S, Moles RJ, O'Reilly CL (2023) Soc Psychiatry Psychiatr Epidemiol 59:1269–77. https://doi.org/10.1007/s00127-023-02598-7

PART D - EVALUATION WITH PHARMACISTS

Chapter 6 Pharmacists' mental health support behaviours with simulated patients: a mixed-methods pilot study
Ung TX, El-Den S, Moles RJ, Collins JC, Ou K, Chen J, O'Reilly CL (2025) J Am Pharm Assoc 65(1):102263. https://doi.org/10.1016/j.japh.2024.102263

PART E - DISCUSSION AND CONCLUSIONS

Chapter 7 Discussion, conclusions, and future directions

Figure 1. Thesis outline including relevant publications.

1.9 References

1. Arias D, Saxena S, Verguet S. Quantifying the global burden of mental disorders and their economic value. *eClinicalMedicine*. 2022;54:101675. doi:10.1016/j.eclinm.2022.101675
2. WHO highlights urgent need to transform mental health and mental health care. Published June 17, 2022. Accessed May 8, 2024. https://www.who.int/news/item/17-06-2022-who-highlights-urgent-need-to-transform-mental-health-and-mental-health-care
3. The Lancet Global Health. Mental health matters. *Lancet Glob Health*. 2020;8(11):e1352. doi:10.1016/S2214-109X(20)30432-0
4. Australian Institute of Health and Welfare. Mental health. Updated December 8, 2023. Accessed May 12, 2024. https://www.aihw.gov.au/mental-health
5. Australian Institute of Health and Welfare. Prevalence and impact of mental illness. Updated February 14, 2024. Accessed April 27, 2024. https://www.aihw.gov.au/mental-health/overview/prevalence-and-impact-of-mental-illness
6. Australian Bureau of Statistics. Causes of death, Australia, 2022. Updated April 10, 2024. Accessed April 27, 2024. https://www.abs.gov.au/statistics/health/causes-death/causes-death-australia/latest-release
7. Moitra M, Owens S, Hailemariam M, et al. Global mental health: where we are and where we are going. *Curr Psychiatry Rep*. 2023;25(7):301-311. doi:10.1007/s11920-023-01426-8
8. Morgan VA, Waterreus A, Jablensky A, et al. People living with psychotic illness in 2010: The second Australian national survey of psychosis. *Aust N Z J Psychiatry*. 2012;46(8):735-752. doi:10.1177/0004867412449877

9. About Psychosis. Psychosis Australia. Updated 2023. Accessed August 16, 2024. https://psychosisaustralia.com.au/about-psychosis/

10. Global, regional, and national burden of 12 mental disorders in 204 countries and territories, 1990–2019: a systematic analysis for the Global Burden of Disease Study 2019. *Lancet Psychiatry*. 2022;9(2):137-150. doi:10.1016/S2215-0366(21)00395-3

11. Kotzeva A, Mittal D, Desai S, Judge D, Samanta K. Socioeconomic burden of schizophrenia: a targeted literature review of types of costs and associated drivers across 10 countries. *J Med Econ*. 2023;26(1):70-83. doi:10.1080/13696998.2022.2157596

12. Crespo-Facorro B, Such P, Nylander AG, et al. The burden of disease in early schizophrenia – a systematic literature review. *Curr Med Res Opin.* 2021;37(1):109-121. doi:10.1080/03007995.2020.1841618

13. Migliorini C, Fossey E, Harvey C. Self-reported needs of people living with psychotic disorders: results from the Australian national psychosis survey. *Front Psychiatry*. 2022;13:1013919. doi:10.3389/fpsyt.2022.1013919

14. Vancampfort D, Firth J, Correll CU, et al. The impact of pharmacological and non-pharmacological interventions to improve physical health outcomes in people with schizophrenia: a meta-review of meta-analyses of randomized controlled trials. *Focus (Am Psychiatr Publ).* 2021;19(1):116-128. doi:10.1176/appi.focus.19103

15. Lawrence D, Hancock KJ, Kisely S. The gap in life expectancy from preventable physical illness in psychiatric patients in Western Australia: retrospective analysis of population based registers. *BMJ*. 2013;346:f2539. doi:10.1136/bmj.f2539

16. Wu Y, Wang L, Tao M, et al. Changing trends in the global burden of mental disorders from 1990 to 2019 and predicted levels in 25 years. *Epidemiol Psychiatr Sci*. 2023;32:e63. doi:10.1017/S2045796023000756

17. Scorza FA, de Almeida ACG, Scorza CA, Cysneiros RM, Finsterer J. Sudden death in schizophrenia: pay special attention and develop preventive strategies: *Curr Med Res Opin.* 2021;37(9):1633-1634. doi:10.1080/03007995.2021.1937089

18. Sin J, Elkes J, Batchelor R, et al. Mental health and caregiving experiences of family carers supporting people with psychosis. *Epidemiol Psychiatr Sci.* 2021;30:e3. doi:10.1017/S2045796020001067

19. Rahmani F, Roshangar F, Gholizadeh L, Asghari E. Caregiver burden and the associated factors in the family caregivers of patients with schizophrenia. *Nurs Open*. 2022;9(4):1995-2002. doi:10.1002/nop2.1205

20. Onwumere J, Shiers D, Chew-Graham C. Understanding the needs of carers of people with psychosis in primary care. *Br J Gen Pract*. 2016;66(649):400-401. doi:10.3399/bjgp16X686209

21. Peng MM, Xing J, Tang X, Wu Q, Wei D, Ran MS. Disease-related risk factors for caregiver burden among family caregivers of persons with schizophrenia: a systematic review and meta-analysis. *Int J Environ Res Public Health*. 2022;19(3):1862. doi:10.3390/ijerph19031862

22. Rosenberg S, Carulla LS, Rosen A. Mental health reform in Australia – unfinished business. *BJPsych Int*. 20(4):99-101. doi:10.1192/bji.2023.19

23. Rosen A. Australia's national mental health strategy in historical perspective: beyond the frontier. *Int Psychiatry*. 2006;3(4):19-21.

24. Australian Institute of Health and Welfare. Mental health services. Updated February 14, 2024. Accessed May 12, 2024. https://www.aihw.gov.au/mental-health/overview/mental-health-services

25. Australian Institute of Health and Welfare. Mental health prescriptions. Updated April 30, 2024. Accessed September 10, 2024. https://www.aihw.gov.au/mental-health/topic-areas/mental-health-prescriptions

26. Lifeline Australia. Lifeline. Accessed August 17, 2024. https://www.lifeline.org.au/

27. Kids Helpline. Kids Helpline. Updated 2024. Accessed August 17, 2024. https://kidshelpline.com.au/

28. Head to Health. Head to Health. Accessed August 17, 2024. https://www.headtohealth.gov.au/

29. ReachOut Australia. ReachOut. Accessed August 17, 2024. https://au.reachout.com/

30. Beyond Blue Ltd. Beyond Blue. Updated 2024. Accessed August 17, 2024. https://www.beyondblue.org.au/

31. Crespo-Gonzalez C, Dineen-Griffin S, Rae J, Hill RA. Mental health training programs for community pharmacists, pharmacy staff and students: a systematic review. *Res Soc Adm Pharm*. 2022;18(11):3895-3910. doi:10.1016/j.sapharm.2022.06.006

32. Roy Morgan Research Ltd. Roy Morgan image of professions survey 2021: in a year dominated by COVID-19 - health professionals including nurses, doctors and pharmacists are the most highly regarded; but almost all professions down from pre-pandemic. Published April 27, 2021. Accessed October 13, 2021. http://www.roymorgan.com/findings/8691-image-of-professions-2021-april-2021-202104260655

33. Tsuyuki RT, Beahm NP, Okada H, Al Hamarneh YN. Pharmacists as accessible primary health care providers: review of the evidence. *Can Pharm J*. 2018;151(1):4-5. doi:10.1177/1715163517745517

34. Pharmacy Programs Administrator. MedsCheck and Diabetes Medscheck. Updated 2022. Accessed September 10, 2024.

https://www.ppaonline.com.au/programs/medication-management-programs/medscheck-and-diabetes-medscheck

35. Tong V, Krass I, Aslani P. An in-depth examination of funded and unfunded cognitive pharmaceutical services. *Explor Res Clin Soc Pharm.* 2021;3:100060. doi:10.1016/j.rcsop.2021.100060

36. El-den S, Collins JC, Chen TF, O'Reilly CL. Pharmacists' roles in mental healthcare: past, present and future. *Pharm Pract (Granada)*. 2021;19(3):2545-2545. doi:10.18549/PharmPract.2021.3.2545

37. Rubio-Valera M, Chen TF, O'Reilly CL. New roles for pharmacists in community mental health care: a narrative review. *Int J Environ Res Public Health*. 2014;11(10):10967-10990. doi:10.3390/ijerph111010967

38. Ng R, El-Den S, Stewart V, et al. Pharmacist-led interventions for people living with severe and persistent mental illness: a systematic review. *Aust N Z J Psychiatry*. 2022;56(9):1080-1103. doi:10.1177/00048674211048410

39. Blum L, Akour A, El-Den S, et al. *Mental Health Care: A Handbook for Pharmacists*. International Pharmaceutical Federation (FIP); 2022.

40. Carpini JA, Sharma A, Kubicki Evans M, et al. Pharmacists and Mental Health First Aid training: a comparative analysis of confidence, mental health assistance behaviours and perceived barriers. *Early Interv Psychiatry*. 2023;17:670-680. doi:10.1111/eip.13361

41. Kirschbaum M, Peterson G, Bridgman H. Mental Health First Aid training needs of Australian community pharmacists. *Curr Pharm Teach Learn*. 2016;8(3):279-288. doi:10.1016/j.cptl.2016.02.015

42. Murphy AL, O'Reilly CL, Ataya R, et al. Survey of Australian and Canadian community pharmacists' experiences with patients at risk of suicide. *Psychiatr Serv*. 2020;71(3):293-296. doi:10.1176/appi.ps.201900244

43. McLachlan AJ, Aslani P. National Medicines Policy 2.0 - what's changed and what's next? *Aust Prescr*. 2023;46(4):72-74. doi:10.18773/austprescr.2023.023

44. Keating D, McWilliams S, Hynes C, Purcell A, Clarke M, Strawbridge J. Patients and caregivers helping to shape the undergraduate pharmacy mental health curriculum. *Am J Pharm Educ*. 2019;83(9):7138. doi:10.5688/ajpe7138

45. Knox K, Hattingh L, Wheeler AJ. Community pharmacy staff motivations and barriers to working with mental health consumers. *J Pharm Pract Res*. 2016;46(3):245-252. doi:10.1002/jppr.1160

46. Rimal R, Lin J, Yan Chan AH, Chen TF, Sheridan J, Sundram F. A national study of the mental health literacy of community pharmacists. *Res Soc Adm Pharm*. 2022;18(8):3303-3311. doi:10.1016/j.sapharm.2022.01.002

47. Aluh DO, Anyachebelu OC, Ajaraonye CI. Comparison of pharmacists' mental health literacy: developed versus developing countries. *J Am Pharm Assoc*. 2020;60(5S):S64-S72. doi:10.1016/j.japh.2020.05.003

48. Wheeler A, Mey A, Kelly F, Hattingh L, K. Davey A. Education and training for community pharmacists in mental health practice: how to equip this workforce for the future. *J Ment Health Train Educ Pract*. 2014;9(3):133-144. doi:10.1108/JMHTEP-09-2013-0030

49. Ma R, Wang Y, Wang X-Q, Yu K, Zhang C-C, Zhou Y-Q. Analysis of hindering and facilitating factors of help-seeking behavior in schizophrenia based on COM-B model: a descriptive qualitative study. *BMC Psychiatry*. 2023;23(1):770. doi:10.1186/s12888-023-05226-5

50. Morral K, Morral J. The mental health literacy of British community pharmacists. *J Ment Health Train Educ Pract*. 2017;12(2):98-110. doi:10.1108/JMHTEP-12-2015-0054

51. Henderson C, Noblett J, Parke H, et al. Mental health-related stigma in health care and mental health-care settings. *Lancet Psychiatry*. 2014;1(6):467-482. doi:10.1016/S2215-0366(14)00023-6

52. Dockery L, Jeffery D, Schauman O, et al. Stigma- and non-stigma-related treatment barriers to mental healthcare reported by service users and caregivers. *Psychiatry Res*. 2015;228(3):612-619. doi:10.1016/j.psychres.2015.05.044

53. Rickles N, Wertheimer A, Huang Y. Training community pharmacy staff how to help manage urgent mental health crises. *Pharmacy*. 2019;7(3):133. doi:10.3390/pharmacy7030133

54. Sickel AE, Seacat JD, Nabors NA. Mental health stigma update: a review of consequences. *Adv Ment Health*. 2014;12(3):202-215. doi:10.1080/18374905.2014.11081898

55. Lien YY, Lin HS, Lien YJ, et al. Challenging mental illness stigma in healthcare professionals and students: a systematic review and network meta-analysis. Psychol Health. 2021;36(6):669-684. doi:10.1080/08870446.2020.1828413

56. Henderson RC, Corker E, Hamilton S, et al. Viewpoint survey of mental health service users' experiences of discrimination in England 2008–2012. *Soc Psychiatry Psychiatr Epidemiol*. 2014;49(10):1599-1608. doi:10.1007/s00127-014-0875-3

57. Schulze B, Angermeyer MC. Subjective experiences of stigma. A focus group study of schizophrenic patients, their relatives and mental health professionals. *Soc Sci Med*. 2003;56(2):299-312. doi:10.1016/S0277-9536(02)00028-X

58. Lawn S, Kaine C, Stevenson J, McMahon J. Australian mental health consumers' experiences of service engagement and disengagement: a descriptive study. *Int J Environ Res Public Health*. 2021;18(19):10464. doi:10.3390/ijerph181910464

59. Mey A, Hattingh L, Davey AK, Knox K, Fejzic J, Wheeler AJ. Preparing community pharmacists for a role in mental health: an evaluation of accredited Australian pharmacy programs. *Curr Pharm Teach Learn*. 2015;7(3):371-377. doi:10.1016/j.cptl.2014.12.020

60. Rutter P, Taylor D, Branford D. Mental health curricula at schools of pharmacy in the United Kingdom and recent graduates' readiness to practice. *Am J Pharm Educ*. 2013;77(7):147. doi:10.5688/ajpe777147

61. Nguyen E, Chen TF, O'Reilly CL. Evaluating the impact of direct and indirect contact on the mental health stigma of pharmacy students. *Soc Psychiatry Psychiatr Epidemiol*. 2012;47(7):1087-1098. doi:10.1007/s00127-011-0413-5

62. Patten SB, Remillard A, Phillips L, et al. Effectiveness of contact-based education for reducing mental illness-related stigma in pharmacy students. *BMC Med Educ*. 2012;12(1):120. doi:10.1186/1472-6920-12-120

63. Tran AR, Patel SA, Loera LJ, Smith T, Catanzano S. The impact of early direct-contact experiences on reducing mental health stigma among student pharmacists: a pilot study. *Ment Health Clin*. 2024;14(1):73-78. doi:10.9740/mhc.2024.02.073

64. Mental Health First Aid Australia. What we do. Updated 2024. Accessed April 26, 2024. https://www.mhfa.com.au/about-us/what-we-do/

65. Mental Health First Aid Australia. Exploring the MHFA action plan. Updated July 4, 2022. Accessed April 26, 2024. https://www.mhfa.com.au/exploring-the-mhfa-action-plan/

66. Morgan AJ, Ross A, Reavley NJ. Systematic review and meta-analysis of Mental Health First Aid training: effects on knowledge, stigma, and helping behaviour. *PLoS ONE*. 2018;13(5):e0197102. doi:10.1371/journal.pone.0197102

67. Forthal S, Sadowska K, Pike KM, Balachander M, Jacobsson K, Hermosilla S. Mental Health First Aid: a systematic review of trainee behavior and recipient mental health outcomes. *Psychiatr Serv*. 2022;73(4):439-446. doi:10.1176/appi.ps.202100027

68. Kitchener BA, Jorm AF. Mental Health First Aid training for the public: evaluation of effects on knowledge, attitudes and helping behavior. *BMC Psychiatry*. 2002;2(1):10. doi:10.1186/1471-244X-2-10

69. Jorm AF, Kitchener BA, Sawyer MG, Scales H, Cvetkovski S. Mental Health First Aid training for high school teachers: a cluster randomized trial. *BMC Psychiatry*. 2010;10(1):51. doi:10.1186/1471-244X-10-51

70. Costello J, Hays K, Gamez AM. Using Mental Health First Aid to promote mental health in churches. *J Spiritual Ment Health*. 2021;23(4):381-392. doi:10.1080/19349637.2020.1771234

71. El-Den S, Moles R, Choong HJ, O'Reilly C. Mental Health First Aid training and assessment among university students: a systematic review. *J Am Pharm Assoc*. 2020;60(5):e81-e95. doi:10.1016/j.japh.2019.12.017

72. Bond KS, Jorm AF, Kitchener BA, Reavley NJ. Mental Health First Aid training for Australian medical and nursing students: an evaluation study. *BMC Psychol*. 2015;3(1):11. doi:10.1186/s40359-015-0069-0

73. Hung MSY, Lam SKK, Chow MCM. Nursing students' experiences of Mental Health First Aid training: a qualitative descriptive study. *Collegian*. 2019;26(5):534-540. doi:10.1016/j.colegn.2019.02.006

74. Burns S, Crawford G, Hallett J, Hunt K, Chih HJ, Tilley PJM. What's wrong with John? A randomised controlled trial of Mental Health First Aid (MHFA) training with nursing students. *BMC Psychiatry*. 2017;17(1):111. doi:10.1186/s12888-017-1278-2

75. Edgar S, Connaughton J. Using Mental Health First Aid training to improve the mental health literacy of physiotherapy students. *Physiother Can*. 2021;73(2):188-193. doi:10.3138/ptc-2019-0036

76. O'Reilly CL, Bell JS, Kelly PJ, Chen TF. Impact of Mental Health First Aid training on pharmacy students' knowledge, attitudes and self-Reported behaviour: a controlled trial. *Aust N Z J Psychiatry*. 2011;45(7):549-557. doi:10.3109/00048674.2011.585454

77. Frick A, Osae L, Ngo S, et al. Establishing the role of the pharmacist in mental health: implementing Mental Health First Aid into the Doctor of Pharmacy core curriculum. *Curr Pharm Teach Learn*. 2021;13(6):608-615. doi:10.1016/j.cptl.2021.01.027

78. Pham L, Moles RJ, O'Reilly CL, Carrillo MJ, El-Den S. Mental Health First Aid training and assessment in Australian medical, nursing and pharmacy curricula: a national perspective using content analysis. *BMC Med Educ*. 2022;22(1):70. doi:10.1186/s12909-022-03131-1

79. Williams B, Reddy P, Marshall S, Beovich B, McKarney L. Simulation and mental health outcomes: a scoping review. *Adv Simul*. 2017;2(1):2. doi:10.1186/s41077-016-0035-9

80. Witry M, Fadare O, Pudlo A. Pharmacy professionals' preparedness to use Mental Health First Aid (MHFA) behaviors. *Pharm Pract (Granada)*. 2020;18(4):2102. doi:10.18549/pharmpract.2020.4.2102

81. Lamé G, Dixon-Woods M. Using clinical simulation to study how to improve quality and safety in healthcare. *BMJ Simul Technol Enhanc Learn*. 2020;6(2):87-94. doi:10.1136/bmjstel-2018-000370

82. Brown JF. Applications of simulation technology in psychiatric mental health nursing education. *J Psychiatr Ment Health Nurs*. 2008;15(8):638-644. doi:10.1111/j.1365-2850.2008.001281.x

83. Williams B, Song JJY. Are simulated patients effective in facilitating development of clinical competence for healthcare students? A scoping review. *Adv Simul*. 2016;1(1):6. doi:10.1186/s41077-016-0006-1

84. Miller GE. The assessment of clinical skills/competence/performance. *Acad Med.* 1990;65(9):S63. doi:10.1097/00001888-199009000-00045

85. El-Den S, Chen TF, Moles RJ, O'Reilly C. Assessing Mental Health First Aid skills using simulated patients. *Am J Pharm Educ*. 2018;82(2):185-193. doi:10.5688/ajpe6222

86. Ryoo EN, Ha EH. The importance of debriefing in simulation-based learning: comparison between debriefing and no debriefing. *Comput Inform Nurs*. 2015;33(12):538. doi:10.1097/CIN.0000000000000194

87. Hall K. Simulation-based learning in Australian undergraduate mental health nursing curricula: a literature review. *Clin Simul Nurs*. 2017;13(8):380-389. doi:10.1016/j.ecns.2017.04.002

88. Øgård-Repål A, De Presno ÅK, Fossum M. Simulation with standardized patients to prepare undergraduate nursing students for mental health clinical practice: an integrative literature review. *Nurse Educ Today*. 2018;66:149-157. doi:10.1016/j.nedt.2018.04.018

89. Godzik CM, Solomon J, Yacinthus B. Using standardized mental health patient simulations to increase critical thinking and confidence in undergraduate nursing students. *Arch Psychiatr Nurs*. 2023;43:76-80. doi:10.1016/j.apnu.2022.12.002

90. Witt MA, McGaughan K, Smaldone A. standardized patient simulation experiences improves mental health assessment and communication. *Clin Simul Nurs*. 2018;23:16-20. doi:10.1016/j.ecns.2018.08.002

91. Brown AM. Simulation in undergraduate mental health nursing education: a literature review. *Clin Simul Nurs*. 2015;11(10):445-449. doi:10.1016/j.ecns.2015.08.003

92. Piot MA, Dechartres A, Attoe C, et al. Simulation in psychiatry for medical doctors: a systematic review and meta-analysis. *Med Educ.* 2020;54(8):696-708. doi:10.1111/medu.14166

93. Huon JF, Nizet P, Tollec S, et al. A systematic review of the impact of simulation on students' confidence in performing clinical pharmacy activities. *Int J Clin Pharm*. 2024;46(4):795-810. doi:10.1007/s11096-024-01715-z

94. Korayem GB, Alshaya OA, Kurdi SM, et al. Simulation-based education implementation in pharmacy curriculum: a review of the current status. *Adv Med Educ Pract*. 2022;13:649-660. doi:10.2147/AMEP.S366724

95. Boukouvalas EA, El-Den S, Chen TF, et al. Confidence and attitudes of pharmacy students towards suicidal crises: patient simulation using people with a lived experience. *Soc Psychiatry Psychiatr Epidemiol*. 2018;53(11):1185-1195. doi:10.1007/s00127-018-1582-2

96. Xu T, Neto AC de A, Moles RJ. A systematic review of simulated-patient methods used in community pharmacy to assess the provision of non-prescription medicines. *Int J Pharm Pract*. 2012;20(5):307-319. doi:10.1111/j.2042-7174.2012.00201.x

97. Björnsdottir I, Granas AG, Bradley A, Norris P. A systematic review of the use of simulated patient methodology in pharmacy practice research from 2006 to 2016. *Int J Pharm Pract*. 2020;28(1):13-25. doi:10.1111/ijpp.12570

98. Xu T, de Almeida Neto AC, Moles RJ. Simulated caregivers: their feasibility in educating pharmacy staff to manage children's ailments. *Int J Clin Pharm*. 2012;34(4):587-595. doi:10.1007/s11096-012-9648-9

99. Collins JC, Schneider CR, Naughtin CL, Wilson F, de Almeida Neto AC, Moles RJ. Mystery shopping and coaching as a form of audit and feedback to improve community pharmacy management of non-prescription medicine requests: an intervention study. *BMJ Open*. 2017;7(12):e019462. doi:10.1136/bmjopen-2017-019462

100. O'Reilly CL, Moles RJ, Boukouvalas E, El-Den S. Assessing students' mental health crisis skills via consumers with lived experience: a qualitative evaluation. *J Ment Health Train Educ Pract.* 2019;14(5):361-371. doi:10.1108/JMHTEP-01-2019-0007

101. Donetto S, Pierri P, Tsianakas V, Robert G. Experience-based co-design and healthcare improvement: realizing participatory design in the public sector. *Des J.* 2015;18(2):227-248. doi:10.2752/175630615X14212498964312

102. El-Den S, Moles RJ, Zhang R, O'Reilly CL. Simulated patient role-plays with consumers with lived experience of mental illness post-Mental Health First Aid training: interrater and test re-test reliability of an observed behavioral assessment rubric. *Pharmacy*. 2021;9(1):28. doi:10.3390/pharmacy9010028

103. ElGeed H, El Hajj MS, Ali R, Awaisu A. The utilization of simulated patients for teaching and learning in the pharmacy curriculum: exploring pharmacy students' and recent alumni's perceptions using mixed-methods approach. *BMC Med Educ.* 2021;21(1):562. doi:10.1186/s12909-021-02977-1

104. Gorski S, Prokop-Dorner A, Pers M, et al. The use of simulated patients is more effective than student role playing in fostering patient-centred attitudes during communication skills training: a mixed method study. *BioMed Res Int*. 2022;2022. doi:10.1155/2022/1498692

105. Jenkins HE, Boddy K, Bull SA. The patient voice: more than a tick box exercise? *Clin Teach.* 2023;20(6):e13595. doi:10.1111/tct.13595

106. Iniesto F, Charitonos K, Littlejohn A. A review of research with co-design methods in health education. *Open Educ Stud*. 2022;4(1):273-295. doi:10.1515/edu-2022-0017

107. Towle A, Bainbridge L, Godolphin W, et al. Active patient involvement in the education of health professionals. *Med Educ*. 2010;44(1):64-74. doi:10.1111/j.1365-2923.2009.03530.x

108. Bate P, Robert G. Experience-based design: from redesigning the system around the patient to co-designing services with the patient. *Qual Saf Health Care.* 2006;15(5):307. doi:10.1136/qshc.2005.016527

109. Hawke LD, Sheikhan NY, Bastidas-Bilbao H, Rodak T. Experience-based co-design of mental health services and interventions: a scoping review. *SSM Ment Health.* 2024;5:100309. doi:10.1016/j.ssmmh.2024.100309

110. Green T, Bonner A, Teleni L, et al. Use and reporting of experience-based codesign studies in the healthcare setting: a systematic review. *BMJ Qual Saf.* 2020;29(1):64. doi:10.1136/bmjqs-2019-009570

111. Dimopoulos-Bick T, O'Connor C, Montgomery J, et al. "Anyone can co-design?": a case study synthesis of six experience-based co-design (EBCD) projects for healthcare systems improvement in New South Wales, Australia. *Patient Exp J*. 2019;6(2):93-104. doi:10.35680/2372-0247.1365

112. Borgstrom E, Barclay S. Experience-based design, co-design and experience-based co-design in palliative and end-of-life care. *BMJ Support Palliat Care.* 2019;9(1):60-66. doi:10.1136/bmjspcare-2016-001117

113. Mulvale A, Miatello A, Hackett C, Mulvale G. Applying experience-based co-design with vulnerable populations: lessons from a systematic review of methods to involve patients, families and service providers in child and youth mental health service improvement. *Patient Exp J*. 2016;3(1):117-129. doi:10.35680/2372-0247.1104

114. Bell J, Lim A, Williams R, Girdler S, Milbourn B, Black M. 'Nothing about us without us': co-production ingredients for working alongside stakeholders to develop mental health interventions. *Adv Ment Health.* 2021;0(0):1-13. doi:10.1080/18387357.2021.2020143

115. Larkin M, Boden ZVR, Newton E. On the brink of genuinely collaborative care: experience-based co-design in mental health. *Qual Health Res*. 2015;25(11):1463-1476. doi:10.1177/1049732315576494

116. Iammarino C (Sammy), Johnson J, Zolezzi M, Hasnani ZS. Simulation in mental health interprofessional education. *J Nurs Educ Pract*. 2020;10(10):46. doi:10.5430/jnep.v10n10p46

117. Raynor DK, Ismail H, Blenkinsopp A, Fylan B, Armitage G, Silcock J. Experience-based co-design – adapting the method for a researcher-initiated study in a multi-site setting. *Health Expect.* 2020;23(3):562-570. doi:10.1111/hex.13028

CHAPTER TWO –

THE USE OF MENTAL HEALTH SIMULATION IN PHARMACY PRACTICE AND EDUCATION: A SYSTEMATIC REVIEW

Ung TX, El-Den S, Moles RJ, O'Reilly CL (2023)

Am J Pharm Educ 87(6):100058.

https://doi.org/10.1016/j.ajpe.2023.100058

OVERVIEW OF CHAPTER TWO

Chapter 2 contains the systematic review that was conducted to explore how mental health simulation has been used in pharmacy practice and education. Specific objectives were to explore what type of simulation techniques have been used, and what specific mental health content has been simulated. Twenty-six articles pertaining to 23 studies were eligible for inclusion in the review, and it was found that there was a lack of psychosis care scenarios being simulated, which may be more challenging to design and execute. There was also little detail explaining the design of the actual scenarios used for the simulations, hence Chapter 3 in Part B of the thesis offers a detailed process in how to co-design and content validate SP scenarios and associated marking rubrics with mental health stakeholders. This systematic review is listed on PROSPERO – International prospective register of systematic reviews (Appendix VII).

American Journal of Pharmaceutical Education 87 (2023) 100058

Contents lists available at ScienceDirect

American Journal of Pharmaceutical Education

journal homepage: www.elsevier.com/locate/ajpe

Reviews

The Use of Mental Health Simulation in Pharmacy Practice and Education: A Systematic Review

Tina X. Ung*, Sarira El-Den, Rebekah J. Moles, Claire L. O'Reilly

The University of Sydney School of Pharmacy, Sydney, New South Wales, Australia

ARTICLE INFO

Keywords:
Mental health
Simulation
Pharmacy
Education

ABSTRACT

Objectives: To explore how mental health simulation has been used in the context of pharmacy practice and education, specifically what types of simulation techniques have been used, and which mental health-related content has been simulated.

Findings: A literature search retrieved 449 reports, from which 26 articles pertaining to 23 studies were eligible for inclusion. Most studies were conducted in Australia. The most common type of simulation utilized was live simulated/standardized patient, followed by pre-recorded scenarios, role-play, and auditory simulation. While many study interventions included content relating to multiple mental illnesses and included activities other than simulation, the most simulated mental health content was enacting a person living with depression (with or without suicidal thoughts), mental health communication, followed by stress-induced insomnia, then hallucinations. Key outcomes from included studies were significantly improved student outcomes such as mental health knowledge, attitudes, social distance, and empathy scores, as well as highlighting the potential to further improve the mental healthcare skills of community pharmacists.

Summary: This review demonstrates a varied use of techniques to simulate mental health in pharmacy practice and education. Future research is suggested to consider other simulation methods such as virtual reality and computer simulation, and to investigate how lesser-simulated mental health content such as psychosis could be incorporated. It is also recommended that future research provides greater detail on the development of the simulated content, such as involving people with lived experience of mental illness and mental health stakeholders in the development process to improve the authenticity of simulation training.

1. Introduction

Simulation in healthcare involves the use of a "tool, device, and/or environment that mimics an aspect of clinical care".[1] Utilized in both teaching and assessment of healthcare students and practitioners, simulation promotes the acquisition, application, and maintenance of clinical knowledge, attitudes, and skills required to provide optimum healthcare.[2] Various simulation methodologies are used in healthcare education, including simulated (or standardized) patients, manikins and computer-generated scenarios, or virtual reality.[2,3] Simulated or standardized patients (SPs) are individuals who are trained to portray a person with a particular health concern or set of symptoms, and these terms are commonly used interchangeably within the literature.[2,4,5] This live, human experiential learning technique integrates the use of case studies and role-playing (which is otherwise unscripted and typically conducted informally between peers), enabling students to practice skills in a safe, controlled learning environment; this is often observed by a facilitator, assessor and/or peers, immediately followed by the provision of feedback (debriefing) for students to reinforce learning.[4,6–8]

Pharmacists play an important role in mental healthcare; however, pharmacists have cited a lack of skills, experience, and confidence as barriers to providing optimum care for people living with mental illness.[9,10] The increasing prevalence of mental illness worldwide warrants an associated increase in mental health awareness and education.[11,12] Simulation-based education is an effective and engaging pedagogical method for both healthcare students and practitioners across all disciplines, designed to enhance the way care is provided to individuals living with mental illness.[6,7,13,14] Mental health simulation can help familiarise students with mental health-related matters before they encounter them in a clinical setting, enabling students to practice appropriate responses to patient needs and also providing opportunities

* Corresponding author.
E-mail address: tina.xu@sydney.edu.au (T.X. Ung).

https://doi.org/10.1016/j.ajpe.2023.100058
Received 16 June 2022; Received in revised form 30 August 2022; Accepted 9 September 2022
Available online 15 March 2023
0002-9459/© 2023 American Association of Colleges of Pharmacy. Published by Elsevier Inc. All rights reserved.

for students to address challenges related to stigma, safety, and liability that may be present in the clinical setting.[2,3]

Mental health simulation has been extensively researched in medicine and nursing as evidenced by Piot and colleagues' systematic reviews and meta-analyses,[13,15] but little is known about the use of mental health simulation in the field of pharmacy. Piot and colleagues also conducted a large systematic review of the effectiveness of simulation in the initial and continuous training of healthcare professionals in the field of psychiatry; however, excluded studies that used simulated patients to assess healthcare practitioner skills in real-life.[16] Bjornsdottir and colleagues reported in their recent systematic review about the use of the simulated patient methodology in pharmacy practice research, that the use of simulated patients, in general, has increased substantially over the past decade to study real-world behavior and to assess the quality of services provided by pharmacists and pharmacy staff, and especially for measuring the effect of interventions.[17] However, there is a lack of literature describing how mental health simulation has been utilized specifically in pharmacy practice and education.

The aim of this systematic review was to explore how mental health simulation has been used in the context of pharmacy practice and education. Specific objectives were to describe what types of simulation techniques have been used, and which mental health-related content has been simulated.

2. Methods

This systematic review is reported with the guidance of the preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) checklist.[18] Details of the protocol for this systematic review were registered on PROSPERO (CRD42021233864) and can be accessed at https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42021233864[19]

The literature search was performed from inception until 10 August 2022, using the databases Medline, Embase, PsycINFO, CINAHL and Scopus. Key search terms included: mental health AND (simulation OR standardized patient OR pseudo patient OR role-play) AND pharmacy (see Appendix 1 for Medline search strategy).

All citations identified in the search were exported into EndNote X9,[20] and duplicates were removed using both automatic and manual means. One member of the research team (TU) screened references for eligibility in 2 successive stages of title/abstract screening and then full-text screening. The reference lists of included full-text citations were also hand-searched to identify any potentially relevant publications for inclusion. Any uncertainties were discussed and resolved through consultations with 2 other members of the research team (SE and RM).

Inclusion criteria included: studies utilizing mental health-related simulation in a pharmacy-related context, either in practice or an educational setting, or any other setting where pharmacists, pharmacy support staff, or pharmacy students were involved, either as the population actively involved in the activity or as the population directly impacted by mental health-related simulation. Studies involving multidisciplinary participation were only included if pharmacy-specific results were reported. All aspects of mental health and mental disorders, as listed in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5),[21] were included. Studies using all forms of simulation: live simulated (or standardized) patients, role-play, computer (virtual reality) simulation, and auditory simulation were included. Articles were not restricted to any time period, country or language (provided English translation was published and accessible), or study design, to scope the full field of mental health-related simulations in pharmacy-related contexts. Exclusion criteria were non-primary journal publications and conference abstracts.

Data extraction was performed by one member of the research team (TU), with a 10% cross-check performed by a second author (COR). Data were managed in Microsoft Excel and Word throughout the review. Data extracted included: author(s), year of publication, country; setting in which the study was conducted (educational or practice setting); study design; study aim; mental health-related content that the study focussed on; sample size, population group involved in the study; intervention; description of specific mental health simulations featured in the study; evaluation type and timing, specific measures featured in the evaluation tool(s); key results or outcomes pertaining to pharmacy students or pharmacy staff. The methodological quality of each study was critically appraised by one member of the research team (TU), with 10% cross-checked by a second author (COR), using the Mixed Methods Appraisal Tool (MMAT) 2018 as studies of any design were included in the review.[22]

3. Results

The article selection process is shown in Figure 1 adapted from the PRISMA 2020 flow diagram.[23] The initial search identified 449 records across the five databases. After removal of duplicates, 394 records were screened by title and abstract, leading to 87 full-text articles to be assessed for eligibility according to the inclusion and exclusion criteria. After excluding ineligible records, 19 remained, and the citations of these articles were hand-searched to identify additional articles for inclusion. The hand-searching identified 11 manuscripts to be screened, of which 7 were eligible for inclusion. Therefore, a total of 26 articles pertaining to 23 studies were eligible for inclusion. The details of the included studies are summarized in Tables 1–4.

Studies (n = 23) were conducted in Australia (n = 11),[24–35] the United States of America (n = 8)[36–45] and Canada (n = 4).[46–49] Fifteen studies were conducted in university settings;[24–29,36–46] 13 exclusively with pharmacy students[24–29,36–41,46] and two with multidisciplinary healthcare students.[42–45] Most studies (n = 12) in pharmacy education included students who were in the final 2 years of their degree,[24–29,36–40,46] one study recruited first-year students,[41] one study involved graduate students,[42–44] and one study did not specify the year of degree.[45] The sample size varied from 2 to 1150 pharmacy students. Eight studies were conducted in the pharmacy practice setting,[30–35,47–49] exclusively in community pharmacy, and almost exclusively involved pharmacists (n = 5),[30,32,33,47,48] with 2 studies also including pharmacy support staff,[31,34,35] and one study involved pharmacists paired with community members with lived experience of mental illness.[49]

The most used simulation technique was live simulated/standardized patient (n = 13),[25–27,29,30,32,33,41–45,47–49] utilized in 7 studies conducted in pharmacy education[25–27,29,41–45] and in 6 studies conducted in pharmacy practice.[30,32,33,47–49] The live SPs were enacted by people with lived experience (trained to simulate a standardized mental health scenario) in three studies conducted in pharmacy education,[25,27,29] unspecified in three studies,[41–45] and the class tutor in one study.[26] In pharmacy practice, the live SPs were enacted by trained or hired actors in three studies,[47–49] authors or researchers in two studies,[32,33] and pharmacy students in one study.[30] Pre-recorded videos of scenarios (n = 5)[28,34–36,42–44,49] featured in three studies in pharmacy education,[28,36,42–44] and two in the pharmacy practice setting.[34,35,49] Role-play between peers (including mock patient counseling sessions) (n = 5), [24,31,37,41,46] featured in four studies conducted in pharmacy education[24,37,41–46] and one in pharmacy practice.[31] Simulations of auditory hallucinations (n = 3) featured as part of the intervention in

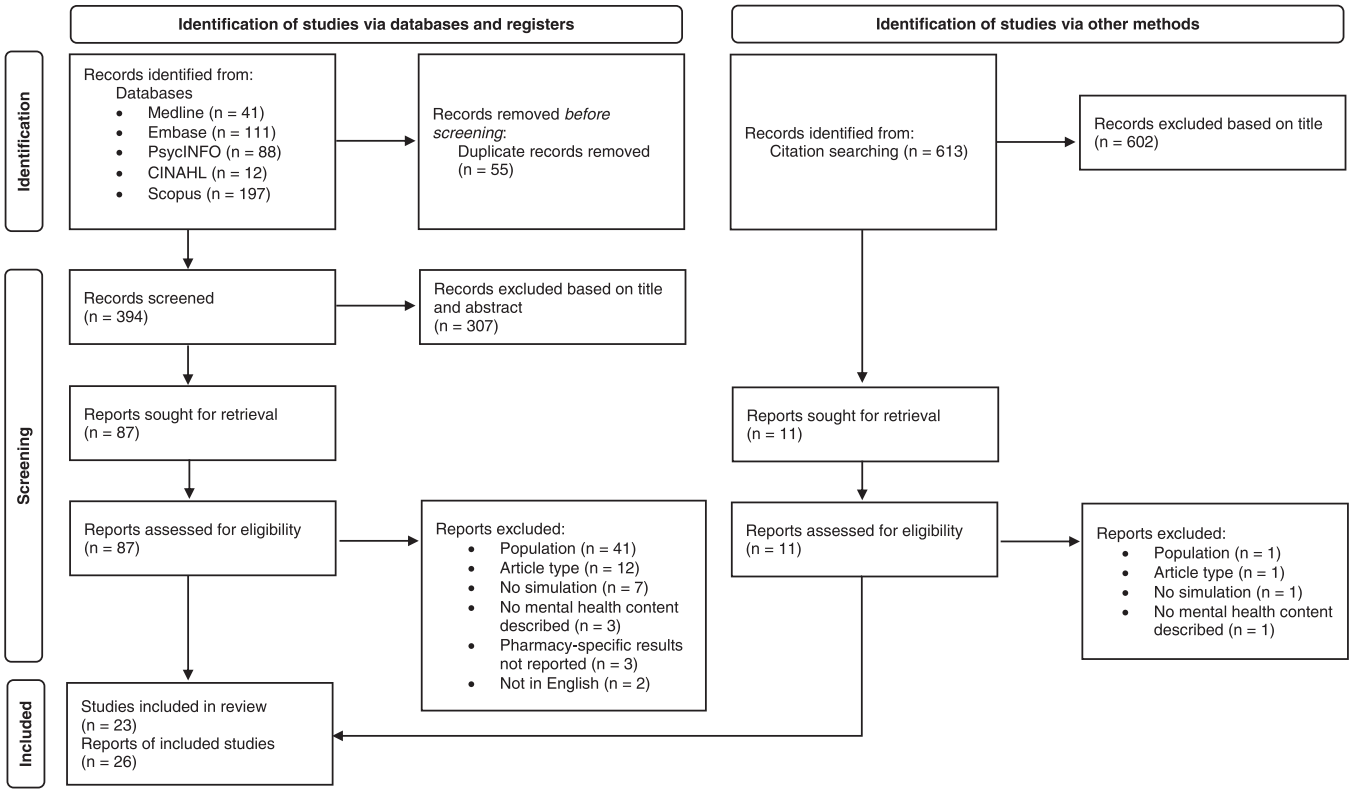


Fig. 1. Article Selection Process.

three pharmacy education studies.[36,38,40]. Some studies (n = 4) utilized a combination of simulation methods.[36,41–44,49] One study involved the pharmacy student participants delivering live group presentations to their peers and a visiting psychiatric pharmacist, to simulate the psychiatric clinical rotation experience in presenting clinical cases to a preceptor.[39]

Several study interventions (n = 7)[24,27,34–39] involved content relating to multiple mental illnesses, not focussing on just one. The most common mental health-related content featured in the studies was related to depression (n = 12)[24–27,29,34–39,41,45,46] and six of these studies also involved suicidal thoughts or suicide prevention.[25–27,29,41,45,46] Schizophrenia (n = 6),[24,36–40] anxiety (n = 5),[27,34,35,37–39] stress (n = 4),[30,32,47,48] bipolar disorder (n = 4),[24,37–39] substance use (n = 4),[33,37–39] and attention-deficit hyperactivity disorder (n = 2)[38,39] were also involved in some studies. General mental healthcare or medication management (n = 3),[31,42–44,49] and mental health stigma (n = 1)[28] also featured. Furthermore, many studies (n = 14)[24,28,31,34–38,41–44,46–49] involved other learning activities in conjunction with the simulations, such as didactic presentations or lectures (n = 5),[28,36–38,46] training workshops (n = 5),[31,34,35,47–49] online modules (n = 3),[41–45] and group work (n = 1),[24] leaving 9 study interventions observing simulations alone.[25–27,29,30,32,33,39,40]

Regarding mental health content that was specifically simulated in these studies, the most common in pharmacy education was depression with or without suicidal thoughts (n = 5),[25–27,29,45] followed by hallucinations (n = 3),[36,38,40] then was interviewing or communicating with mental health consumers (n = 2).[28,42–49] Other mental health-related content that was specifically simulated included antidepressant prescription counseling (n = 1)[41] and aspects of psychiatric clinical rotation experience (n = 1).[39] Some studies conducted in pharmacy education did not provide details on the specific aspects of mental health that were simulated (n = 3).[24,37,46] Eight of the 15 studies conducted in pharmacy education provided details on how the simulated content was designed:[25–27,29,39–41,46] guided by the DSM-5 Diagnostic Criteria and/or existing frameworks (n = 3),[26,27,41] in collaboration with mental health experts or consumer organizations (n = 3)[25,29,39] or based on personal and clinical experiences of the research team (n = 2).[40,46] In pharmacy practice, stress-induced insomnia (n = 4) was most commonly simulated,[30,32,47,48] followed by mental health communication (n = 3),[31,34,35,49] then was nicotine replacement therapy (n = 1).[33]

The study aims and measures varied according to the setting. Ten out of the 15 studies conducted in pharmacy education used only quantitative means to measure outcomes,[24–28,36–38,45,46] one study used only qualitative measures,[29] and four studies used mixed methods.[39–44] In the pharmacy education setting, study interventions aimed to observe the impact on students' mental health stigma (n = 3),[28,36,37] attitudes (n = 3),[24,25,46] confidence (n = 3),[25,26,41] skills (n = 3),[26,41,45] knowledge (n = 2),[36,41] and empathy (n = 2).[38,40] Some (n = 4)[25,26,36,41] of these studies observed a combination of these descriptors. Other aims and measures included investigating the reliability of marking rubrics (n = 1),[27] the benefits of mental health simulated patient role-plays (n = 1),[29] the feasibility and effectiveness of simulating Advanced Pharmacy Practice Experiences (APPEs) in the classroom (n = 1)[39] and attitudes about interprofessional education (IPE) (n = 1).[42–44] In pharmacy education, most (n = 8) study interventions resulted in significantly improved outcomes such as mental health knowledge, attitudes, social distance, and empathy scores.[24,25,28,36–38,40,46]

Within the 8 studies conducted in the pharmacy practice setting,[30–35,47–49], 5 used only quantitative methods to measure outcomes,[30,32–35,47] and three used mixed methods.[31,38,49] Mental health

Table 1
General Characteristics of Studies Using Mental Health Simulation in Pharmacy Education (University) Setting.

Author(s), country	Study design	Sample size (n), population	MMAT quality criteria met[a]
Studies involving pharmacy students only			
Bamgbade and colleagues[36], United States of America	One-group pre/post-test	(n = 120) Third year pharmacy students (4-year degree)	***
Bell and colleagues[24], Australia	Two-group, non-randomized, clustered, comparative design	(n = 229) Third year pharmacy students (4-year degree)	****
Boukouvalas and colleagues[35], Australia	Parallel group repeated measures design	(n = 186 + 66) Final year pharmacy students n = 186 BPharm; n = 40 role-played in simulation + n = 146 observing n = 66 MPharm comparison group (no simulation)	**
El-Den and colleagues[26], Australia	Cross-sectional	(n = 163) Fourth year BPharm students (4-year degree) n = 143 completed self-evaluations n = 36 (18 + 18) randomly allocated to participate in the vignettes	***
El-Den and colleagues[27], Australia	Retrospective, descriptive	(n = 528) Final year BPharm students across 2016–2018 96 SP role-plays eligible for inclusion	****
Gable and colleagues[37], United States of America	Two-group comparative	(n = 23) Third year pharmacy students (4-year degree)	****
Mcguire and colleagues[38], United States of America	Pre-post repeat parallel/comparative group	(n = 68) Third year pharmacy students (4-year degree)	**
Nguyen and colleagues[28], Australia	Non-randomized, two-group, comparative	(n = 198) Third year pharmacy students (4-year degree) in direct contact arm (n = 278) Fourth year pharmacy students (4-year degree) in indirect (filmed) contact arm	***
O'Reilly and colleagues[29], Australia	Qualitative	(n = 40) Final year BPharm students participated in and (n = 146) observed SP role-plays n = 22 Students participated in two focus groups (n = 9 and n = 13) Three SPs participated in individual interviews	*****
Pittenger and colleagues[39], United States of America	Mixed methods, non-comparative	(n = 12) Third year PharmD students (4-year degree) (n = 11) BCPPs served as visiting experts	**
Skoy and colleagues[40], United States of America	Pre/post mixed methods	(n = 81) Third year professional pharmacy students (4-year degree)	***
Vincent and David[46], Canada	Descriptive pre/post	(n = 1150) Third year PharmD students over the years 2010–2014 (4-year degree)	**
Willson and colleagues[41], United States of America	Pre/post mixed methods	(n = 171) First-year student pharmacists (4-year degree)	****
Multidisciplinary studies			
Beebe et al., 2015[42,43], United States of America	Quasi-experimental pre/post-test design, mixed methods	(n = 4) Graduate students in pharmacy	*
Mospan and colleagues[45], United States of America	Retrospective, descriptive	(n = 153) Pharmacy students (year unspecified)	****

Abbreviations: BCPP, board certified psychiatric pharmacist; BPharm, bachelor of pharmacy; MMAT, mixed methods appraisal tool; MPharm, master of pharmacy; PharmD, doctor of pharmacy; SP, simulated or standardized patient.
[a]Interpreting Mixed Methods Appraisal Tool quality criteria met:
***** =100% quality criteria met; **** = 80% quality criteria met; *** = 60% quality criteria met; ** = 40% quality criteria met; * = 20% quality criteria met

simulations commonly aimed to assess the clinical performance of pharmacists using standardized data collection forms, which were developed using existing protocols (n = 3).[30,32,33] In some studies, simulation was featured as part of a framework-based training program for pharmacists (n = 2),[31,49] or to evaluate the impact of a training program on pharmacists' practice using a scoring tool adapted by previous research (n = 2).[47,48] Mental health simulation has also been featured as part of a health promotion intervention to evaluate the impact on stigma, attitudes, and confidence of pharmacists (n = 1).[34,45] In pharmacy practice, results indicate the importance of community mental health interventions, and there is room for improvement in pharmacists' mental health-related clinical skills.[30–33]

The most common category of study design appraised was quantitative non-randomized (n = 10),[24–26,28,34–38,46,47] whereby 3 studies met 80% of the MMAT quality criteria,[24,37,47] 4 studies met 60%,[26,28,34–36] and three studies met 40%.[25,38,46] Out of the five studies that adopted a quantitative descriptive design,[27,30,32,33,45] three met 80% of the MMAT quality criteria,[27,33,45] and two met 60%.[30,32] The single study that adopted a qualitative study design met 100% of MMAT quality criteria.[29] Of the seven mixed methods studies that were appraised,[31,39–44,48,49] one met 80% of the MMAT quality criteria,[41] two met 60%,[40,48] two met 40%,[31,39] and two met 20%.[42–44,49]

4. Discussion

This systematic review explored how mental health simulation has been used in pharmacy education and practice, specifically which simulation techniques have been used in these contexts, and what mental health content has been simulated. This review identifies that most of the simulation literature occurred in Australian pharmacy education settings, and the most common type of simulation was live simulated/standardized patient enacting a person living with depression, with or without suicidal thoughts. Key outcomes across all the reported studies included a positive impact on participants' knowledge, attitudes, social distance, and empathy in providing mental healthcare, as well as highlighting the potential to further improve the mental healthcare

Table 2
Aims, Content, Evaluation and Key Results or Outcomes of Studies Using Mental Health Simulation in Pharmacy Education (University) Setting.

Author(s), country	Study aim	MH related content	Intervention	Specific MH simulation features	Evaluation type and timing	Specific measures featured in evaluation tool(s)	Key results or outcomes
Bamgbade and colleagues[36], United States of America	To determine if exposure to an intervention course impacts pharmacy students' MHS and MHK	Depression and schizophrenia	2.5 h of presentations, videos, discussions, and active-learning exercises	Auditory hallucination exercise: Students listened to voices simulating auditory hallucinations while being counselled by another student. Hallucination simulation: A video simulating auditory and visual hallucinations from a patient's point of view	Quantitative: Survey immediately before and after intervention	27 items on five subdomains of MHS – recovery, safety, disclosure, separation, comfort. MHK measured with 10 true/false questions	MHS domains decreased – recovery, safety, separation, comfort ($p < .01$). Recovery and separation improvements greater for schizophrenia than depression. Largest change in safety domain ($p < .01$). MHK increased ($p < .01$)
Bell and colleagues[24], Australia	To assess the impact of participation by MHCEs in pharmacy education, on students' attitudes toward people with schizophrenia and severe depression	Schizophrenia, bipolar disorder, major depression	Four tutorial classes – standard pharmacist-led (comparison) versus five classes with added input from MHCEs (intervention) – small group work, case-study discussions, role-plays	Role-plays (no details provided)	Quantitative: Baseline and follow-up survey	39-items: SDS (7 items) + AQ (6 items) + 10 items related to professional service delivery by pharmacists + 16 items related to stigmatization	Decrease in SDS score ($p = .02$) and stigmatization among intervention group. Intervention group more strongly disagreed with 26 of 27 items that demonstrated a negative attitude toward people with mental illnesses ($p < .001$) and more strongly agreed with all 4 items that demonstrated a positive attitude ($p = .014$)
Boukouvalas and colleagues[25], Australia	To assess the impact of using people with a lived experience of mental illness as SPs on final year pharmacy students' attitudes toward and confidence in responding to suicidal ideation, following MHFA training	Depression with suicidal thoughts	SP scenarios + immediate verbal feedback and discussion from the tutor, SP and class	SP scenarios (designed with direction and assistance from One Door Mental Health) were enacted by five people with lived experience of mental illness	Quantitative: Pre + post MHFA surveys + 2–4 weeks follow-up to compare self-reported confidence and attitudes across groups	37-item ATTS + additional questions based on post MHFA training evaluation questionnaire for self-perceived confidence in recognizing, approaching, and supporting people experiencing a suicide crisis	Attitudes: MPharm – Improvement in 'suicide as a right' ($p < .00$). Observers – Improvement in 'tabooing' ($p = .02$), 'situation caused' ($p = .01$). Role-players – Improvement in 'non-communication' ($p = .02$) Mean confidence scores improved for each group post MHFA training ($p < .05$); maintained at follow-up for role-players and observers
El-Den and colleagues[26], Australia	To evaluate MHFA skills using SPs and to compare self-reported confidence in providing MHFA with	PND, grieving partner with suicidal thoughts	MHFA training, then self-evaluation of confidence in providing MHFA. Post-training observation assessments	SP enacted by class tutor – two vignettes based on DSM-5 and MHFA action plan with collaboration of registered	Quantitative: Self-evaluation questionnaire followed by post-training SP	Eight items on self-evaluation of confidence. Rubric: 12 items –developed based on	Vignettes: PND – 76.5% pass; 28.6% used suicide-specific terminology. Suicide – 50.0% pass; 60%

(*continued on next page*)

Table 2 (*continued*)

Author(s), country	Study aim	MH related content	Intervention	Specific MH simulation features	Evaluation type and timing	Specific measures featured in evaluation tool(s)	Key results or outcomes
	performance during SP role-plays		involving SP role-play, tutor assessment, self-assessment, and on-the-spot performance feedback from tutor	pharmacists, mental health researchers, MHFA instructor: First time mother having difficulty breastfeeding, person struggling with partner's death and having suicidal thoughts	assessment rubric scores	MHFA action plan and scoring system developed by MHFA researchers – each item scored from 0 to 2. To pass the assessment, students needed to score at least 12 out of 24 marks and assess for suicidal thoughts	used suicide-specific terminology. Self-evaluated confidence levels did not always reflect observed performance
El-Den and colleagues[27], Australia	To investigate the interrater and test-retest reliability of a rubric designed to measure observed MHFA skills during SP role-play assessments	Depression and anxiety +/- suicidal thoughts (+/- suicide plan)	Post MHFA training, students participated in or observed SP role-play assessments with tutor and peers + immediate self-assessment, scoring and feedback by tutor and consumer + debrief discussion	Six MHFA SP role-play assessments enacted by consumers with lived experience of mental illness. Scenarios developed based on DSM-5	Quantitative: 12-item rubric developed by research team based on MHFA action plan – 0–2 item scores; Pass/Fail categories	Three markers: IRR for overall % agreement for each item across all cases combined; ICC for overall scores per case and combined; Fleiss' Kappa for overall pass/fail agreement for each case and combined. Test retest reliability: Independent researcher's scores of audio recordings at two time points; Pearson's correlation of mean scores per case and combined	IRR: 39.93% – 94.45% range of % agreement. ICC: 0.70; CI 0.58–0.80. Fleiss' Kappa varied across cases but significant for combined ($p < .001$) Test retest: High agreement (0.87; $p < .001$) for 58 role-plays
Gable and colleagues[37], United States of America	To determine the effect of a mental health elective on students' perspectives and stigmatizing views	Schizophrenia, bipolar disorder, depression, anxiety, personality disorders, substance use/abuse disorders	Clinical elective course about treatment of and perspectives on the care of individuals living with mental illness – pharmacology, motivational interviewing, collaboration, mock patient counseling sessions, presentations, patient interviews	Mock patient counseling sessions (no details provided)	Quantitative: Pre and post survey – delivered to participants plus control group of students enrolled in a different clinical elective not focused on the topic of mental illness – at the beginning and end of semester in both courses	Social distance (7 items) + stigmatizing views (10 items)	Social distance: Intervention group follow-up score was higher ($p < .05$); control group scores comparable at follow-up and at baseline ($p = .93$) Stigmatization: Intervention group follow-up ratings were higher ($p < .05$); control group provided comparable ratings at follow-up and at baseline ($p = .38$)
Mcguire and colleagues[38], United States of America	To evaluate and measure the impact of traditional large classroom lecture on pharmacy student empathy compared to a smaller elective course	Schizophrenia, bipolar disorder, major depression, anxiety, ADHD, substance use disorders	Elective course: traditional lecture, contact-based education with patients, media eg, movies and patient videos, an auditory hallucination simulator, and reflective writing	Auditory hallucination simulator: While listening to the hallucinations via headphones, students completed multiple activities – word find, number find, job	Quantitative: Survey at 3 time points – before traditional lecture, after traditional lecture/ before elective, third time for students who	20-item JSE-HPS	Positive trend in empathy scores, however mean JSE-HPS scores pre- versus post-lecture not significant ($p = .162$). Increased mean JSE-HPS scores ($p = .025$) when comparing post-lecture with post-elective.

(*continued on next page*)

Table 2 (*continued*)

Author(s), country	Study aim	MH related content	Intervention	Specific MH simulation features	Evaluation type and timing	Specific measures featured in evaluation tool(s)	Key results or outcomes
				application, modified mental status examination conducted by one of the course faculty	completed elective course		Increased mean JSE-HPS scores ($p = .001$) when comparing pre- with post-elective
Nguyen and colleagues[28], Australia	To develop a novel, indirect contact intervention and comparatively evaluate its effectiveness against that of a direct contact intervention on the MHS of pharmacy students	Mental health stigma	Direct contact: 2-hour workshop led by 3–4 MHCEs and 2 tutors – MHCEs shared their personal experiences of mental illness. Indirect contact: 90-minute workshop led by 2 tutors – filmed interviews of MHCEs about personal experiences of mental illness symptoms, treatment, lifestyle changes, stigma and recovery. MHCEs also participated in video footage of simulated scenarios	MHCEs in indirect contact arm participated in development of simulated scenario videos depicting patient-pharmacist interactions – verbal and non-verbal communication that can positively and negatively impact professional interactions with mental health consumers in the community pharmacy setting	Quantitative: Pre and post survey immediately following participation in the interventions	39 items: SDS (7 items) + AQ (6 items) + 10 items related to professional service delivery by pharmacists + 16 items related to stigmatization	Direct contact group: Improvement in 37 items ($p < .05$). Indirect contact group: Improvement in 27 items ($p < .05$). Both contact mediums had a predominantly positive impact on MHS and attitudes toward mental illness
O'Reilly and colleagues[29], Australia	To explore the perceived benefits, for both students and SPs, of assessing MHFA skills (post-training) through SP role-plays of mental health crises	Depression with suicidal thoughts	MHFA training, then students randomly allocated to participate in or observe a simulated assessment + feedback discussion between SP, tutor, and students Three months later, all participating students and SPs invited to focus group or interview	Three different scenarios (developed by research team in collaboration with One Door Mental Health) enacted by 4 consumers with lived experience of mental illness – Acute symptoms of depression and current thoughts of suicide, but with no previous attempts or current plan to act on suicidal thoughts	Qualitative: Two purpose-designed semi-structured interview guides developed based on literature and researchers' previous experiences	Student focus group: General thoughts on the use of people with a lived experience as SPs and their confidence in being able to support someone in the pharmacy at risk of suicide. SP interview guide: Mental health consumers' feelings toward their role as a SP, what benefits they saw for pharmacy students, any challenges or difficulties they may have encountered while enacting suicidal thoughts and behaviors in the simulated role-plays and any suggested changes or	Five overarching themes relevant to both students and SPs: benefits to students and SPs, the value of lived experience, challenges with suicide assessment, confidence in communicating with people experiencing mental health problems or crises and the value of immediate feedback and debrief

(*continued on next page*)

Table 2 (*continued*)

Author(s), country	Study aim	MH related content	Intervention	Specific MH simulation features	Evaluation type and timing	Specific measures featured in evaluation tool(s)	Key results or outcomes
						improvements they wanted to share	
Pittenger and colleagues[39], United States of America	To examine the feasibility and effectiveness of an elective course to simulate aspects of the clinical psychiatric APPEs in the classroom	Complex case scenarios eg, treatment-resistant depression, schizophrenia, bipolar disorder, anxiety disorder, first-episode psychosis, PTSD, pediatric ADHD, acute alcohol withdrawal, aggression in dementia	15-week elective course – each class began with student team providing an overview of that session's case + their treatment plan and rationale + responding to visiting expert's questions. Non-presenting students and visiting expert contributed real-time thoughts, comments and questions via projected shared Google Doc	Simulate aspects of the psychiatric clinical rotation experience. Case scenarios were created by a PGY 2 psychiatric pharmacy resident or submitted by visiting experts	Mixed methods: Students asked to self-rate their level of entrustability at the beginning and end of the course	Quantitative: Scores (out of 40) given by visiting experts for student team work-ups (4-item grading rubric) Qualitative: Feedback from visiting experts regarding student performance and progression. Open-ended responses on the course evaluation and students' pre- and post-experience personal learning objectives	Quantitative scores ranged from 35 to 40. Universal satisfaction and agreement by visiting experts that student skills improved over the semester. Four emerging themes from students: recognition of need for and absence of clinical judgement to address clinical situations for which there were not consistent guideline recommendations and existing primary literature support; realization that "evidence-based" was different and more extensive than previously defined; realization that patient centered care means something different in psychiatric practice; students' excitement about starting their APPEs
Skoy and colleagues[40], United States of America	To increase student pharmacists' empathy for patients who experience auditory hallucinations	Auditory hallucinations	Students completed 7 stations while listening to Hearing Distressing Voices simulation via headphones eg, reading activity, following directions, communicate with others, following a prescription consultation	Hearing Distressing Voices simulation: Created by Patricia Deegan, PhD, who is diagnosed with schizophrenia	Mixed methods: Pre- and post- survey and post-simulation debriefing and reflections	Quantitative: 15-item KCES. Qualitative: Debriefing –challenges with the stations and overall thoughts of the experience. Reflection with 3 guided questions – how they felt during the simulation; whether they thought the exercise would influence their future practice as a pharmacist, whether they would recommend the experience to other pharmacy students	Empathy gained in 13 items ($p < .05$). Students' overall empathy increased ($p < .01$). Written reflections: 64% of students felt distracted or had difficulty concentrating during simulation. 83% reported a gain in empathy for patients who experience auditory hallucinations. 22% addressed the impact of auditory hallucinations on everyday tasks. All but one student reported simulation would impact future pharmacy careers. 100% believed activity should be provided to future pharmacy students, 20% independently suggested for all HCPs

(*continued on next page*)

Table 2 (*continued*)

Author(s), country	Study aim	MH related content	Intervention	Specific MH simulation features	Evaluation type and timing	Specific measures featured in evaluation tool(s)	Key results or outcomes
Vincent and David[46], Canada	To describe the creative process of designing a suicide prevention training session for pharmacy students	Depression and suicide prevention	90-minute training session based on suicide prevention training presented by Suicide Action Montreal and the AQPS – strategies to optimize the management of depression, and create sentinels of mental distress	Learners were put in pairs to role-play 2 scenarios inspired by real-life cases that the authors had managed in the past	Quantitative: Pre- and post-training survey	20-item ATTS	Attitudes improved in most items (no *p*-value). "These results are under rigorous analysis and will be the subject of a subsequent publication." Students appreciated the session and were very grateful. Taboos, fears, and myths about suicide were lifted
Willson and colleagues[41], United States of America	To determine whether students gained knowledge, confidence, and skills in identifying and preventing suicide in patients, peers, friends, and family members After receiving training in suicide prevention	Depression, suicide prevention	Training program – online component + live laboratory session, then assessment 2 weeks after program	Role-play during live session to practice patient prescription counseling and applying framework to patient case scenarios. SP assessment to counsel on a prescription for venlafaxine or citalopram for depression – video recorded for marking	Mixed methods: Pre and post-training knowledge assessment and survey Prescription counseling assessment of students' ability to apply suicide prevention skills, followed by four-question reflection	Survey (32 items + 3 additional in post survey) adapted from the Suicide Prevention for Pharmacy Professionals training and the QPR Gatekeeper Training for Suicide Prevention program. SP prescription counseling videos reviewed for student behaviors: Attempting to identify whether patient was at risk of suicide, directly asking about suicide, referring patient for help, using terminology presented in training (ie, suicide or suicidal thoughts). Reflection questions – whether or not the student pharmacist mentioned the word "suicide" directly, reasons why/why not, how the student planned to incorporate discussions about suicidal ideation into future practice	Knowledge increased across all areas. 40% of student pharmacists responded "yes" to the question, "From what I just learned, I know someone who may need help and I intend to reach out to them now." 21% responded "yes" to the question, "From what I just learned, I have decided to seek help for myself." Prescription counseling assessment: 11% attempted to identify risk factors, 5% asked the patient for more information. 89% used the word "suicide" or "suicidal thoughts", 82% referred the patient to other resources eg, family/ friends, the suicide hotline, or another HCP. Reflections: 78% used the words "suicide" or "suicidal thoughts", 21% asked if the patient was thinking about suicide. Students who did not ask expressed many reasons for this omission
Multidisciplinary studies							
Beebe et al., 2015[42,43] and 2016, United States of America	To examine feasibility and acceptability of an online-blended IPE program, its effect upon attitudes	General mental healthcare	8-week RIDE rotation involving online activities that culminate to a 3-day onsite clinical intensive	Six video scenarios on client-professional communication about common mental health symptoms	Mixed methods: Pre- and post-RIDE survey and post-RIDE focus group	30-item T-TAQ: 6 items each on team structure, leadership, situation monitoring, mutual	Either a positive or no difference between pre- and post-RIDE mean scores. RIDE very well received; pharmacy

(*continued on next page*)

Table 2 (*continued*)

Author(s), country	Study aim	MH related content	Intervention	Specific MH simulation features	Evaluation type and timing	Specific measures featured in evaluation tool(s)	Key results or outcomes
	about IPE, and specific IPE skills			Live interaction with simulated client (online)		support, and communication	students learnt especially how nutrition and exercise science contribute to mental healthcare
Mospan and colleagues[45], United States of America	To examine an interprofessional course to determine the frequency of SI assessment and to compare frequencies across professions	Depression + /- suicide ideation	Self-directed online modules and bi-weekly 3-hour live small group sessions	Students practice interview skills using two to three SP cases. Final OSCE was a semi-structured 8-minute interview with a SP portraying depressive symptoms, indicating a need for suicide assessment, but who on assessment presents without SI	Quantitative: Retrospective review of final OSCEs from 2014 and 2015 for SI assessment	Yes/no whether the student asked the SP about thoughts of harming him/herself at any time during the OSCE	46.4% of pharmacy students performed a SI assessment, which was the lowest of all professions (p = .004)

Abbreviations: ADHD, attention-deficit hyperactivity disorder; APPE, advanced pharmacy practice experience; AQ, attribution questionnaire; AQPS, Association Québécoise de prevention du suicide; ATTS, attitudes toward suicide scale; DSM-5, Diagnostic and Statistical Manual of Mental Disorders; HCP, healthcare professional; ICC, intra-class correlation coefficient; IPE, interprofessional education; IRR, interrater reliability; JSE-HPS, Jefferson scale of empathy-health profession students version; KCES, Kiersma-Chen empathy scale; MH, mental health; MHCE, mental health consumer educator; MHFA, mental health first aid; MHK, mental health knowledge; MHS, mental health stigma; MPharm, Master of Pharmacy; OSCE, objective structured clinical examination; PGY 2, postgraduate year 2; PND, postnatal depression; PTSD, posttraumatic stress disorder; QPR, question, persuade, refer; RIDE, recovery-based interprofessional distance education; SDS, social distance scale; SI, suicide ideation; SP, simulated or standardized patient; T-TAQ, teamSTEPPS teamwork attitudes questionnaire (STEPPS, strategies and tools to enhance performance and patient safety)

Table 3
General Characteristics of Studies Using Mental Health Simulation in Pharmacy Practice (Community Pharmacy) Setting.

Author (s), country	Study design	Sample size (n), population	MMAT quality criteria met[a]
Clayton and colleagues[30], Australia	Cross-sectional	(n = 100) Pharmacists	***
Hattingh and colleagues[31], Australia	Pre/post mixed methods	(n = 163) Pharmacy staff (142 pharmacists + 21 support staff) from 100 community pharmacies	**
Kippist and colleagues[32], Australia	Cross-sectional	(n = 100) Pharmacists	***
Murphy and colleagues[47], Canada	Descriptive	(n = 6) Community pharmacists, paired with 6 community members with lived experience of mental illness; eventually, 35 trained pharmacists in total	*
Murphy and colleagues[49], Canada	Cross-sectional, parallel/ comparative	(n = 35) Intervention group pharmacists (n = 34) Control group pharmacists	****
Murphy and Gardner[48], Canada	Cross-sectional mixed methods	(n = 6) Pharmacists	***
Saba and colleagues[33], Australia	Cross-sectional	(n = 100) Pharmacists	****
Wheeler and colleagues[34,35], Australia	Quasi-experimental pre/ post	(n = 791) Pharmacy staff: n = 465 pharmacists and n = 326 support staff	***

Abbreviation: MMAT, mixed methods appraisal tool.
[a]Interpreting Mixed Methods Appraisal Tool quality criteria met:
***** = 100% quality criteria met; **** = 80% quality criteria met; *** = 60% quality criteria met; ** = 40% quality criteria met; * = 20% quality criteria met

skills of community pharmacists.

Simulation techniques reported in this systematic review are similar to those reported in previous reviews, with the most commonly utilized technique being live simulated/standardized patients (n = 14). This result concurs with Hall's literature review on simulation-based learning in Australian mental health nursing curricula,[50] Williams and colleagues' scoping review of simulation and mental health outcomes,[2] as well as Brown's literature review on simulation in undergraduate nursing education.[51] The prominent use of SPs is likely because this type of simulation is most effective for developing and assessing communication skills, interviewing, history taking, assessment, and client education, which are all important aspects of pharmacy education and practice.[8,50] Reporting on whom the SPs were was covered comprehensively by the studies conducted in pharmacy practice; however, it was only described in half of the studies conducted in pharmacy practice. It is recommended that future studies describe who took on the role of SP. Regarding SPs in general, the terms 'simulated' and 'standardized' patients are commonly used interchangeably within the literature, and the choice of the term used may be influenced by the country in which the study is conducted. All included SP studies conducted in Australia and Canada used 'simulated' patients. Two of the 3 SP studies conducted in the United States of America used 'standardized' patients, with the third interchanging between 'simulated patient' and 'simulated client'. A similar observation was noted in Williams and Song's scoping review, whereby 'simulated' patient is generally used in Australia and the United Kingdom, while 'standardized' patient is more common in Canada and North America.[5] This review has identified that even studies in Canada also commonly use the term 'simulated' patient.

Two simulation techniques that have been identified in previous literature reviews exploring simulation in nursing that were not identified in this literature review were virtual reality and computer simulation. Future studies may wish to explore virtual reality simulations as this "concept is becoming increasingly common in healthcare education with the concomitant decrease in risk to patient safety".[2] Virtual reality enhances the ecological validity of the simulated environment, especially when used in exposure therapy of such mental health conditions as phobias, when the attributable stimuli may be impractical, difficult, or even dangerous to simulate in-vivo.[52] Scenarios created in virtual reality are also more controlled and repeatable, overcoming variability among actors when using live SPs for assessment purposes, as well as the resource challenges of space, time and cost to educational facilities.[53] Future studies incorporating virtual reality simulations may also have the potential to develop learners' mental health-related communication skills. The authors acknowledge that there are studies that have used computer simulation for economic modeling of the sustainability and cost-effectiveness of mental health services or activities, which may influence pharmacists, but these studies did not directly involve pharmacists nor were they conducted in pharmacy practice or education settings. Future researchers may wish to explore the direct impact of economic simulation studies on pharmacy practice and education in mental health.

Regarding the mental health-related content simulated in study interventions, the most common in pharmacy education was depression with or without suicidal thoughts. This is in line with Piot and colleagues' literature review in the field of medicine, whereby simulation training in the context of patients with depression, anxiety disorders, alcohol and substance use disorders, suicide ideation, and violence symptoms were commonly used.[13] Similarly, in another review by Piot and colleagues, clinical topics such as suicide risk, mood and, substance use disorders were found to be the focus of nursing simulation literature.[15] Other areas such as mania, psychosis, personality disorders, and delirium and hallucination are less commonly featured in simulations in the field of medicine.[13] This is similar in pharmacy, whereby three out of the 23 included studies in this review used auditory hallucination simulation. Interestingly, the 3 studies involving auditory hallucination simulation were conducted in the United States of America. Researchers in other countries may wish to include this mental health content in future simulation studies. One study included "complex case scenarios" such as first-episode psychosis; however, this study simulated the experience of clinical rotation presentations rather than simulation of mental health conditions specifically. A suggested rationale for the minimal inclusion of certain mental health content, such as psychosis, maybe because of its complexity making the provision of an accurate portrayal to be more challenging than the portrayal of a physical illness such as diabetes.[13]

Some studies whose interventions involved content relating to multiple mental illnesses did not provide adequate detail on the specific mental illness that the simulation pertained to. It is recommended that future studies describe in greater detail the simulated cases or scenarios used. Furthermore, the detail with which the development of the simulated content is described varies among the included studies, especially those in pharmacy education. Ogard-Repal and colleagues recommend that further studies should investigate how to ensure that simulated scenarios accurately reflect real-life situations in mental health clinical practice.[4] In line with the experiential recovery movement of people with mental disorders, "Nothing about us without us",[54] a strategy for this is to include people with lived experience of mental

Table 4
Aims, Content, Evaluation and Key Results or Outcomes of Studies Using Mental Health Simulation in Pharmacy Practice (Community Pharmacy) Setting.

Author(s), country	Study aim	MH related content	Intervention	Specific MH simulation features	Evaluation type and timing	Specific measures featured in evaluation tool(s)	Key results or outcomes
Clayton and colleagues[30], Australia	To assess pharmacists' quality of information gathering, advice (counseling) and appropriateness of product supplied	Stress	Covert (but consented) SP visits by pharmacy students, scoring on data sheet and immediate return for debriefing	SP requests a "natural product for stress" and is taking OCP	Quantitative: CARE and Product Efficacy score	Total CARE score (out of 18): One point for each question asked or advisory comment provided. Product Efficacy score (out of 2): 2 points for products with highest levels of evidence for stress or anxiety; 1 point for products with low level of evidence; 0 points for products without evidence eg, homeopathic products, flower essences	Total CARE scores ranged from 3 to 17, with an average of 3.1 questions asked (out of 7). Pharmacists were marginally better at providing information than asking questions. Of 24 products recommended, 11 were devoid of evidence for treating stress
Hattingh and colleagues[31], Australia	To develop and pilot intervention whereby community pharmacists partner with MH stakeholders to support medication management of mental health consumers; to identify facilitators and challenges to service implementation and delivery	Medication management – depression, anxiety – eg, new prescription, side effects, not regularly collecting scripts, sleeping difficulties/ regular use of sleeping tablets, medication concerns	FTF workshops to train pharmacists and pharmacy staff to deliver 6-step intervention: consumer recruitment, collection of consumer demographics, baseline self-reported health review, medical support plan, ongoing support and maintenance, final self-reported health review, intervention evaluation	Training supplemented by resource kit containing role-play examples of effective communication skills, goal-setting and motivational interviewing	Mixed methods: Surveys and pharmacy staff telephone interviews	Baseline survey: Background information about the pharmacies to analyse differences between completers and non-completers Semi-structured interviews: 28 questions on training and resources provided, experiences with recruitment and implementation, perceived impact of the intervention on consumers and pharmacy overall Online exit survey: 11 statements about participants' impressions of, and reflections on, the intervention, practice changes, and facilitators and challenges to implementation and delivery	Baseline data: Completers – more connection to community mental health teams (p = .035) and provision of professional services eg, diabetes management (p = .004), OST services (p = .002). Exit survey: Almost 90% perceived the intervention to improve consumers' medication management. Three-quarters indicated that the service assisted carers and family members; almost two-thirds considered that it promoted relationships with HCPs. 93% agreed or strongly agreed that the intervention was practical, majority reporting that they would continue to provide the service in their pharmacies. Phone interviews: Successful strategies by completers – engaging management and all staff, setting up appropriate processes and procedures, integrating intervention with other professional services. Key barriers

(*continued on next page*)

Table 4 (*continued*)

Author(s), country	Study aim	MH related content	Intervention	Specific MH simulation features	Evaluation type and timing	Specific measures featured in evaluation tool(s)	Key results or outcomes
							from non-completers – resistance from pharmacy owners/staff, limited privacy, workforce constraints, project paperwork, time constraints
Kippist and colleagues[32], Australia	To investigate pharmacists' current response to complaints of acute sleeplessness in community pharmacy	Insomnia due to stress	SP (researcher) asked to speak with pharmacist – standardized data collection form completed immediately upon exiting the pharmacy	SP scenario: 22-year-old female experiencing acute, sleep-onset insomnia – stressed about upcoming exams	Quantitative: Supply or non-supply of an OTC sleep aid. Pre-supply, Supply and Sleep scores	Pre-supply score (out of 8) based on PSA's protocols for the supply of OTC or non-prescription medicines. Supply score (out of 4) based on previously developed scoring system for assessing pharmacists in providing instructions for medicine use. Sleep score (out of 9) devised by research team based on important counseling points and previous research	A product was supplied in 96% of visits, remaining 4% referred to physician. Pharmacists performed comparatively better in the 'Supply Score' with mean 3.1 (0.9) compared to the 'Pre-Supply Score' of 3.6 (1.9) or 'Sleep Score' of 2.1 (1.7)
Murphy and colleagues[47], Canada	To design capacity-building intervention for improving community pharmacy-based mental healthcare	General mental healthcare	Intervention designed and developed using previous literature – strategies to change behaviors of community pharmacists when interacting with people with lived experience of mental illness	SPs (trained actors) – formed communication 'Training' intervention function Video clips/SPs – pharmacists' assessments and monitoring of patients with mental illnesses formed 'Modelling' intervention function	Mixed methods: Pre and post questionnaires + surveys by training participants, feedback from pharmacist-led educational outreach sessions; SP visits to community pharmacists who did and did not participate; qualitative interviews	Not described	Behavior change techniques: providing information on others' approval of the behavior; goal-setting; action planning; barrier identification/problem solving; setting graded tasks; providing instruction on when, where, how to perform the behavior; environmental restructuring; modeling and demonstrating the behavior. Program: a training day; website, newsletter, social media; train-the-trainer model; pharmacist-led delivery of educational outreach to people with lived experience of mental illness in their communities. See Murphy et al., 2015[47] below
Murphy and colleagues[49], Canada	To evaluate the impact of an intervention program on	Insomnia due to stress	Education and training day: Pharmacists (n = 6) and persons with mental	Training day: SPs (trained actors). One case had insomnia and	Quantitative: Scoring tool adapted from Kippist et al.[42]	33 yes/no items – Pre-supply, Sleep, Guidance and Supply scores.	Medications recommended by 76% in the intervention versus

(*continued on next page*)

Table 4 (*continued*)

Author(s), country	Study aim	MH related content	Intervention	Specific MH simulation features	Evaluation type and timing	Specific measures featured in evaluation tool(s)	Key results or outcomes
	pharmacists' knowledge, attitudes, and behaviors		illness (n = 6) formed pairs; each pair trained 5 or more pharmacists Program evaluation: SP via telephone + real-time scoring	required a suicide assessment. SP via telephone: 22-year-old female stressed about a recent sleep problem, worried about exam: "I need something to help with sleep"		Pharmacists' assessments, communications and overall interaction quality were rated	100% of control group pharmacists (p = .002). Overall sleep, guidance, and supply scores were different between groups; intervention group pharmacists more often promoted non-medicine resources (p = .039). Intervention pharmacists performed better on 10/12 categories for pharmacist communication and related attributes, including overall quality (p = .007)
Murphy and Gardner[48], Canada	To evaluate pharmacists' performance as part of evaluation of a men's mental health program	Insomnia due to stress	Live FTF training session and online modules, website and other resources. Evaluation: SP (hired actor) interacted with pharmacist then left to score. SP returned that same day and offered to review with pharmacist	SP scenario based on Kippist et al.[42] and previous experience – male (mid 20's) full-time student struggling with acute insomnia due to exams. SP seeking advice and resources to help overcome insomnia, with underlying issues of school-related stress and anxiety	Mixed methods: Numerical scoring sheet with additional sections for qualitative comments	Numerical scoring categories: Pre-supply/assessment (out of 13), Program specific scores (out of 5), Sleep (out of 10), Guidance (out of 2), Supply (if sleeping medication provided/advised) (out of 7), Communication effectiveness (out of 77), Overall rating of quality (out of 10) Qualitative categories: Overall experience, care received, knowledge of the pharmacist, addressing needs, interaction with other staff	Average pre-supply/assessment score was 5.7 (2.0). Three out of 6 pharmacists scored 4 or above (mean 2.2 (2.4)) points and the remaining achieved zero for program criteria. Mean sleep score was 6 (1.9). None of the pharmacists inquired about sleep apnea but all inquired about potential causes of acute insomnia. Highest score for communication effectiveness was 75. Overall the SP felt cared for and respected by the pharmacists and had confidence in their knowledge
Saba and colleagues[33], Australia	To investigate and evaluate pharmacy practice when supplying NRT and counseling patients requesting help with quitting smoking	Smoking cessation	Covert SP visits by authors with no immediate feedback – A standardized data collection form was completed by the SP immediately after leaving the pharmacy	Two SP scenarios: Scenario 1 – 28-year-old female in the initial weeks of pregnancy, requesting assistance with smoking cessation. Scenario 2 – 22-year-old female requesting a 'quit smoking' product for 55-year-old father with CVD	Quantitative: Standardized data collection form – Pre-clinical and Clinical scores based on PSA's standards for providing non-prescription medicines + a previously developed scoring system for assessing community pharmacists' counseling	Pre-clinical (out of 9): pharmacists' ability to ask pertinent questions about the patient's history and level of dependence Clinical (out of 9): recommending an appropriate product and providing counseling	Pharmacists performed better in clinical compared to pre-clinical actions. CVD patient was better handled than pregnant patient. A single product supplied in 16% of scenario 1% and 56% of scenario 2 visits. Combination dispensed 2% (scenario 1) and 10% (scenario 2). A product was suggested, yet not supplied, pending doctor's referral in 45% of

(*continued on next page*)

Table 4 (*continued*)

Author(s), country	Study aim	MH related content	Intervention	Specific MH simulation features	Evaluation type and timing	Specific measures featured in evaluation tool(s)	Key results or outcomes
							encounters (60% of scenario 1% and 30% of scenario 2 visits). Product not supplied based on inappropriate advice in 22% of scenario 1% and 4% of scenario 2 visits
Wheeler and colleagues[34,35], Australia	To evaluate the effectiveness of a mental health promotion intervention, to reduce stigma and negative attitudes, and build skills and confidence to work with mental health consumers and carers	Depression and anxiety	One-day FTF workshop; filmed workshop + pre-recorded role-plays of interactions in community pharmacy formed 8 × 30-minute online modules – consumer/carer narratives, role-plays, PowerPoint presentations with voice-over from MH professionals, interactive case vignettes	Pre-recorded role-plays highlighting communication strategies of consumer-pharmacist interactions	Quantitative: Pre and post questionnaires to self-assess attitudes, confidence, skills, motivations, and barriers to working with consumers and carers with mental health-related issues	Attitudes: DAQ (26 items) + MIA scale (11 items) Confidence and skills: 11 items for pharmacists and 5 items for support staff Motivations: 11 items Barriers: 12 items	Significant reduction in participants' negative attitudes; improvement in confidence and skills (but staff less confident overall). Pharmacists' scores for recovery and outcomes were higher. Pharmacists showed significant improvements in 9 motivational and all barrier items; staff showed significant improvements in 6 motivational and all barrier items

Abbreviations: CARE, check, assess, respond, explain; CVD, cardiovascular disease; DAQ, depression attitude questionnaire; FTF, face-to-face; HCP, healthcare professional; MH, mental health; MIA, mental illness attitude; NRT, nicotine replacement therapy; OCP, oral contraceptive pill; OST, opioid substitution therapy; OTC, over-the-counter; PSA, Pharmaceutical Society of Australia; SP, simulated or standardized patient.

illness in simulated scenario development, SP training, testimony in debriefing, and feedback to participants, which has been shown beneficial for all stakeholders and improves the authenticity, quality, accessibility, and implementation of simulation training.[13,15,25,55]

Concurring with Piot and colleagues' systematic reviews exploring mental health simulations in nursing and with medical doctors,[13,15] most of the studies conducted in the pharmacy education setting investigated the impact of interventions on participants' attitudes, skills and, knowledge through pre/post-tests. Studies resulted in positive outcomes, aligning with previously identified benefits of enhanced self-reported confidence and clinical skills, decreased anxiety regarding the unknown, demystification, and self-awareness.[4] Analyses of these pre/post study results were mostly exclusively quantitative, and as recommended by Williams and colleagues,[2] further research should consider study designs that are both qualitative and quantitative to obtain both narrative and objective data.

In the pharmacy practice setting, the findings of this systematic review concur with Bjornsdottir and colleagues' review about the use of the simulated patient methodology in pharmacy practice research, in that SPs are most commonly used in cross-sectional studies to investigate the current practice of pharmacists, and also as a tool to evaluate the impact of an intervention or training.[17] While simulation has been used to evaluate training in the pharmacy practice setting, no studies in the pharmacy education setting evaluated the long-term professional impact on students' competence after graduation. This is therefore an area for future research.

This review reports on the use of mental health simulation in pharmacy, with direct implications on the education and practice of pharmacists and support staff. As with Ogard-Repal and colleagues' review in the field of mental health nursing, some of the interventions in the included studies involved other learning methods, such as lectures, in addition to the simulation. Therefore, the outcomes of these studies may not be fully attributable to the simulations alone.[4] High heterogeneity was found across studies, as previously found in Piot and colleagues' reviews,[13,15] in terms of setting (education versus practice context), and therefore participants' level of experience as well as outcome measures and instruments, contribute difficulties in comparison, and interpretation.[13] Lastly, this systematic review included only articles published in English, excluding potentially relevant articles in other languages.

5. Conclusion

This review demonstrates that the main techniques used to simulate mental health in pharmacy practice and education are live simulated/standardized patients, pre-recorded scenarios, role-play, and auditory simulations. Simulated mental health content varies across the included studies, with depression with or without suicidal thoughtsbeing the most common. Future research is suggested to consider other simulation methods such as virtual reality and computer simulation, to investigate how lesser-simulated mental health content such as psychosis could be incorporated, and to provide greater detail on the development of the simulated content, such as involving people with lived experience of mental illness and mental health stakeholders in the development process to improve the authenticity of simulation training.

Funding/Support

Lead author (TU) is the grateful recipient of the Elizabeth Wunsch Postgraduate Research Scholarship in Mental Health and Pharmacy Services.

Author Contributions

Study conception and design: all authors; data collection: TU; analysis and interpretation of results: led by TU in collaboration with all authors; draft manuscript preparation: TU. All authors reviewed the results and approved the final version of the manuscript.

Declaration of Competing Interest

None declared.

Acknowledgments

The authors would like to acknowledge the support of Ms Tess Aitken, Academic Liaison Librarian at the University of Sydney Library, in developing the literature search strategy.

Appendix 1

Medline Search Strategy

1	mental health/ or mental disorders/ or mental health.mp.
2	"Internship and Residency"/ or Computer Simulation/ or Clinical Competence/ or Virtual Reality/or Simulation Training/ or simulat*.mp.
3	Clinical Competence/ or Models, Biological/ or Simulation Training/ or Computer Simulation/ orsimulation.mp.
4	Physician-Patient Relations/ or Clinical Competence/ or Educational Measurement/ or PatientSimulation/ or standardi?ed patient*.mp. or Communication/ or pseudo patient.mp. or role playing/or roleplay*.mp. or role play*.mp.
5	2 or 3 or 4
6	Pharmacy Residencies/ or pharmacy.mp. or Pharmacy/ or Education, Pharmacy, Continuing/ orEvidence-Based Pharmacy Practice/ or Education, Pharmacy/ or Faculty, Pharmacy/ or CommunityPharmacy Services/ or Pharmacy Technicians/ or Clinical Pharmacy Information Systems/ orLicensure, Pharmacy/ or Education, Pharmacy, Graduate/ or Pharmacy Service, Hospital/ orSchools, Pharmacy/ or Students, Pharmacy/ or Ethics, Pharmacy/ or Pharmacy Research/ orLegislation, Pharmacy/
7	1 and 5 and 6

References

1. Lame G, Dixon-Woods M. Using clinical simulation to study how to improve quality and safety in healthcare. *BMJ Simul Technol Enhanc Learn.* 2020;6(2):87–94. https://doi.org/10.1136/bmjstel-2018-000370
2. Williams B, Reddy P, Marshall S, Beovich B, McKarney L. Simulation and mental health outcomes: a scoping review. *Adv Simul.* 2017;2:2. https://doi.org/10.1186/s41077-016-0035-9
3. Brown JF. Applications of simulation technology in psychiatric mental health nursing education. *J Psychiatr Ment Health Nurs.* 2008;15(8):638–644. https://doi.org/10.1111/j.1365-2850.2008.001281.x
4. Øgård-Repål A, De Presno Å.K, Fossum M. Simulation with standardized patients to prepare undergraduate nursing students for mental health clinical practice: an integrative literature review. *Nurse Educ Today.* 2018;66:149–157. https://doi.org/10.1016/j.nedt.2018.04.018
5. Williams B, Song JJY. Are simulated patients effective in facilitating development of clinical competence for healthcare students? A scoping review. *Adv Simul ((Lond)).* 2016;1(1):6. https://doi.org/10.1186/s41077-016-0006-1
6. McNaughton N, Ravitz P, Wadell A, Hodges BD. Psychiatric education and simulation: a review of the literature. *Can J Psychiatry.* 2008;53(2):85–93. https://doi.org/10.1177/070674370805300203
7. Attoe C, Kowalski C, Fernando A, Cross S. Integrating mental health simulation into routine health-care education. *Lancet Psychiatry.* 2016;3(8):702–703. https://doi.org/10.1016/S2215-0366(16)30100-6
8. Becker KL, Rose LE, Berg JB, Park H, Shatzer JH. The teaching effectiveness of standardized patients. *J Nurs Educ.* 2006;45(4):103–111. https://doi.org/10.3928/01484834-20060401-03
9. O'Reilly CL, Bell JS, Chen TF. Pharmacists' beliefs about treatments and outcomes of mental disorders: a mental health literacy survey. *Aust N Z J Psychiatry.* 2010;44(12):1089–1096. https://doi.org/10.3109/00048674.2010.512864

10. Murphy AL, O'Reilly CL, Ataya R, et al. Survey of Australian and Canadian community pharmacists' experiences with patients at risk of suicide. *Psychiatr Serv.* 2020;71(3):293–296. https://doi.org/10.1176/appi.ps.201900244
11. Lépine JP, Briley M. The increasing burden of depression. *Neuropsychiatr Dis Treat.* 2011;7(Suppl 1):3–7. https://doi.org/10.2147/NDT.S19617
12. Mathers CD, Loncar D. Projections of global mortality and burden of disease from 2002 to 2030. *PLoS Med.* 2006;3(11):e442https://doi.org/10.1371/journal.pmed.0030442
13. Piot MA, Dechartres A, Attoe C, et al. Simulation in psychiatry for medical doctors: a systematic review and meta-analysis. *Med Educ.* 2020;54(8):696–708. https://doi.org/10.1111/medu.14166
14. Medley CF, Horne C. Using simulation technology for undergraduate nursing education. *J Nurs Educ.* 2005;44(1):31–34. https://doi.org/10.3928/01484834-20050101-06
15. Piot MA, Dechartres A, Attoe C, et al. Effectiveness of simulation in psychiatry for nursing students, nurses and nurse practitioners: a systematic review and meta-analysis. *J Adv Nurs.* 2022;78(2):332–347. https://doi.org/10.1111/jan.14986
16. Piot MA, Dechartres A, Guerrier G, et al. Effectiveness of simulation in psychiatry for initial and continuing training of healthcare professionals: protocol for a systematic review. *BMJ Open.* 2018;8(7):e021012https://doi.org/10.1136/bmjopen-2017-021012
17. Björnsdottir I, Granas AG, Bradley A, Norris P. A systematic review of the use of simulated patient methodology in pharmacy practice research from 2006 to 2016. *Int J Pharm Pract.* 2020;28(1):13–25. https://doi.org/10.1111/ijpp.12570
18. Shamseer LMD, Clarke M, Ghersi D, et al. Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015: elaboration and explanation. *BMJ.* 2015;350:g7647. https://doi.org/10.1136/bmj.g7647
19. Ung T., El-Den S., Moles R., O'Reilly C. The use of mental health simulation in pharmacy practice and education: a systematic review. Published 2021. *Prospero*. Accessed March 19, 2021. (https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42021233864).
20. EndNote [computer program]. Version EndNote X9. Philadelphia, PA: Clarivate Analytics;2013.
21. Diagnostic and statistical manual of mental disorders 5th ed. *American Psychiatric Association*; 2013.
22. Hong Q.N.P.P., Fàbregues S., Bartlett G., Boardman F., Cargo M., Dagenais P., Gagnon M.-P., Griffiths F., Nicolau B., O'Cathain A., Rousseau M.-C., Vedel I. *Mixed Methods Appraisal Tool (MMAT), version 2018.* Registration of Copyright (#1148552), Canadian Intellectual Property Office, Industry Canada.
23. Page MJ, Bossuyt PM, Boutron I, et al. The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ.* 2021;372:n71. https://doi.org/10.1136/bmj.n71
24. Bell JS, Johns R, Rose G, Chen TF. A comparative study of consumer participation in mental health pharmacy education. *Ann Pharmacother.* 2006;40(10):1759–1765. https://doi.org/10.1345/aph.1H163
25. Boukouvalas EA, El-Den S, Chen TF, et al. Confidence and attitudes of pharmacy students towards suicidal crises: patient simulation using people with a lived experience. *Soc Psychiatry Psychiatr Epidemiol.* 2018;53(11):1185–1195. https://doi.org/10.1007/s00127-018-1582-2
26. El-Den S, Chen TF, Moles RJ, O'Reilly C. Assessing mental health first aid skills using simulated patients. *Am J Pharm Educ.* 2018;82(2):6222. https://doi.org/10.5688/ajpe6222
27. El-Den S, Moles RJ, Zhang R, O'Reilly CL. Simulated patient role-plays with consumers with lived experience of mental illness post-mental health first aid training: interrater and test re-test reliability of an observed behavioral assessment rubric. *Pharmacy ((Basel)).* 2021;9(1):24. https://doi.org/10.3390/pharmacy9010028
28. Nguyen E, Chen TF, O'Reilly CL. Evaluating the impact of direct and indirect contact on the mental health stigma of pharmacy students. *Soc Psychiatry Psychiatr Epidemiol.* 2012;47(7):1087–1098. https://doi.org/10.1007/s00127-011-0413-5
29. O'Reilly CL, Moles RJ, Boukouvalas E, El-Den S. Assessing students' mental health crisis skills via consumers with lived experience: a qualitative evaluation. *JMHTEP.* 2019;14(5):361–371. https://doi.org/10.1108/JMHTEP-01-2019-0007
30. Clayton K, Luxford Y, Colaci J, et al. Community pharmacists' recommendations for natural products for stress in Melbourne, Australia: a simulated patient study. *Pharm Pract.* 2020;18(1):1–8. https://doi.org/10.18549/PharmPract.2020.1.1660
31. Hattingh HL, Kelly F, Fowler J, Wheeler AJ. Implementation of a mental health medication management intervention in Australian community pharmacies: facilitators and challenges. *Res Social Adm Pharm.* 2017;13(5):969–979. https://doi.org/10.1016/j.sapharm.2017.05.017
32. Kippist C, Wong K, Bartlett D, Saini B. How do pharmacists respond to complaints of acute insomnia? A simulated patient study. *Int J Clin Pharm.* 2011;33(2):237–245. https://doi.org/10.1007/s11096-011-9482-5
33. Saba M, Diep J, Bittoun R, Saini B. Provision of smoking cessation services in Australian community pharmacies: a simulated patient study. *Int J Clin Pharm.* 2014;36(3):604–614. https://doi.org/10.1007/s11096-014-9944-7
34. Wheeler A, Fowler J, Hattingh L. Using an intervention mapping framework to develop an online mental health continuing education program for pharmacy staff. *J Contin Educ Health Prof.* 2013;33(4):258–266. https://doi.org/10.1002/chp.21198
35. Wheeler AJ, Mey A, Fowler JL, Mihala G, Kelly F. A web-based mental health promotion intervention for pharmacy staff to reduce stigmatising and discriminating attitudes. *Health Promot J Austr.* 2018;29(3):328–336. https://doi.org/10.1002/hpja.33
36. Bamgbade BA, Ford KH, Barner JC. Impact of a mental illness stigma awareness intervention on pharmacy student attitudes and knowledge. *Am J Pharm Educ.* 2016;80(5):80. https://doi.org/10.5688/ajpe80580
37. Gable KN, Muhlstadt KL, Celio MA. A mental health elective to improve pharmacy students' perspectives on mental illness. *Am J Pharm Educ.* 2011;75(2):34. https://doi.org/10.5688/ajpe75234
38. McGuire JM, Bynum LA, Wright E. The effect of an elective psychiatry course on pharmacy student empathy. *Curr Pharm Teach Learn.* 2016;8(4):565–571. https://doi.org/10.1016/j.cptl.2016.03.005
39. Pittenger AL, Dimitropoulos E, Foag J, et al. Closing the classroom theory to practice gap by simulating a psychiatric pharmacy practice experience. *Am J Pharm Educ.* 2019;83(10):7276. https://doi.org/10.5688/ajpe7276
40. Skoy ET, Eukel HN, Frenzel JE, Werremeyer A, McDaniel B. Use of an auditory hallucination simulation to increase student pharmacist empathy for patients with mental illness. *Am J Pharm Educ.* 2016;80(8):142. https://doi.org/10.5688/ajpe808142
41. Willson MN, Robinson JD, McKeirnan KC, Akers JM, Buchman CR. Training student pharmacists in suicide awareness and prevention. *Am J Pharm Educ.* 2020;84(8):ajpe847813. https://doi.org/10.5688/ajpe847813
42. Beebe L, Raynor H, Roman MW, Thompson D, Ray S. The recovery-based interprofessional distance education (RIDE) rotation: content and rationale. *Issues Ment Health Nurs.* 2015;36(10):773–780. https://doi.org/10.3109/01612840.2015.1034332
43. Beebe L, Roman M, Skolits G, et al. Effects of an online-blended interprofessional education program on graduate students in psychiatric nursing, exercise physiology, nutrition and pharmacy: a pilot study. *Am Res J Nurs.* 2015;1(3):7–12.
44. Beebe LH, Roman M, Raynor H, Thompson D, Ray S. Transforming health care through interprofessional graduate education. *Perspect Psychiatr Care.* 2018;54(1):19–24. https://doi.org/10.1111/ppc.12188
45. Mospan CM, Hess R, Blackwelder R, Grover S, Dula C. A two-year review of suicide ideation assessments among medical, nursing, and pharmacy students. *J Interprof Care.* 2017;31(4):537–539. https://doi.org/10.1080/13561820.2017.1301900
46. Vincent PD, David PM. Suicide prevention in pharmaceutical education: raising awareness with inspiring stories. *Ment Health Clin.* 2016;6(2):109–113. https://doi.org/10.9740/mhc.2016.03.109
47. Murphy AL, Martin-Misener R, Kutcher SP, Gardner DM. Pharmacists' performance in a telephone-based simulated patient study after a mental health capacity-building program. *Int J Clin Pharm.* 2015;37(6):1009–1013. https://doi.org/10.1007/s11096-015-0171-7
48. Murphy AL, Gardner DM. A simulated patient evaluation of pharmacist's performance in a men's mental health program. *BMC Res Notes.* 2018;11(1):765. https://doi.org/10.1186/s13104-018-3869-5
49. Murphy AL, Gardner DM, Kutcher SP, Martin-Misener R. A theory-informed approach to mental health care capacity building for pharmacists. *Int J Ment Health Syst.* 2014;8(1):46. https://doi.org/10.1186/1752-4458-8-46
50. Hall K. Simulation-based learning in Australian undergraduate mental health nursing curricula: a literature review. *Clin Simul Nurs.* 2017;13(8):380–389. https://doi.org/10.1016/j.ecns.2017.04.002
51. Brown AM. Simulation in undergraduate mental health nursing education: a literature review. *Clin Simul Nurs.* 2015;11(10):445–449. https://doi.org/10.1016/j.ecns.2015.08.003
52. Gregg L, Tarrier N. Virtual reality in mental health: a review of the literature. *Soc Psychiatry Psychiatr Epidemiol.* 2007;42(5):343–354. https://doi.org/10.1007/s00127-007-0173-4
53. Pottle J. Virtual reality and the transformation of medical education. *Future Healthc J.* 2019;6(3):181–185. https://doi.org/10.7861/fhj.2019-0036
54. Recovery from mental illness: the guiding vision of the mental health service system in the 1990s. 4. SAGE Publications Ltd. *London.* 2013:I225.
55. Kassam A, Glozier N, Leese M, Loughran J, Thornicroft G. A controlled trial of mental illness related stigma training for medical students. *BMC Med Educ.* 2011;11:51. https://doi.org/10.1186/1472-6920-11-51

PART B –
CO-DESIGN AND CONTENT VALIDATION

OVERVIEW OF PART B

Part B (Chapter 3) details the co-design and content validation process involved in developing the three psychosis care role-plays in partnership with mental health stakeholders. The psychosis care role-plays were first pilot-tested for face validity with final year Master of Pharmacy students (Chapter 3), then carried through and evaluated in the classroom with final year pharmacy students, as described in Part C (Chapters 4 and 5).

CHAPTER THREE –

CO-DESIGNING PSYCHOSIS SIMULATED PATIENT SCENARIOS WITH MENTAL HEALTH STAKEHOLDERS FOR PHARMACY CURRICULA

Ung TX, O'Reilly CL, Moles RJ, El-Den S (2023)

Int J Clin Pharm 45:1184–91.

https://doi.org/10.1007/s11096-023-01622-9

OVERVIEW OF CHAPTER THREE

Chapter 3 covers the co-design and content validation process of the three psychosis care role-plays that were developed in partnership with mental health stakeholders. Two mental health consumers met with three members of the research team, after which the three scenarios and marking rubrics were drafted. The draft educational material was then disseminated to the content validation panel, which was comprised of four mental health consumers/carers and five healthcare professionals with special interest and expertise in mental health. Content validation involved two rounds. Round 1 involved individual completion of a survey for stakeholders to score each item of the educational material for their relevance, clarity, and essentiality. Content validity indices and ratios, as well as open-ended feedback comments, determined which items required preliminary revisions. Round 2 of content validation was a panel meeting, whereby 11 preliminary revisions were presented, discussed, and re-rated to finalise the educational material. The three finalised scenarios and marking rubrics were then pilot-tested for face validity with final year Master of Pharmacy students.

Appendix VIII includes the ethics approved documents for Project No. 2020/776, pertaining to the co-design and content validation process in Chapter 3. The three finalised psychosis care role-play scenarios and marking rubrics (educational material) are found in Appendices IX – XI. Appendix XII includes the ethics approved documents for Project No. 2015/626, relating to the pilot-testing in Chapter 3.

International Journal of Clinical Pharmacy (2023) 45:1184–1191
https://doi.org/10.1007/s11096-023-01622-9

RESEARCH ARTICLE

Co-designing psychosis simulated patient scenarios with mental health stakeholders for pharmacy curricula

Tina X. Ung[1] · Claire L. O'Reilly[1] · Rebekah J. Moles[1] · Sarira El-Den[1]

Received: 29 March 2023 / Accepted: 29 June 2023 / Published online: 28 July 2023
© The Author(s) 2023

Abstract

Background Pharmacists need knowledge and confidence to support people living with mental illness. Evidence-based educational materials for pharmacy students to provide psychosis care is limited.

Aim To co-design, content validate and pilot-test, with mental health stakeholders, simulated patient scenarios to educate and assess students in providing psychosis care.

Method Mental health consumers were invited to co-design three simulated patient scenarios (first-episode psychosis, carer of someone living with schizophrenia, non-adherence to antipsychotics), guided by published and psychometrically-tested materials. A panel of mental health stakeholders participated in two rounds of content validation (RAND/UCLA appropriateness model). Round 1 involved individual survey completion to calculate item content validity index (I-CVI) for relevance/clarity, content validity ratio for essentiality and overall scale content validity index (S-CVI/Ave and S-CVI/UA) scores for each scenario. Scores analyses and feedback comments informed revisions. Round 2 involved a panel meeting to discuss revisions and finalise content. The scenarios were then pilot-tested with pharmacy students.

Results Two consumers participated in co-design, nine stakeholders in content validation. All items showed excellent content validity for relevance/clarity. Eleven items were revised for essentiality, discussed, then re-rated at the panel meeting for consensus. The scenarios were pilot-tested with pharmacy students (n = 15) and reported to be realistic and relevant to future practice, contributing to students' confidence in supporting people experiencing mental health symptoms or crises.

Conclusion Partnering with mental health stakeholders has enabled co-design of authentic, content valid educational materials for pharmacy students to provide psychosis care, in preparation for future provision of mental health support.

Keywords Co-design · Content validation · Mental health education · Pharmacy · Psychosis · Simulation

Impact statements

- Co-design through collaboration with people with lived experience of mental illness and healthcare professionals allows for the development of authentic psychosis care assessment materials for pharmacy curricula.
- Simulated patient role-play assessments are well-received by pharmacy students, who value opportunities to practise newly-acquired Mental Health First Aid skills and build their confidence in providing psychosis care.
- Authentic educational materials, co-designed with mental health stakeholders, may be adapted for continuing professional development activities designed to upskill practising pharmacists in providing mental health support.

✉ Tina X. Ung
tina.xu@sydney.edu.au

[1] School of Pharmacy, The University of Sydney, Pharmacy and Bank Building A15, Science Rd, Camperdown, Sydney, NSW 2006, Australia

Introduction

Mental illness is a leading cause of global health-related burden; there is urgency to strengthen mental healthcare [1]. Healthcare professionals require relevant knowledge and skills to support mental health consumers and their carers [2]. People living with mental illness are "experts by experience"; incorporating this unique experiential knowledge via experience-based co-design (EBCD) [3] is pivotal in developing and delivering authentic, person-centred mental

health services to meet their needs, and educational needs of healthcare professionals [4, 5].

While personal experiences of mental health consumers/carers enrich healthcare education via learning activities (e.g. lectures, workshops), there is limited involvement of mental health consumers/carers in educational design, and limited direction on methodological approaches in this area [6, 7]. In nursing, a consumer-academic role partnering with faculty to develop and teach a psychopathology course from a consumer's perspective (alongside the traditional medical approach) for postgraduate psychiatric nursing students was positively perceived by students and faculty members and upon reflection, impactful on clinical practice [8, 9]. In medicine, mental health consumers were involved in a steering committee with academics to jointly plan, develop, implement and evaluate curriculum regarding psychiatric interviewing skills, demonstrating feasibility [10]. Consumers with chronic disease (including mental illness) and their families participated in planning teams to develop workshop learning objectives and activities for occupational therapy, pharmacy, nursing, medicine, dietetics, social work and physical therapy students, based on what they thought was important for students to learn [4]. Another approach to co-designing health education with consumers incorporated arts and humanities-based teaching methodologies (e.g. storytelling, visual mind maps) [6]. Nonetheless, co-design with consumers is lacking in pharmacy education. A recent systematic review of consumer interactions with student pharmacists [11] found that while studies involved consumers in education delivery, minimal studies report on consumer involvement in content design; there is a need to further engage consumers to co-design curricula to ensure authenticity and relevance to practice. This is a significant research gap; pharmacists cite lack of education, skills, experience and confidence as barriers to caring for people living with mental illness [12–15]. Another attributable barrier to providing mental health support is stigma; perceived stigma by healthcare professionals can negatively impact patient help-seeking and access to care, consequently impeding recovery [16–18].

Effective strategies to reduce stigma include contact with mental health consumers [19]. Mental Health First Aid (MHFA) training [20] trains participants to approach and assist people experiencing mental health problems/crises [21], increasing confidence and reducing stigma. MHFA training has been widely delivered and evaluated for the general public [22] and tertiary healthcare students [20, 23]. In tertiary pharmacy programs, mental health consumers/carers have been involved in the delivery of mental health education [17, 19, 24], including assessment of MHFA skills via simulated patient (SP) role-plays [25–27]. SP role-plays are an effective and well-received method of education and assessment in pharmacy practice [28]. In pharmacy education, this pedagogy can reduce stigma, improve attitudes and increase willingness and confidence to support people living with mental illnesses (e.g. depression, anxiety) and for people experiencing mental health crises (e.g. suicide) [25, 26]. Qualitative research indicates that both consumers and students benefit from role-play participation [25].

Nonetheless, pharmacists' knowledge and literacy of psychotic illnesses is lacking; symptoms of schizophrenia are less easily recognised by pharmacists than depression [29]. People living with schizophrenia die at least 13–15 years earlier than the general population, mostly due to associated comorbidities [30]. Pharmacists can play crucial roles in psychosis care; fulfilment of this important role requires training and confidence.

Aim

The aim of this project was to partner with mental health stakeholders (people with lived experience of mental illness and health professionals) to co-design, content validate and pilot-test SP scenarios for pharmacy education in psychosis care.

Ethics approval

This project was approved by The University of Sydney Human Research Ethics Committee (Project No.2020/776 and 2015/626); conducted with reference to Ethics Guidelines for Internet-mediated Research [31]. Participants provided written consent.

Method

The project involved three phases: Co-design (Phase 1) of educational materials (SP scenarios and associated marking rubrics) by mental health consumers/carers and the research team, content validation (Phase 2) of the educational materials by a panel of mental health stakeholders, followed by mixed-methods pilot-testing for face validity (Phase 3) among final year Master of Pharmacy (MPharm) students.

This manuscript was prepared according to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) cross-sectional reporting guidelines [32].

Participant recruitment

Recruitment of mental health consumer/carer participants for Phases 1 and 2 was facilitated by One Door Mental Health, a not-for-profit organisation that advocates for and trains mental health consumers/carers to speak publicly about their lived experience [33]. The research team aimed

to recruit up to four mental health consumers/carers for each phase. Eligibility criteria were: people aged over 18 years living with, or caring for someone living with, mental illness. Eligible mental health consumers/carers participated exclusively in either Phase 1 or 2.

Mental health professionals (psychiatrists, psychologists) and pharmacists known to the research team were invited to join the consumers/carers in Phase 2. Following content validation process recommendations [34, 35], the research team aimed to recruit up to 10 panellists for Phase 2, including a diverse representation of mental health stakeholders.

All final year MPharm students (n = 50) at The University of Sydney, who had completed a mental health unit of study, MHFA training and enrolled in a Professional Practice unit of study, were placed into five groups of 10 for Phase 3. All students were invited to participate in a focus group in the week following the simulations.

Phase 1 co-design

Mental health consumers/carers were invited to meet with three researchers to co-design three scenarios (and associated marking rubrics), involving people and carers of people experiencing symptoms, illnesses and crises whereby psychosis is a key feature (e.g. schizophrenia). In this manuscript, these are referred to as educational materials. The scenario topics were intended to provide a variety of psychosis-related experiences that pharmacists may encounter in practice: a person experiencing first-episode psychosis, a carer of a person living with schizophrenia, a person who is non-adherent to antipsychotics and at risk of relapse. For each scenario, the co-design panel discussed demographics (gender/age), presenting signs/symptoms, medical/social history, opening lines, responses to anticipated questions, and pharmacists' role in providing support. The researchers drafted the educational materials based on the audio-recorded discussions, guided by published, psychometrically-tested rubrics previously used in curricula [27]. Further development was conducted via an iterative process of listening to the audio-recording for finer details, followed by discussions and modifications until consensus was reached amongst researchers.

Phase 2 content validation

Mental health stakeholders were invited to content validate the educational materials, through a two-round modified Delphi process, guided by the RAND/UCLA appropriateness model [35, 36]. This entailed an initial individual rating round followed by a meeting to discuss results to attain consensus [35, 36]. Each Phase 2 participant individually completed an online survey, rating every item (each SP profile/scenario section, action items in the associated marking rubric) of the educational materials for relevance, clarity, essentiality, with opportunity to provide written comments. Survey data were collected and managed using the REDCap electronic data capture tool hosted at The University of Sydney [37]. Relevance and clarity were rated on a four-point scale (1 = not relevant/clear, 2 = unable to assess relevance/clarity without item revision, 3 = relevant/clear but needs minor alteration, 4 = very relevant/clear and succinct), enabling quantitative calculation of item content validity index (I-CVI) scores [34, 38–43]. A multi-rater agreement score (Kappa co-efficient) was calculated for I-CVIs, yielding a degree of agreement beyond chance [38, 41, 44, 45]. Essentiality was rated on a three-point scale (1 = not essential, 2 = useful but not essential, 3 = essential), to calculate content validity ratio (CVR) [44, 46–48]. Overall scale-level average content validity index (S-CVI/Ave) and scale-level content validity index by universal agreement (S-CVI/UA) scores for each scenario were calculated [41, 44]. Analyses of I-CVI, CVR, S-CVI/Ave and S-CVI/UA scores, alongside free-text feedback comments, informed item revisions. The revised materials were disseminated to Phase 2 participants in preparation for Round 2, involving a panel meeting with all members of the research team, facilitated by TU via Zoom video conference [49] due to Covid-19 restrictions. The meeting focussed on revisions of items with low content validity. Revised items were presented to the panel and re-rated via live Zoom polls ("repolled"). The panel meeting was audio-recorded, transcribed to inform final revisions of educational materials, then disseminated again to Phase 2 participants for final feedback before pilot-testing.

Phase 3 pilot-testing for face validity

As part of the Professional Practice unit of study, MPharm students attend two 2.5 h tutorials per week; five groups of 10 students running concurrently. While the simulations were developed for face-to-face in-class delivery, pilot-testing was conducted on Zoom due to Covid-19 restrictions. One researcher (TU, who is MHFA-trained) undertook the dual role of SP and tutor to pilot-test the scenarios with students over three sessions (1.5 weeks). In each session, one student from each group was randomly allocated to role-play with TU, who also assessed the student using the developed marking rubric while the remaining nine classmates observed. Immediately after each simulation, the role-playing student self-assessed their performance, scoring themselves either full/partial/no marks for each rubric item, followed by feedback from TU and debrief discussion with all students. This process took ~ 30 min; TU then moved to the next virtual classroom, repeating this process five times per session. One scenario was pilot-tested during each of the three sessions, with each of the five groups, totalling 15 role-plays for scoring. Audio-recorded focus groups were

conducted on Zoom in the week following the final session, allowing students to voice their perspectives on the scenarios. Audio-recordings were transcribed, then listened to multiple times by one researcher (TU). Student quotes were discussed amongst the research team to discern whether the scenarios were face valid, acceptable, and relevant.

Results

Phase 1 co-design

Two mental health consumers attended the Phase 1 co-design panel meeting in April 2021 (166 min). Table 1 provides examples of co-design panel quotes that informed scenario medical/social histories.

After further development of educational materials, including rubric items with pass/fail assessment criteria, the educational materials contained a total of 83 items: 30 in scenario 1, 27 in scenario 2, 26 in scenario 3.

Phase 2 content validation—round 1 survey

Nine mental health stakeholders (four mental health consumers/carers, two pharmacist researchers, one psychiatrist, one academic psychologist, one counsellor/mental health social worker) participated in Phase 2, Round 1. For a panel of nine judges, minimum I-CVI (relevance, clarity) and CVR (essentiality) for excellent content validity is 0.78 [34, 41]. Each item in all three scenarios demonstrated excellent content validity, with I-CVIs 1.00 (n = 59) or 0.89 (n = 24) for relevance and 1.00 (n = 65) or 0.89 (n = 18) for clarity. Kappa co-efficients exceeded 0.74, indicating excellent agreement beyond chance [38]. CVRs ranged 0.11–1.00; 11 items generated CVR < 0.78, indicating poor content validity for essentiality. Overall scale-level scores required a minimum S-CVI/Ave of 0.9 and S-CVI/UA 0.8 for excellent content validity [41, 44]. Overall S-CVI/Ave for each scenario were excellent (0.96 or higher), S-CVI/UA ranged 0.63–0.89 (Table 2).

Phase 2 content validation–round 2 panel meeting

Eight of the nine Round 1 participants attended the Round 2 meeting in September 2021 (108 min). Recommended revisions for the 11 items with low CVRs were presented and repolled, with discussions until consensus was reached. Supplementary material 1 shows the 11 revised items and CVRs in the two rounds.

No further suggestions were provided when the finalised materials were emailed to Phase 2 participants.

Table 2 Average and universal agreement scores per scenario (n = 9 stakeholders)

Scenario	Relevance S-CVI/Ave[a]	Relevance S-CVI/UA[b]	Clarity S-CVI/Ave	Clarity S-CVI/UA	Average CVR[c]
1	0.96	0.63	0.96	0.67	0.89
2	0.97	0.70	0.99	0.89	0.84
3	0.98	0.81	0.98	0.81	0.88

[a]S-CVI/Ave = scale-level average content validity index; [b]S-CVI/UA = scale-level content validity index by universal agreement; [c]CVR = content validity ratio

Table 1 Examples of co-design panel quotes that informed scenario medical/social histories

Scenario	Co-design panel quotes	Resulting scenario information
1	"I found marijuana more relaxing…It was the only way to keep the voices out of my head" [C1[a]] "Alcohol makes the medication go down nicer" [C1] "Cigarette addictions are prevalent in schizophrenia people" [C2[b]]	Sleeping troubles have worsened since leaving home–you self-medicate with marijuana (1 joint before bed) and beer. You smoke 1 pack of cigarettes daily, and drink at least 6 cups of coffee or energy drinks every day
2	"She's doing so much caring and that, she couldn't afford to be married…She's looking after her parents. She's looking after the younger brother. If she had a family, how could she fit them in?" [C1]	You were seeing someone previously and wanted to start a family, but your relationship fizzled as you "*couldn't find the time for him*"
3	"I went down from like in excess of 200 kilos down to like 140…It was an enormous amount of weight (lost) when I came off the Zyprexa® [olanzapine]" [C2] "I used to miss meds to wake up in time…if I had early morning appointments" [C2] "I've done it before for two weeks…I wanted to find out what it would feel like to be normal" [C1]	Because you know that Zyprexa® (olanzapine) has caused your weight gain, you have been weaning yourself off it for the past few weeks, especially when you know you need to wake up early the next day for your wife's antenatal classes…You are also very curious to know what it is like to be "normal", without taking the Zyprexa® (olanzapine)

[a]C1 = consumer/carer 1

[b]C2 = consumer/carer 2

Supplementary material 2 provides finalised synopses of the SP presentations. The final marking rubric for scenario 1 contained 11 items, scenario 2 - 10 items, scenario 3 - 9 items. Each rubric item was equally weighted and scored out of 2 (2 = full marks, 1 = partial marks, 0 = no marks). As agreed upon by the Phase 2 panel, to pass each scenario a student needed to score at least 50% and fulfil all pass/fail criteria for the scenario.

Phase 3 pilot-testing for face validity

The scenarios were pilot-tested in October 2021, with five students per scenario. Mean student score was 87% (Standard deviation (SD) = 9) for scenario 1, 86% (SD = 7) for scenario 2, 91% (SD = 5) for scenario 3. One student did not fulfil pass/fail criteria for scenario 1, all students fulfilled pass/fail criteria for scenarios 2 and 3. Two focus groups (n = 2, n = 3) were conducted (28 min, 31 min). Students highlighted that scenario 1 (first-episode psychosis) particularly stood out: *"…really interesting, because it just exposed you to something so extreme, but it's something that could happen."* [FG1a] Students found all three scenarios realistic: *"It was really good, because with the whole acting…I could feel the pressure and I could feel the situation as if I was actually in the pharmacy trying to figure it out."* [FG2a] Furthermore, students reflected on how the authenticity of the scenarios and assessment method positively impacted their confidence: *"It actually makes us confident enough to like talk in a situation like if we got any case…We can provide information to people…It increases our confidence level a lot."* [FG2b].

Discussion

Statement of key findings

This project showcases partnership with mental health stakeholders to co-design and content validate authentic educational materials for pharmacy students, successfully pilot-tested, positively received, and relevant to future practice.

Interpretation

Concurring with EBCD principles [3], lived experiences of mental health consumers and professionals were integral to the development of the educational materials [50, 51]. Similar to previous co-design studies [52–54], consumers met to brainstorm ideas, further developed by the research team. In contrast to previous co-design research where stakeholders reviewed one to two elements of developed materials [55], all content was reviewed by each stakeholder during content validation. As recommended by previous co-design researchers [50, 51], next steps of this research will continue involving mental health consumers, in formal delivery and evaluation of the content and face-valid educational materials in the classroom.

Content validation scores revealed that every item across all scenarios demonstrated excellent content validity for relevance and clarity. When calculating kappa coefficients (k) for I-CVI, the k value for each item was similar to its pertaining I-CVI. This is congruent with Polit et al.'s appraisal and recommendations for reporting content validity [56]; as the number of rating experts increases, the probability of chance agreement decreases, hence why I-CVI and k values converged with a panel of nine stakeholders. As suggested, "any I-CVI greater than 0.78 would fall into the range considered excellent, regardless of the number of experts" [56]. All scenario items scored 1.00 or 0.89 for relevance and clarity, affirming excellent content validity.

As recommended by Polit and Beck [41], both S-CVI/Ave and S-CVI/UA were computed. S-CVI/Ave for each scenario exceeded the minimum 0.9 for excellent content validity. Relevance S-CVI/UA for scenarios 1 and 2 and clarity S-CVI/UA for scenario 1 were below the minimum value of 0.8, however it is noted that "the S-CVI/UA calculation method is overly stringent" [41], and for a scale to be judged with excellent content validity, it contains items with I-CVIs of 0.78 or higher and S-CVI/Ave 0.90 or higher, congruent with each of the scenarios [56].

In preparation for the Round 2 panel meeting, SP demographics for all three scenarios required revision, indicated by low CVRs (0.11 or 0.33). It was agreed at the Round 2 meeting that a person (whether a class tutor/researcher as in this project, or trained actor in future studies) of any gender could role-play all SPs, and age ranges were widened. These revisions highlight the importance of SP profiles and considerations during actor recruitment, to be more inclusive and ultimately more representative of the diverse range of consumer demographics that healthcare professionals encounter. This also highlights to future healthcare professionals, especially role-playing students in the formal evaluation of this project, the importance of not stereotyping and to expect to encounter a broad range of consumers. Specific details regarding the SP's physical attributes (clothing, makeup) were also added to further illustrate physical presentations and to aid future actor preparation and training.

During pilot testing, mean student scores were similar across the diverse psychosis-related scenarios, allowing students to demonstrate a range of MHFA skills. The highest mean score was for scenario 3 (non-adherence to antipsychotic medicine). This may correlate with pharmacists' expertise in providing information and advice about pharmacological management of illnesses. Although this scenario scored highest, students shared in focus groups that all scenarios were engaging, interesting, and relevant to practice.

These comments mirror previous research demonstrating a positive effect of SP role-plays on pharmacy students' confidence in providing MHFA [25, 26].

Strengths, weaknesses and further research

A significant strength of this project was partnering with a broad range of mental health stakeholders, minimising tokenistic input, allowing for representation to reflect lived experiences from both personal and clinical perspectives in developing authentic educational materials to simulate real-life practice. Phase 1 was limited to the involvement of two consumers, however their lived experiences significantly informed the design of each scenario (Table 1). A further four consumers/carers were involved in Phase 2 to include a variety of views. Phases 2 and 3 were conducted during the Covid-19 pandemic, with the Round 2 panel meeting and pilot-testing occurring online. An important EBCD consideration is dynamics of panel member interactions, which may have been influenced by the online environment. University online learning during the pandemic may have hindered fidelity of the scenarios and student engagement and experience during pilot-testing, which may have also been impacted by the researcher undertaking the dual role of SP and class tutor providing performance feedback. It is recommended that future research is conducted in-person, with trained actors role-playing SPs, alongside a mental health consumer educator and tutor providing performance feedback. It is also recommended that test re-test and inter-rater reliability analyses are conducted on the developed marking rubrics [27]. While no specific criteria were used to establish face validity, acceptability and relevance of the educational materials, these perspectives were elicited during rich focus group discussions. As per systematic reviews exploring consumer co-design in healthcare curricula [57, 58], it is furthermore recommended to explore the impact of MHFA training, SP scenarios and consumer participation in their design, delivery and evaluation on knowledge, skills and confidence in providing mental healthcare, via a pre-post study [53].

Conclusion

This project provides a detailed account of a methodological approach, providing future direction and guidance on engaging people with lived experience of mental illness and mental health stakeholders in co-design of educational materials for healthcare curricula. Through co-design with mental health consumers and content validation with mental health stakeholders, three authentic SP scenarios were developed to educate and assess pharmacy students in providing psychosis care. This educational material allows future MHFA-trained healthcare professionals to practise their skills in confidently and effectively providing psychosis care and supporting people living with psychotic illnesses.

Supplementary Information The online version contains supplementary material available at https://doi.org/10.1007/s11096-023-01622-9.

Acknowledgements We thank all the people with lived experience of mental illness, mental health stakeholders and pharmacy students who were involved in this project, as well as One Door Mental Health.

Funding Open Access funding enabled and organized by CAUL and its Member Institutions. This project received grant funding from the Schizophrenia Fellowship of NSW Ltd Peter Meyer Fund 2020. The aim of the fund is to help young Australian researchers who aim to improve the wellbeing of people living with schizophrenia.

Conflicts of interest The authors have no conflicts of interest to declare.

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit http://creativecommons.org/licenses/by/4.0/.

References

1. Santomauro DF, Herrera AMM, Shadid J, et al. Global prevalence and burden of depressive and anxiety disorders in 204 countries and territories in 2020 due to the COVID-19 pandemic. Lancet. 2021;398:1700–12.
2. Akour A, Halloush S, Nusair MB, et al. Gaps in pharmaceutical care for patients with mental health issues: a cross-sectional study. Int J Clin Pharm. 2022;44:904–13.
3. Bate P, Robert G. Experience-based design: from redesigning the system around the patient to co-designing services with the patient. Qual Saf Health Care. 2006;15:307–10.
4. Towle A, Godolphin W. Patients as educators: interprofessional learning for patient-centred care. Med Teach. 2013;35:219–25.
5. Scholz B, Bevan A. Toward more mindful reporting of patient and public involvement in healthcare. Res Involv Engagem. 2021;7:61–4.
6. Brand G, Sheers C, Wise S, et al. A research approach for co-designing education with healthcare consumers. Med Educ. 2021;55(5):574–81.
7. Gordon M, Gupta S, Thornton D, et al. Patient/service user involvement in medical education: a best evidence medical education (BEME) systematic review. Med Teach. 2020;42:4–16.
8. Happell B, Roper C. The role of a mental health consumer in the education of postgraduate psychiatric nursing students: the students' evaluation. J Psychiatr Ment Health Nurs. 2003;10:343–50.
9. Happell B, Bocking J, Scholz B, et al. Implementation of a mental health consumer academic position: benefits and challenges. Perspect Psychiatr Care. 2019;55:175–82.

10. Owen C, Reay RE. Consumers as tutors—legitimate teachers? BMC Med Educ. 2004;4:14.
11. Nguyen W, O'Reilly CL, Moles RJ, et al. A systematic review of patient interactions with student pharmacists in educational settings. J Am Pharm Assoc. 2021;61:678–93.
12. O'Reilly CL, Simon Bell J, Chen TF. Pharmacists' beliefs about treatments and outcomes of mental disorders: a mental health literacy survey. Aust N Z J Psychiatry. 2010;44:1089–96.
13. Maslen CL, Rees L, Redfern PH. Role of the community pharmacist in the care of patients with chronic schizophrenia in the community. Int J Pharm Pract. 1996;4:187–95.
14. Wheeler A, Mey A, Kelly F, et al. Education and training for community pharmacists in mental health practice: how to equip this workforce for the future. J Ment Health Train Educ Pract. 2014;9:133–44.
15. Murphy AL, O'Reilly CL, Ataya R, et al. Survey of Australian and Canadian community pharmacists' experiences with patients at risk of suicide. Psychiatr Serv. 2020;71:293–6.
16. Rubio-Valera M, Chen TF, O'Reilly CL. New roles for pharmacists in community mental health care: a narrative review. Int J Environ Res Public Health. 2014;11:10967–90.
17. O'Reilly CL, Bell JS, Chen TF. Consumer-led mental health education for pharmacy students. Am J Pharm Educ. 2010;74:167.
18. Boukouvalas E, El-Den S, Murphy AL, et al. Exploring health care professionals' knowledge of, attitudes towards, and confidence in caring for people at risk of suicide: a systematic review. Arch Suicide Res. 2020;24:S1–31.
19. Nguyen E, Chen TF, O'Reilly CL. Evaluating the impact of direct and indirect contact on the mental health stigma of pharmacy students. Soc Psychiatry Psychiatr Epidemiol. 2012;47:1087–98.
20. O'Reilly CL, Bell JS, Kelly PJ, et al. Impact of mental health first aid training on pharmacy students' knowledge, attitudes and self-reported behaviour: a controlled trial. Aust N Z J Psychiatry. 2011;45:549–57.
21. Mental Health First Aid. 2023. https://mhfa.com.au/. Accessed 29 Apr 2023.
22. Kitchener BA, Jorm AF. Mental health first aid training for the public: evaluation of effects on knowledge, attitudes and helping behavior. BMC Psychiatry. 2002;2:10.
23. Bond KS, Jorm AF, Kitchener BA, et al. Mental health first aid training for Australian medical and nursing students: an evaluation study. BMC Psychol. 2015;3:11.
24. Bell JS, Johns R, Rose G, et al. A comparative study of consumer participation in mental health pharmacy education. Ann Pharmacother. 2006;40:1759–65.
25. O'Reilly CL, Moles RJ, Boukouvalas E, et al. Assessing students' mental health crisis skills via consumers with lived experience: a qualitative evaluation. J Ment Health Train Educ Pract. 2019;14:361–71.
26. Boukouvalas EA, El-Den S, Chen TF, et al. Confidence and attitudes of pharmacy students towards suicidal crises: patient simulation using people with a lived experience. Soc Psychiatry Psychiatr Epidemiol. 2018;53:1185–95.
27. El-Den S, Moles RJ, Zhang R, et al. Simulated patient role-plays with consumers with lived experience of mental illness post-mental health first aid training: interrater and test re-test reliability of an observed behavioral assessment rubric. Pharmacy. 2021;9:28.
28. Xu T, de Almeida Neto AC, Moles RJ. Simulated caregivers: their feasibility in educating pharmacy staff to manage children's ailments. Int J Clin Pharm. 2012;34:587–95.
29. Morral K, Morral J. The mental health literacy of British community pharmacists. J Ment Health Train Educ Pract. 2017;12:98–110.
30. Hjorthøj C, Stürup AE, McGrath JJ, et al. Years of potential life lost and life expectancy in schizophrenia: a systematic review and meta-analysis. Lancet Psychiat. 2017;4:295–301.
31. The British Psychological Society. Ethics guidelines for internet-mediated research. 2021. https://explore.bps.org.uk/content/report-guideline/bpsrep.2021.rep155/. Accessed 29 Apr 2023.
32. von Elm E, Altman DG, Egger M, et al. Strengthening the reporting of observational studies in epidemiology (STROBE) statement: guidelines for reporting observational studies. BMJ. 2007;335:806–8.
33. One Door Mental Health. 2021. https://www.onedoor.org.au/. Accessed 20 Oct 2021.
34. Lynn MR. Determination and quantification of content validity. Nurs Res. 1986;35:382–5.
35. Fitch K, Bernstein SJ, Aguilar MD, et al. The RAND/UCLA appropriateness method user's manual. Santa Monica: Rand; 2001. ISBN 978–0–8330–2918–8.
36. Basger BJ, Chen TF, Moles RJ. Validation of prescribing appropriateness criteria for older Australians using the RAND/UCLA appropriateness method. BMJ Open. 2012;2: e001431.
37. Harris P, Taylor R, Thielke R, et al. Research electronic data capture (REDCap)—a metadata-driven methodology and workflow process for providing translational research informatics support. J Biomed Inf. 2009;42:377–81.
38. Zamanzadeh V, Ghahramanian A, Rassouli M, et al. Design and implementation content validity study: development of an instrument for measuring patient-centered communication. J Caring Sci. 2015;4:165–78.
39. Emmanuel A, Clow SE. A questionnaire for assessing breastfeeding intentions and practices in Nigeria: validity, reliability and translation. BMC Pregnancy Childbirth. 2017;17:174.
40. Yaghmale F. Content validity and its estimation. J Med Educ. 2003;3:25–7.
41. Polit DF, Beck CT. The content validity index: are you sure you know what's being reported? Critique and recommendations. Res Nurs Health. 2006;29:489–97.
42. El-Den S, O'Reilly CL, Gardner DM, et al. Content validation of a questionnaire measuring basic perinatal depression knowledge. Women Health. 2019;59:615–30.
43. Armstrong TS, Cohen MZ, Eriksen L, et al. Content validity of self-report measurement instruments: an illustration from the development of the brain tumor module of the M.D. Anderson symptom inventory. Oncol Nurs Forum. 2005;32:669–76.
44. Rodrigues IB, Adachi JD, Beattie KA, et al. Development and validation of a new tool to measure the facilitators, barriers and preferences to exercise in people with osteoporosis. BMC Musculoskelet Disord. 2017;18:540.
45. Wynd CA, Schmidt B, Schaefer MA. Two quantitative approaches for estimating content validity. West J Nurs Res. 2003;25:508–18.
46. Lawshe CH. A quantitative approach to content validity. Pers Psychol. 1975;28:563–75.
47. McKenzie J, Wood ML, Kotecki JE, et al. Establishing content validity: using qualitative and quantitative steps. Am J Health Behav. 1999;23:311–8.
48. Almanasreh E, Moles R, Chen TF. Evaluation of methods used for estimating content validity. Res Soc Adm Pharm. 2019;15:214–21.
49. Archibald MM, Ambagtsheer RC, Casey MG, et al. Using Zoom videoconferencing for qualitative data collection: perceptions and experiences of researchers and participants. Int J Qual Methods. 2019;18:1609406919874596.
50. Boyd H, McKernon S, Mullin B, et al. Improving healthcare through the use of co-design. N Z Med J. 2012;125:76–87.
51. Martin K, Stevens A, Arbour S. The process of developing a co-design and co-delivery initiative for mental health programming. J Psychosoc Rehabil Ment Health. 2017;4:247–51.

52. Tang CY, Turczyniak M, Sayner A, et al. Adopting a collaborative approach in developing a prehabilitation program for patients with prostate cancer utilising experience-based co-design methodology. Support Care Cancer. 2020;28:5195–202.
53. Hjelmfors L, Strömberg A, Friedrichsen M, et al. Using co-design to develop an intervention to improve communication about the heart failure trajectory and end-of-life care. BMC Palliat Care. 2018;17:85.
54. Easton K, Potter S, Bec R, et al. A virtual agent to support individuals living with physical and mental comorbidities: co-design and acceptability testing. J Med Internet Res. 2019;21: e12996.
55. Bell J, Lim A, Williams R, et al. 'Nothing about us without us': co-production ingredients for working alongside stakeholders to develop mental health interventions. Adv Ment Health. 2021;21(1):4–16.
56. Polit DF, Beck CT, Owen SV. Is the CVI an acceptable indicator of content validity? Appraisal and recommendations. Res Nurs Health. 2007;30:459–67.
57. Happell B, Byrne L, McAllister M, et al. Consumer involvement in the tertiary-level education of mental health professionals: a systematic review. Int J Ment Health Nurs. 2014;23:3–16.
58. Arblaster K, Mackenzie L, Willis K. Mental health consumer participation in education: a structured literature review. Aust Occup Ther J. 2015;62:341–62.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

CHAPTER THREE – SUPPLEMENTARY MATERIAL

Supplementary material 1. Revised items and content validity ratios (CVRs).

Original item and CVR (Round 1)	**Revised item and CVR (Significant revisions bolded) (Round 2)**
Scenario 1	
Background: Your pharmacy assistant alerts you to a customer who has been standing and staring at the ear care products for the past 30 minutes. CVR=0.11	**You notice** a customer in the pharmacy who has been standing and staring at the ear care products **for a while.** CVR=1.00
Gender/Age: Male or Female/19-20 years CVR=0.11	**Gender/Age: Any/19-25 years** **Physical attributes: Messy hair and clothes** CVR=1.00
Opening line: "Why are there so many ear plugs here?! I just need some that work!" CVR=0.33	[responding to auditory hallucinations] "Stop calling me an idiot, I'm trying to get some help with all of these ear plugs!" CVR=0.00
	(Further discussion led to retainment of original; repolled) CVR=0.75*
Scenario 2	
Background: A customer approaches the dispensary counter, whom you recognise as someone who purchased a sleeping tablet, Restavit® (doxylamine), from you last week. CVR=0.11	**A very tired-looking** customer approaches the dispensary counter and **hands you a repeat prescription**. You recognise this person as someone who purchased a sleeping tablet, Restavit® (doxylamine), from you last week. CVR=1.00
Gender/Age: Female/30-40 years CVR=0.11	**Gender/**Age: **Any**/30-40 years CVR=0.50 (Further discussion led to widening of age range; repolled)
	Gender/**Age:** Any/**30's-50's** **Physical attributes: No makeup, wearing scrubs, looks tired** CVR=1.00
Signs/symptoms: Overwhelmed, tired, exhausted, worn out, stressed. CVR=0.56	Overwhelmed, tired, exhausted, worn out, stressed. **Yawning, trying to keep eyes open to stay awake.** CVR=1.00

Response to anticipated question: *Tony is doing great, his schizophrenia is well-managed but he hasn't been able to find work.* CVR=0.56	*Tony is doing great, his schizophrenia is well-managed but he hasn't been able to find work* ***and his meds make him so sleepy.*** CVR=1.00
Response to anticipated question: *After this I need to do my weekly grocery shop, drive my parents and brother to their appointments, then go back home to do the housework and prepare dinner before my night shift tonight.* CVR=0.56	*After this I need to do my weekly grocery shop, drive my parents and brother to their appointments, then go back home to do the housework and prepare dinner* ***for my brother*** *before* ***I head out for*** *my night shift tonight.* CVR=1.00
Response to anticipated question: *I used to go out on Friday nights for dinner and drinks with workmates, and Sunday morning jogs but I've had to give them up so I can care for my brother or sleep off a night shift.* CVR=0.56	(Further discussion led to retainment of original; repolled) CVR=1.00
Scenario 3	
Gender/Age: Male/40's CVR=0.33	**Gender/**Age: **Any**/40's **Physical attributes: Overweight, wearing trackpants** CVR=0.75
Signs/symptoms: Appears distracted, avoiding eye contact CVR=0.56	You appear distracted, **gazing off to the side** and avoiding eye contact with the pharmacist. CVR=0.50 (Further discussion led to more detail about SP's appearance; repolled)
	You appear distracted, gazing off to the side and avoiding eye contact with the pharmacist. **Because of your weight gain, you feel most comfortable wearing tracksuits**. CVR=0.75

*Minimum CVR for panel of eight judges=0.75 [34, 41].

Supplementary material 2. Finalised synopses of simulated patient (SP) presentations.

Scenario 1: First episode psychosis

A 19-25 year-old customer, wearing messy clothes with messy hair, is frustrated by the range of ear care products in the pharmacy. The customer's facial expressions change often, clenching their fists and shuffling their feet. The customer is mumbling and talking to themselves.

Opening line: "Why are there so many ear plugs here?! I just need some that work!"

Scenario 2: A carer of someone living with schizophrenia

A very tired-looking customer in their 30's-50's, wearing scrubs and no makeup, approaches the dispensary counter with a repeat prescription. This person purchased a sleeping tablet from the pharmacy last week. The customer appears exhausted and stressed, yawning and struggling to keep their eyes open to stay awake.

Opening line: "Could I please have this repeat for Seroquel® (quetiapine) filled for my brother, and a packet of No-Doz® (caffeine + nicotinic acid)?"

Scenario 3: A person who is non-adherent to antipsychotics and at risk of relapse

A frequent customer in their 40's collects weekly Webster packs from the pharmacy. The customer is overweight, wearing trackpants, and appears distracted, avoiding eye contact with the pharmacist.

Opening line: "Hello, I'm here to collect my next Webster pack please." (SP gives pharmacist the previous week's Webster pack, where the Wednesday, Friday and Saturday night tablet doses of their antipsychotic medicine are untouched.)

PART C –
EVALUATION WITH STUDENTS

OVERVIEW OF PART C

Part C (Chapters 4 and 5) describes how the simulated psychosis care role-plays, which were developed in Part B (Chapter 3) were evaluated in the classroom with final year pharmacy students. Chapter 4 reports on the quantitative analyses of the students' role-play scores and the impact that MHFA training and the psychosis care role-plays had on students' mental health confidence and stigma. Chapter 5 reports on the qualitative analyses of students' experiences of MHFA training and the three psychosis care role-plays, which were gathered via focus groups. The outcomes of the evaluation with students led to the adaptation of simulated mental health role-plays into an educational workshop with pharmacists, as described in Part D (Chapter 6).

Appendix XIII includes the ethics approved documents for Project No. 2021/507, pertaining to the student evaluation of the psychosis care role-plays in Part C (Chapters 4 and 5).

CHAPTER FOUR –

EVALUATION OF MENTAL HEALTH FIRST AID TRAINING AND SIMULATED PSYCHOSIS CARE ROLE-PLAYS FOR PHARMACY EDUCATION

Ung TX, O'Reilly CL, Moles RJ, Collins JC, Ng R, Pham L, Saini B, Ong JA, Chen TF, Schneider CR, El-Den S (2024)

Am J Pharm Educ 88(11):101288. https://doi.org/10.1016/j.ajpe.2024.101288

OVERVIEW OF CHAPTER FOUR

Chapter 4 contains the quantitative evaluation of MHFA training and the psychosis care role-plays (developed in Chapter 3). MHFA training was delivered to 209 final year pharmacy students, and 86 role-plays were conducted. Role-play scores from students' self-assessment, tutors, and MHCEs were analysed. Students completed surveys at three timepoints (pre-MHFA training, post-MHFA training, and post-roleplay) to explore the impact of MHFA training and the psychosis care role-plays on students' mental health confidence and stigma. Quantitative analyses suggested that the psychosis care role-plays improved students' mental health confidence and reduced stigma post-MHFA training. The results of Chapter 4 complement the results presented in Chapter 5, which pertains to the qualitative evaluation of the psychosis care role-plays.

American Journal of Pharmaceutical Education 88 (2024) 101288

Contents lists available at ScienceDirect

American Journal of Pharmaceutical Education

journal homepage: www.elsevier.com/locate/ajpe

Research

Evaluation of Mental Health First Aid Training and Simulated Psychosis Care Role-Plays for Pharmacy Education

Tina X. Ung*, Claire L. O'Reilly, Rebekah J. Moles, Jack C. Collins, Ricki Ng, Lily Pham, Bandana Saini, Jennifer A. Ong, Timothy F. Chen, Carl R. Schneider, Sarira El-Den

The University of Sydney School of Pharmacy, Sydney, NSW, Australia

ARTICLE INFO

Keywords:
Patient simulation
Psychotic disorders
Self-assessment
Feedback
Pharmacy education

ABSTRACT

Objective: This study explored the impact of Mental Health First Aid (MHFA) training and simulated psychosis care role-plays on pharmacy students' stigma, confidence, and behaviors when supporting people experiencing mental health symptoms or crises.

Methods: MHFA training was delivered to final year pharmacy students. Post-MHFA training, students were invited to participate in simulated psychosis care role-plays (co-designed and content validated with mental health stakeholders) with trained actors. Role-plays were observed by peers, tutors, and mental health consumer educators (MHCEs). Students immediately engaged in self-assessment, feedback, and debrief discussions with peers, tutors, and MHCEs. Quantitative analyses (ANOVA and chi-square tests) were conducted on scores awarded by each rater (self, tutor, MHCE) and for each scenario (n = 3). Students completed a 15-item survey exploring mental health stigma and mental health confidence, at 3 timepoints (pre-MHFA training, post-MHFA training, and post-role-plays). Survey scores were analyzed using paired *t* tests.

Results: Of 209 MHFA-trained students, 86 participated in role-play. The self-assessment mean score was the lowest and the MHCEs' mean score highest. Post-MHFA training, 14 survey item scores significantly improved, implying reduced stigma and increased confidence in providing psychosis care. Post-role-play scores suggested improvements in 12 survey items.

Conclusion: Psychosis care role-plays are associated with short-term improvements in pharmacy students' stigma and mental health confidence post-MHFA training; students' self-assessment scores are lower than tutors and MHCEs. It is recommended that future studies further integrate observed behaviors with self-reported data and use simulated patients in clinical practice to evaluate MHFA outcomes longitudinally.

1. Introduction

Mental Health First Aid (MHFA) training,[1] embedded in various tertiary health care curricula including pharmacy,[2,3] can improve mental health knowledge,[4] mental health confidence,[5–7] stigmatizing attitudes,[8,9] and preparedness to perform MHFA behaviors.[10] These outcomes are commonly self-reported and may not correlate with competence[6]; combining self-reported data with observational data may strengthen the evaluation of MHFA training.[10–12]

In line with Miller's pyramid of clinical competency,[13] simulated (commonly interchanged with 'standardized')[14] patient (SP) role-plays provide opportunities for students to 'show how' they would apply newly-acquired knowledge on real people, rather than merely self-reporting what they would do in a simulated scenario.[6,7] Furthermore, SP role-plays are one way to assess actual behaviors while managing difficulties associated with observing and reporting on MHFA behaviors in real-life clinical practice, such as ethical challenges and trying to predict when such a scenario would present.[15] SP role-plays, conducted in a safe learning environment with the inclusion of performance feedback, may challenge and encourage students to reflect on their own practice, identifying clinical and/or communication areas for improvement before encountering similar scenarios in real life.[16]

Currently, few tertiary health care education programs (in countries such as Australia, the United States, and the United Kingdom) provide opportunities for students to practice newly-acquired MHFA skills,[2,3] and few studies have focused on observed MHFA behaviors

* Corresponding author.
E-mail address: tina.ung@sydney.edu.au (T.X. Ung).

https://doi.org/10.1016/j.ajpe.2024.101288
Received 1 April 2024; Received in revised form 23 August 2024; Accepted 13 September 2024
Available online 18 September 2024
0002-9459/© 2024 The Author(s). Published by Elsevier Inc. on behalf of American Association of Colleges of Pharmacy. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).

post-training.[17] Previous pharmacy education research, combining self-reported MHFA outcomes with behaviors via SPs, focuses on depression with or without suicidal thoughts.[6] Little research explores other mental health conditions including psychosis.[14] Health care professionals' knowledge, confidence, and attitudes in relation to providing psychosis care are suboptimal[18] compared with mental illnesses such as depression[19]; this may be attributed to the effects of interpersonal stigma[20] and implicit bias[21] by health care professionals when treating psychotic illnesses. Furthermore, where SPs have been used to observe MHFA behaviors, they are commonly enacted by a person familiar to the students; unfamiliar trained actors can enhance the authenticity of the role-plays and scenarios, and ensure a consistent learning experience for students.[15,16,22–24]

The objectives of this study were to explore the impact of MHFA training and simulated psychosis care role-plays on pharmacy students' stigma toward and confidence in supporting people experiencing mental health symptoms or crises, and to assess their MHFA behaviors post-MHFA training.

2. Methods

2.1. Ethics Statement

This study was approved by the Human Research Ethics Committee of The University of Sydney (Project No. 2021/507). All participants provided written informed consent.

2.2. Study Design

This single group pre- and post-test study is described according to the Transparent Reporting of Evaluations with Nonrandomized Design statement.[25]

2.3. Setting and Participants

This study was conducted at The University of Sydney School of Pharmacy. Recruitment and data collection were undertaken from February to November 2022. All final year Master of Pharmacy (MPharm) students enrolled in a mental health and neurology unit of study, and final year Bachelor of Pharmacy (BPharm) students enrolled in a professional practice unit of study (after completing a mental health and neurology unit of study in the previous year), attended compulsory MHFA training and post-MHFA SP workshops embedded in curricula. All students were invited to participate in any or all parts of the study prior to their first MHFA training session. The available sample size was determined by the number of students in the cohort.

2.4. Interventions

MHFA training (12 h) was delivered to 209 final year students (n = 62 MPharm, n = 147 BPharm), by 4 licensed MHFA instructors, across 11 groups of approximately 20 students each. Post-MHFA training, each group attended a 90-minute compulsory workshop, where students were invited to voluntarily participate in one SP role-play to practice their newly-acquired MHFA skills. 3 previously co-designed and content-validated simulated psychosis care scenarios (focusing on first-episode psychosis with suicidal thoughts, a carer of somebody living with schizophrenia, and non-adherence to antipsychotic medicine) and associated marking rubrics were used.[26] Each group was split into 3 subgroups to allow for delivery of all 3 scenarios per group. Each scenario was delivered by an allocated triplet of actor, tutor, and mental health consumer educator (MHCE) (a person who shares their lived experience of mental illness for educational purposes), round-robin style, totaling 99 role-plays. Students completed the role-play with a trained actor while being observed by peers, a tutor (who had completed MHFA training), and an MHCE. Immediately after each role-play, role-playing students engaged in self-assessment using the marking rubric, followed by performance feedback, and debriefing with peers, the MHCE, and the tutor.

Actors engaged in a training session (30–60 min) with 2 members of the research team (TU, a pharmacist who had completed MHFA training, and SE, a licensed MHFA instructor) to rehearse their allocated scenario. MHCEs were recruited via not-for-profit organizations One Door Mental Health[27] and Bipolar Australia.[28]

2.5. Study Instruments

To explore students' confidence and stigma in supporting people experiencing mental health symptoms or crises, a 15-item survey adapted from previous research,[6,29,30] comprising 8 confidence items related to the provision of MHFA post-training and the 7-item validated social distance scale (SDS), was delivered pre-MHFA training (T0), post-MHFA training (T1), and post-role-plays (T2). Confidence items were scored on a 5-point Likert scale (1 = strongly agree to 5 = strongly disagree), and SDS items on a 4-point Likert scale (1 = definitely willing to 4 = definitely unwilling). Surveys were completed individually by the students in the classroom where MHFA training and the workshops were conducted. Survey responses were anonymous, and data were collected and managed using the REDCap electronic data capture tool hosted at The University of Sydney.[31]

Students' MHFA behaviors were assessed via post-MHFA role-plays, scored using previously co-designed and content-validated marking rubrics.[26] To pass each scenario, students needed to score > 50% and complete mandatory scenario-specific pass/fail (P/F) criteria, according to tutors' scores. Marking rubrics were de-identified before data analysis.

Student demographics, individual survey item scores at multiple timepoints, and self-, tutor, and MHCE assessments of individual students' role-play scores were measured.

2.6. Data Analysis

Statistical analyses were performed using IBM SPSS ver. 28.0 (IBM Corp., Armonk, NY, USA). Descriptive data were generated for students who completed the survey at all 3 timepoints. Paired *t* tests of matched survey data across T0-T1, T1-T2, and T0-T2 were undertaken. Survey responses could be matched via unique identifier codes created by each individual student. One-way ANOVA and post hoc tests were conducted on the scores awarded by the different raters overall and for each scenario, to explore differences in raters' scores and scenario difficulty. A chi-square test with post hoc testing was performed to explore relationships between the scenario and P/F outcome. Missing data were excluded by listwise deletion. Significance was set at $p < .05$.

3. Results

3.1. Participants

Of 209 MHFA-trained students, 133 (64%), 148 (71%), and 128 (61%) completed surveys at T0, T1, and T2, respectively, with matched data across the 3 timepoints for 70 respondents (33%). The mean age of matched survey respondents was 24.4 years (SD 4.6). Fifty students (71.4%) were female and the majority (n = 52, 74.3%) were BPharm students, with 18 (25.7%) enrolled in MPharm. Of the matched survey respondents (n = 70), 13 (18.6%) reported a personal diagnosis of mental illness, with 29 (41%) reporting having a close family member or friend living with mental illness. Most matched survey respondents held current employment in pharmacy (n = 56, 80%).

For 2 groups, only 6 out of the intended 9 role-plays were conducted due to actor or MHCE absence, and 7 students volunteered to participate in more than 1 role-play, with their subsequent attempts excluded from data analyses to minimize skewing of data, resulting in analysis of 86 role-plays.

Table 1
Confidence and Stigma Scores Across 3 Survey Timepoints Using Matched Data (n = 70).

Time		T0	T1	T2
Survey item		Mean (SD)		
Confidence items "I feel confident that I can…"	Recognize the signs that indicate that someone may be developing a mental health problem or experiencing a mental health crisis	2.7 (0.8)	**1.6 (0.5)**[a]	**1.6 (0.5)**[c]
	Approach someone who may be developing a mental health problem or experiencing a mental health crisis	3.2 (0.8)	**1.8 (0.5)**[a]	**1.6 (0.6)**[bc]
	Ask a person whether they are having thoughts of suicide	3.1 (0.9)	**1.7 (0.6)**[a]	**1.8 (0.7)**[c]
	Listen to and interact with a person without expressing judgement about their situation	2.1 (0.8)	**1.5 (0.5)**[a]	**1.4 (0.5)**[c]
	Offer a person information and support about mental health problems	2.8 (0.82)	**1.7 (0.5)**[a]	**1.7 (0.6)**[c]
	Encourage a person to seek appropriate professional help	2.3 (0.8)	**1.5 (0.5)**[a]	**1.5 (0.6)**[c]
	Encourage a person to access other support	2.3 (0.8)	**1.5 (0.5)**[a]	**1.6 (0.6)**[c]
	Recognize and correct other people's misconceptions about mental health problems	2.7 (0.7)	**1.7 (0.6)**[a]	**1.63 (0.62)**[c]
Stigma items"In relation to a person who has previously been hospitalized for severe and persistent mental illness, such as schizophrenia, how willing would you be to…"	Share a flat with that person	2.8 (0.7)	**2.5 (0.7)**[a]	**2.3 (0.8)**[c]
	Work alongside that person	2.0 (0.7)	**1.6 (0.6)**[a]	**1.6 (0.6)**[c]
	Have that person as a neighbor	1.9 (0.7)	1.8 (0.7)	1.8 (0.7)
	Have that person as a babysitter for your child	3.3 (0.7)	**2.8 (0.7)**[a]	**2.6 (0.8)**[bc]
	Have one of your children marry that person	2.7 (0.8)	**2.4 (0.8)**[a]	**2.3 (0.8)**[bc]
	Introduce that person to a single friend as a potential relationship partner	2.6 (0.7)	**2.3 (0.8)**[a]	**2.2 (0.8)**[c]
	Recommend that person for a job	2.1 (0.6)	**1.8 (0.6)**[a]	**1.7 (0.7)**[c]
	Total social distance scale (SDS) score	17.5 (3.7)	**15.2 (3.8)**[a]	**14.5 (4.1)**[bc]

Abbreviation: SD, standard deviation.
Statistically significant results are marked in **bold font.**
[a] $p < .05$ for T0 to T1
[b] $p < .05$ for T1 to T2
[c] $p < .05$ for T0 to T2.

3.2. Survey Results

Initial quantitative tests conducted using unmatched survey data found similar trends in score changes and minimal difference in statistical significance (Appendix A). Table 1 presents changes in individual survey items and total SDS mean scores for matched data. Fourteen out of 15 survey item mean scores improved significantly overall from T0 to T2.

At T1, mean scores for all confidence items improved significantly. The mean score for confidence item 'approach someone who may be developing a mental health problem or experiencing a mental health crisis' improved significantly from T0 to both T1 and T2. There was a general trend of mean score improvement between T1 and T2, and although mean scores indicated decreased confidence for 2 items this did not reach statistical significance.

At T1, mean scores for all stigma items except 'have that person as a neighbor' improved. The mean score for stigma items 'have that person as a babysitter for your child', 'have one of your children marry that person', and total SDS mean scores improved significantly from T0 to both T1 and T2.

3.3. Role-Play Scores

A total of 238 rubrics were analyzed according to scores awarded per rater overall (n = 84 student self-assessment, n = 83 tutor, n = 71 MHCE). Scores were converted to a score out of 100 to facilitate comparisons (Table 2). One-way ANOVA demonstrated a significant difference in mean scores between raters in general across the 3 scenarios ($F[2235] = 17.3$, $p < .001$). A Tukey post hoc test revealed that both tutors and MHCEs scored the role-playing students significantly higher than the role-playing students scored themselves, with mean differences of 6.7 (2.1) ($p = .004$) and 12.5 (2.1) ($p < .001$), respectively. MHCEs scored higher than tutors (mean difference 5.8 (2.1), $p = .02$).

One-way ANOVA performed on scores from the 3 different raters per scenario (Table 3) revealed that for scenario 1, tutors' and MHCEs' mean scores were significantly different to students ($F[2,70] = 9.5$, $p < .001$); a Tukey post hoc test revealing mean differences of 8.2 (3.4) ($p = .05$) and 15.8 (3.6) ($p < .001$), respectively. No significant difference was found for scenario 2. For scenario 3, MHCE scores were significantly different for both students and tutors ($F[2,73] = 8.9$, $p < .001$); a Tukey post hoc test revealing mean differences of 13.8 (3.4) ($p < .001$) and 10.2 (3.4) ($p = .01$), respectively.

Table 2
Role-Play Scores Awarded by Each Rater Type Across the 3 Scenarios.

Rater (n)	Mean score (out of 100)	SD	SE	95% CI	Minimum	Maximum
Student self-assessment (n = 84)	64.9	12.4	1.4	62.2–67.6	30	90.9
Tutor (n = 83)	71.6	13.8	1.5	68.6–74.6	40	100.0
MHCE (n = 71)	77.4	13.5	1.6	74.2–80.6	35	100.0

Abbreviations: CI, confidence interval; MHCE, mental health consumer educator; SD, standard deviation; SE, standard error.

Table 3
Mean Role-Play Scores Awarded for Each Scenario by Each Rater.

Scenario	Rater (n)	Mean score (out of 100)	SD	SE	95% CI	Minimum	Maximum
1 (First episode psychosis with suicidal thoughts)	Student self-assessment (n = 26)	64.5	11.9	2.3	59.7–69.3	45.5	90.9
	Tutor (n = 26)	72.7	13.6	2.7	67.2–78.2	45.5	95.5
	MHCE (n = 21)	80.3	11.3	2.5	75.1–85.5	59.1	95.5
2 (A carer of somebody living with schizophrenia)	Student self-assessment (n = 31)	65.0	12.9	2.3	60.3–69.7	30.0	85.0
	Tutor (n = 31)	73.1	15.6	2.8	67.3–78.8	40.0	100.0
	MHCE (n = 27)	73.9	16.6	3.2	67.3–80.5	35.0	100.0
3 (Non-adherence to antipsychotic medicine)	Student self-assessment (n = 27)	65.2	12.8	2.5	60.2–70.3	38.9	83.3
	Tutor (n = 26)	68.8	11.8	2.3	64.1–73.6	44.4	100.0
	MHCE (n = 23)	79.0	10.7	2.2	74.4–83.6	61.1	100.0

Abbreviations: CI, confidence interval; MHCE, mental health consumer educator; SD, standard deviation; SE, standard error.

A chi-square test found a statistically significant relationship between the scenario and P/F outcome ($X^2(2) = 19.3$, $p < .001$, Cramer's V = 0.5). Post hoc z tests for independent proportions and Bonferroni correction indicated that 55.2% of all fails were for scenario 1% and 46.3% of all passes were for scenario 3.

4. Discussion

This study employed, for the first time, trained actors to enact post-MHFA training psychosis care scenarios to evaluate pharmacy students' observed skills and self-reported stigma toward, and confidence in, supporting people experiencing mental health symptoms or crises. MHFA training significantly improved confidence and reduced mental health stigma for 14 out of 15 survey items, of which 12 were also associated with improvements post-role-play. A comparison of role-play scores awarded by 3 different raters indicated that MHCEs and tutors scored students significantly higher than themselves during self-assessment. Pass/fail outcomes indicated that students performed better in a scenario about medication non-adherence compared to first-episode psychosis with suicidal thoughts.

Scores indicated that students scored themselves significantly lower than tutors and MHCEs, with no students awarding themselves full marks for any role-play scenario. Harsh self-assessment has been voiced in student focus groups[15] and may be attributed to students expecting more from themselves post-training. Furthermore, the fail rate for scenario 1 was highest (55.2%) compared to the other scenarios. This may be because it involved providing MHFA to a person experiencing first-episode psychosis with suicidal thoughts; a scenario described as 'confronting' by pharmacy students[15] and indicates an area of psychosis care warranting further education and training.[18] Conversely, medication adherence (scenario 3) is a topic that more often features in pharmacy practice and is less of a crisis situation, and supporting a carer (scenario 2) is a step removed from direct contact with a crisis and may be less confronting, potentially explaining why students performed better in these scenarios.

The survey results concur with previous studies; students' confidence[5–7] and SDS scores[8,9] improved significantly post-MHFA training; these outcomes were also suggested post-role-plays. Pre-MHFA training, concurring with previous research exploring stigma among pharmacists,[32] 2 items involving 'close' social distance (ie, babysitting, marriage) had high levels of stigma at baseline. However, scores for these items improved significantly in both post-MHFA training and post-role-plays. Only 1 stigma item, 'have that person as a neighbor', did not significantly improve throughout the study; this item had the lowest stigma level to begin with, suggesting a ceiling effect of improvement.[33] Interestingly for confidence items 'ask a person whether they are having thoughts of suicide' and 'encourage a person to access other support', the mean score increased (without a significant difference) from T1 to T2, indicating lower confidence post-role-plays. This may relate to the second stage of Burch's conscious competence learning model,[34] 'conscious incompetence', whereby students self-reported to have acquired these MHFA skills, yet when attempting to apply them in role-plays and receiving performance feedback, recognized their deficit and uncertainty in integrating these skills into practice. This phenomenon implies that feedback and debriefing with observers and teachers provide a motivational link for students to transition to 'conscious competence.'[35] Additional practice via repeated simulations further enhances clinical competence,[35] enabling transition to the final stage of 'unconscious competence'. This learning model has been used as an evaluation tool for interprofessional students to self-report confidence in engaging in difficult conversations with patients, before and after a simulation activity.[36] Furthermore, simulations pre- and post-training have shown to be of value in learning and evaluating educational interventions for registered dietitians' physical examination skills.[37] Scenario-based (simulation) training has been shown to be superior to didactic education for asthma first aid skills and competence.[33] Students from this study have voiced in focus groups that more exposure and interprofessional participation in future simulations may further improve confidence and competence.[15]

4.1. Strengths and Limitations

A strength of this study was that a variety of authentic psychosis care scenarios were employed for the role-plays, allowing students the opportunity to apply their MHFA skills and receive performance feedback in a safe learning environment. While the scenarios developed for this study were specific to community pharmacy practice, they may be easily modified to suit other health care curricula. Due to scheduling practicalities, it was not possible to have the same MHFA instructors, actors, tutors, and MHCEs involved in all 11 groups, however, actor training and rehearsal were provided beforehand by the same researchers (TU and/or SE) to support consistency in delivery. While different raters were involved in scoring, the rubrics were based on previously published and psychometrically tested rubrics.[38] While the rubrics specific to this study were content validated prior to use,[26] future research evaluating their inter-rater reliability may be warranted.[38] The direct impact of MHFA training on MHFA behaviors or competence could not be observed during this study, as no baseline role-plays were conducted pre-MHFA training. The results of this study may not be generalizable to all pharmacy students, due to the small sample size and lack of power calculation. It was expected that the proportion of BPharm participants would be higher than MPharm (as the final year BPharm cohort at the University is approximately up to 4 times larger than MPharm); the 2 cohorts were combined for data analyses to maximize overall sample size. Additionally, because of the voluntary nature of the study, role-play participants may have been more outgoing or higher-performing students, with stronger interest in mental health. Furthermore, due to student privacy and ethical limitations, it was not possible to match individual students' survey responses with role-play scores, to evaluate more granularly the impact of MHFA training and role-plays on self-reported confidence and stigma. While self-reported confidence and stigma improved post-intervention,

long-term data was not collected to explore whether these outcomes were maintained over time. Finally, capturing survey data across 3 timepoints proved challenging, with an overall response rate of 33% for matched data.

4.2. Future Directions

Research exploring the direct impact of MHFA training on actual behaviors is lacking. It is recommended that future studies evaluating MHFA training include simulations both pre- and post-training,[37] to explore the impact on behaviors and competence. Simulation-based learning with nurses has shown a significant positive correlation with self-confidence in clinical practice.[39] Given the widespread integration of MHFA training in medical, pharmacy, and nursing curricula,[2] evaluations of the impact of MHFA training as well as the adaptation of other health professional training into clinical practice are warranted.[40] Additionally, students in this study received the standard MHFA training. With pharmacy-specific MHFA training becoming available,[41,42] future studies may compare the outcomes of standard MHFA training with discipline-specific MHFA training. Repeated simulation exposure has been shown to further enhance the clinical competence of nursing interns[35]; hence, it is recommended that this novel approach involving trained actors, coupled with feedback and coaching, is used to explore the impact of repeated SP role-plays on pharmacists' observed MHFA behaviors over time.

5. Conclusion

Pharmacy students' stigma and confidence in supporting people experiencing mental health symptoms or crises may be significantly improved via MHFA training and authentic psychosis care role-plays, enacted by trained actors, observed, and assessed from the perspectives of role-playing students (self-assessment), tutors, and MHCEs. When comparing role-play scores across raters, students were seen to be harsher assessors than MHCEs and tutors. Future studies using the SP method with trained actors to longitudinally evaluate the translation of skills from the educational setting into real-life clinical practice are needed.

Author Contributions

Conceptualization: S.E., C.O.R., R.M., T.U. *Data curation, Formal analysis, Methodology, Project administration, Resources, Validation, Visualization:* Led by T.U. under supervision of S.E., C.O.R., R.M. *Funding acquisition, Supervision:* S.E., C.O.R., R.M. *Investigation:* All authors; led by T.U. under supervision of S.E., C.O.R., R.M. *Writing* – original draft: T.U. *Writing* – review & editing: All authors.

Data availability

Available upon request to the corresponding author, if in line with ethical approval.

Acknowledgments

The authors wish to thank the students, actors, tutors, and mental health consumer educators from the Australian not-for-profit organizations One Door Mental Health and Bipolar Australia for their participation in this study.

Funding/Support

This study received grant funding from the Schizophrenia Fellowship of NSW Ltd Peter Meyer Fund 2020. The aim of the fund is to help young Australian researchers who aim to improve the wellbeing of people living with schizophrenia.

Declaration of Competing Interest

The authors declare that there is no conflict of interest.

Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at doi:10.1016/j.ajpe.2024.101288.

References

1. Mental Health First Aid Australia. 〈https://www.mhfa.com.au/〉 Accessed October 25, 2023.
2. Pham L, Moles RJ, O'Reilly CL, Carrillo MJ, El-Den S. Mental Health First Aid training and assessment in Australian medical, nursing and pharmacy curricula: a national perspective using content analysis. *BMC Med Educ.* 2022;22(1):70. https://doi.org/10.1186/s12909-022-03131-1
3. El-Den S, Moles R, Choong HJ, O'Reilly C. Mental Health First Aid training and assessment among university students: a systematic review. *J Am Pharm Assoc.* 2020;60(5):e81–e95. https://doi.org/10.1016/j.japh.2019.12.017
4. Rickles N, Wertheimer A, Huang Y. Training community pharmacy staff how to help manage urgent mental health crises. *Pharmacy.* 2019;7(3):133. https://doi.org/10.3390/pharmacy7030133
5. Carpini JA, Sharma A, Kubicki Evans M, et al. Pharmacists and Mental Health First Aid training: a comparative analysis of confidence, mental health assistance behaviours, and perceived barriers. *Early Interv Psychiatry.* 2023;17(7):670–680. https://doi.org/10.1111/eip.13361
6. El-Den S, Chen TF, Moles RJ, O'Reilly C. Assessing Mental Health First Aid skills using simulated patients. *Am J Pharm Educ.* 2018;82(2):6222. https://doi.org/10.5688/ajpe6222
7. O'Reilly CL, Moles RJ, Boukouvalas E, El-Den S. Assessing students' mental health crisis skills via consumers with lived experience: a qualitative evaluation. *J Ment Health Train Educ Pract.* 2019;14(5):361–371. https://doi.org/10.1108/JMHTEP-01-2019-0007
8. O'Reilly CL, Bell JS, Kelly PJ. Chen TF. Impact of Mental Health First Aid training on pharmacy students' knowledge, attitudes, and self-reported behaviour: a controlled trial. *Aust N Z J Psychiatry.* 2011;45(7):549–557. https://doi.org/10.3109/00048674.2011.585454
9. McKeirnan KC, MacCamy KL, Robinson JD, Ebinger M, Willson MN. Implementing Mental Health First Aid training in a Doctor of Pharmacy program. *Am J Pharm Educ.* 2023;87(8):100006. https://doi.org/10.1016/j.ajpe.2023.01.001
10. Witry MJ, Fadare O, Pudlo A. Pharmacy professionals' preparedness to use Mental Health First Aid (MHFA) behaviors. *Pharm Pract.* 2020;18(4):2102. https://doi.org/10.18549/PharmPract.2020.4.2102
11. Crespo-Gonzalez C, Dineen-Griffin S, Rae J, Hill RA. Mental health training programs for community pharmacists, pharmacy staff and students: a systematic review. *Res Social Adm Pharm.* 2022;18(11):3895–3910. https://doi.org/10.1016/j.sapharm.2022.06.006
12. Witry M, Karamese H, Pudlo A. Evaluation of participant reluctance, confidence, and self-reported behaviors since being trained in a pharmacy Mental Health First Aid initiative. *PLoS One.* 2020;15(5):e0232627. https://doi.org/10.1371/journal.pone.0232627
13. Miller GE. The assessment of clinical skills/competence/performance. *Acad Med.* 1990;65(9):S63–S67. https://doi.org/10.1097/00001888-199009000-00045 (suppl).
14. Ung TX, El-Den S, Moles RJ. O'Reilly CL. The use of mental health simulation in pharmacy practice and education: a systematic review. *Am J Pharm Educ.* 2023;87(6):100058. https://doi.org/10.1016/j.ajpe.2023.100058
15. Ung TX, El-Den S, Moles RJ, O'Reilly CL. Simulated psychosis care role-plays for pharmacy curricula: a qualitative exploration of student experiences. *Soc Psychiatry Psychiatr Epidemiol.* 2024;59(7):1269–1277. https://doi.org/10.1007/s00127-023-02598-7
16. Gorski S, Prokop-Dorner A, Pers M, et al. The use of simulated patients is more effective than student role playing in fostering patient-centred attitudes during communication skills training: a mixed method study. *BioMed Res Int.* 2022;2022:1498692. https://doi.org/10.1155/2022/1498692
17. Morgan AJ, Ross A, Reavley NJ. Systematic review and meta-analysis of Mental Health First Aid training: effects on knowledge, stigma, and helping behaviour. *PLoS One.* 2018;13(5):e0197102. https://doi.org/10.1371/journal.pone.0197102
18. Chen J, El-Den S, Pham L, O'Reilly CL, Collins JC. Healthcare professionals' knowledge, confidence and attitudes in relation to psychosis care: a systematic review. *Int J Soc Psychiatry.* 2023;69(8):1856–1868. https://doi.org/10.1177/00207640231194490
19. Morral K, Morral J. The mental health literacy of British community pharmacists. *J Ment Health Train Educ Pract.* 2017;12(2):98–110. https://doi.org/10.1108/JMHTEP-12-2015-0054
20. Henderson C, Noblett J, Parke H, et al. Mental health-related stigma in health care and mental health-care settings. *Lancet Psychiatry.* 2014;1(6):467–482. https://doi.org/10.1016/S2215-0366(14)00023-6
21. Merino Y, Adams L, Hall WJ. Implicit bias and mental health professionals: priorities and directions for research. *Psychiatr Serv.* 2018;69(6):723–725. https://doi.org/10.1176/appi.ps.201700294
22. Panzarella K, Rivers L, Bright B, et al. Using actors as simulated patients for interprofessional education. *Med Sci Educ.* 2013;23(S3):438–448. https://doi.org/10.1007/BF03341666

23. Nestel D, Muir E, Plant M, Kidd J, Thurlow S. Modelling the lay expert for first-year medical students: the actor-patient as teacher. *Med Teach.* 2002;24(5):562–564. https://doi.org/10.1080/0142159021000042649
24. Bell SK, Pascucci R, Fancy K, Coleman K, Zurakowski D, Meyer EC. The educational value of improvisational actors to teach communication and relational skills: perspectives of interprofessional learners, faculty, and actors. *Patient Educ Couns.* 2014;96(3):381–388. https://doi.org/10.1016/j.pec.2014.07.001
25. Des Jarlais DC, Lyles C, Crepaz N. TREND Group. Improving the reporting quality of nonrandomized evaluations of behavioral and public health interventions: the TREND statement. *Am J Public Health.* 2004;94(3):361–366. https://doi.org/10.2105/ajph.94.3.361
26. Ung TX, O'Reilly CL, Moles RJ, El-Den S. Co-designing psychosis simulated patient scenarios with mental health stakeholders for pharmacy curricula. *Int J Clin Pharm.* 2023;45(5):1184–1191. https://doi.org/10.1007/s11096-023-01622-9
27. One Door Mental Health. 〈https://www.onedoor.org.au/〉 Accessed June 24, 2023.
28. Bipolar Australia. 〈https://www.bipolaraustralia.org.au〉 Accessed June 24, 2023.
29. Boukouvalas EA, El-Den S, Chen TF, et al. Confidence and attitudes of pharmacy students towards suicidal crises: patient simulation using people with a lived experience. *Soc Psychiatry Psychiatr Epidemiol.* 2018;53(11):1185–1195. https://doi.org/10.1007/s00127-018-1582-2
30. Nguyen E, Chen TF, O'Reilly CL. Evaluating the impact of direct and indirect contact on the mental health stigma of pharmacy students. *Soc Psychiatry Psychiatr Epidemiol.* 2012;47(7):1087–1098. https://doi.org/10.1007/s00127-011-0413-5
31. Harris PA, Taylor R, Thielke R, Payne J, Gonzalez N, Conde JG. Research Electronic Data Capture (REDCap) – A metadata-driven methodology and workflow process for providing translational research informatics support. *J Biomed Inform.* 2009;42(2):377–381. https://doi.org/10.1016/j.jbi.2008.08.010
32. O'Reilly CL, Bell JS, Kelly PJ, Chen TF. Exploring the relationship between mental health stigma, knowledge, and provision of pharmacy services for consumers with schizophrenia. *Res Social Adm Pharm.* 2015;11(3):e101–e109. https://doi.org/10.1016/j.sapharm.2013.04.006
33. Luckie K, Saini B, Soo YY, Kritikos V, Collins JC, Moles RJ. Impact of scenario based training on asthma first aid knowledge and skills in school staff: an open label, 3-arm, parallel-group repeated measures study. *J Asthma.* 2019;56(9):973–984. https://doi.org/10.1080/02770903.2018.1508471
34. Adams L. Learning a new skill is easier said than done. Gordon Training International. 〈https://www.gordontraining.com/free-workplace-articles/learning-a-new-skill-is-easier-said-than-done/〉 Accessed October 29, 2023.
35. Cannon HM, Feinstein AH, Friesen DP. Managing complexity: applying the conscious-competence model to experiential learning. Paper presented at: Developments in Business Simulation and Experiential Learning: Proceedings of the annual ABSEL conference; 2010. 〈https://absel-ojs-ttu.tdl.org/absel/article/view/306〉 Accessed October 31, 2023.
36. Marken PA, Zimmerman C, Kennedy C, Schremmer R, Smith KV. Human simulators and standardized patients to teach difficult conversations to interprofessional health care teams. *Am J Pharm Educ.* 2010;74(7):120. https://doi.org/10.5688/aj7407120
37. MacQuillan E, Ford J, Baird K. Increased competency of registered dietitian nutritionists in physical examination skills after simulation-based education in the United States. *J Educ Eval Health Prof.* 2020;17:40. https://doi.org/10.3352/jeehp.2020.17.40
38. El-Den S, Moles RJ, Zhang R, O'Reilly CL. Simulated patient role-plays with consumers with lived experience of mental illness post-Mental Health First Aid training: interrater and test re-test reliability of an observed behavioral assessment rubric. *Pharmacy.* 2021;9(1):28. https://doi.org/10.3390/pharmacy9010028
39. Oanh TTH, Hoai NTY, Thuy PT. The relationships of nursing students' satisfaction and self-confidence after a simulation-based course with their self-confidence while practicing on real patients in Vietnam. *J Educ Eval Health Prof.* 2021;18:16. https://doi.org/10.3352/jeehp.2021.18.16
40. King DK, Neander LL, Edwards AE, Barnett JD, Zold AL, Hanson BL. Fit and feasibility: adapting a standardized curriculum to prepare future health professionals to address alcohol misuse. *Pedagog Health Promot.* 2019;5(2):107–1116. https://doi.org/10.1177/2373379918785924
41. Kapil R. Walgreens forms unique collaboration with the National Council for Mental Wellbeing and American Pharmacists Association to offer Mental Health First Aid training for pharmacists and team members. Mental Health First Aid. 〈https://www.mentalhealthfirstaid.org/2019/05/walgreens-forms-unique-collaboration-with-the-national-council-for-behavioral-health-and-american-pharmacists-association-to-offer-mental-health-first-aid-training-for-pharmacists-and-team-members/〉 Accessed July 23, 2024.
42. Mental Health First Aid Australia. Standard Mental Health First Aid for pharmacy. Mental Health First Aid. 〈https://www.mhfa.com.au/our-courses/adults-supporting-adults/standard-mental-health-first-aid-for-pharmacy/〉 Accessed August 1, 2024.

CHAPTER FOUR – SUPPLEMENTARY MATERIAL

Appendix. Confidence and stigma scores across three survey timepoints using unmatched data.

Time (n)		**T0 (n=133)**	**T1 (n=148)**	**T2 (n=128)**
Survey item		**Mean (SD)**		
Confidence items "I feel confident that I can…"	Recognize the signs that indicate that someone may be developing a mental health problem or experiencing a mental health crisis	2.7 (0.8)	**1.6 (0.5)[a]**	**1.6 (0.6)[c]**
	Approach someone who may be developing a mental health problem or experiencing a mental health crisis	3.0 (0.9)	**1.7 (0.6)[a]**	**1.7 (0.6)[c]**
	Ask a person whether they are having thoughts of suicide	3.1 (0.9)	**1.7 (0.6)[a]**	**1.7 (0.6)[c]**
	Listen to and interact with a person without expressing judgement about their situation	2.0 (0.7)	**1.5 (0.5)[a]**	**1.5 (0.5)[c]**
	Offer a person information and support about mental health problems	2.6 (0.8)	**1.7 (0.6)[a]**	**1.7 (0.6)[c]**
	Encourage a person to seek appropriate professional help	2.2 (0.7)	**1.6 (0.5)[a]**	**1.5 (0.6)[c]**
	Encourage a person to access other support	2.3 (0.8)	**1.6 (0.5)[a]**	**1.6 (0.6)[c]**
	Recognize and correct other people's misconceptions about mental health problems	2.5 (0.8)	**1.7 (0.6)[a]**	**1.64 (0.6)[c]**
		T0 (n=132)	**T1 (n=144)**	**T2 (n=126)**
Stigma items "In relation to a person who has previously been hospitalized for severe and persistent mental illness, such as schizophrenia, how willing would you be to…"	Share a flat with that person	2.9 (0.8)	**2.5 (0.8)[a]**	**2.4 (0.8)[c]**
	Work alongside that person	2.0 (0.7)	**1.7 (0.6)[a]**	**1.7 (0.7)[c]**
	Have that person as a neighbor	1.9 (0.8)	1.8 (0.7)	**1.7 (0.7)[c]**
	Have that person as a baby-sitter for your child	3.2 (0.7)	**2.9 (0.7)[a]**	**2.6 (0.9)[bc]**
	Have one of your children marry that person	2.7 (0.9)	**2.5 (0.8)[a]**	**2.4 (0.9)[c]**
	Introduce that person to a single friend as a potential relationship partner	2.6 (0.8)	**2.4 (0.8)[a]**	**2.2 (0.8)[c]**
	Recommend that person for a job	2.1 (0.7)	**1.8 (0.6)[a]**	**1.7 (0.6)[c]**
	Total social distance scale (SDS) score	17.4 (4.1)	**15.6 (3.7)[a]**	**14.6 (4.2)[c]**

SD, standard deviation.
Statistically significant results are marked in **bold** font.
[a]$p<.05$ for T0 to T1; [b]$p<.05$ for T1 to T2; [c]$p<.05$ for T0 to T2

CHAPTER FIVE –

SIMULATED PSYCHOSIS CARE ROLE-PLAYS FOR PHARMACY CURRICULA: A QUALITATIVE EXPLORATION OF STUDENT EXPERIENCES

Ung TX, El-Den S, Moles RJ, O'Reilly CL (2024)

Soc Psychiatry Psychiatr Epidemiol 59:1269–77.

https://doi.org/10.1007/s00127-023-02598-7

OVERVIEW OF CHAPTER FIVE

Chapter 5 pertains to the qualitative analysis of focus groups that explored students' experiences of MHFA training and the psychosis care role-plays (which were quantitatively evaluated in Chapter 4). Seven focus groups were conducted with 36 students. Five themes emerged: 'scenario reactions', 'realistic but not real', 'mental health confidence', 'MHFA skills application', and 'feedback and self-reflection'. Chapter 5 leads into Part D (Chapter 6), where simulated mental health role-plays were adapted and evaluated with pharmacists in an educational workshop, and pharmacists' experiences were explored.

Social Psychiatry and Psychiatric Epidemiology (2024) 59:1269–1277
https://doi.org/10.1007/s00127-023-02598-7

RESEARCH

Simulated psychosis care role-plays for pharmacy curricula: a qualitative exploration of student experiences

Tina X. Ung[1] · Sarira El-Den[1] · Rebekah J. Moles[1] · Claire L. O'Reilly[1]

Received: 21 September 2023 / Accepted: 20 November 2023 / Published online: 16 December 2023
© The Author(s) 2023

Abstract

Purpose Mental Health First Aid (MHFA) training is embedded in various tertiary healthcare curricula. However, opportunities for students to practise their newly acquired MHFA skills before entering the clinical practice workforce are lacking. The purpose of this study was to explore pharmacy students' experiences of MHFA training and post-MHFA simulated psychosis care role-plays.

Methods Final-year pharmacy students received MHFA training, after which they were invited to participate in simulated patient role-plays with trained actors, whilst being observed by peers, pharmacy tutors and mental health consumer educators (MHCEs). Immediately after each role-play, the role-playing student engaged in self-assessment, followed by performance feedback and debrief discussions with the tutor, MHCE and observing peers. All MHFA-trained students were invited to participate in audio-recorded focus groups to explore their experiences. Audio-recordings were transcribed verbatim and thematically analysed.

Results MHFA training was delivered to 209 students, of which 86 participated in a simulated patient role-play as a role-player and the remaining students observed. Seven focus groups were conducted with 36 students (mean duration 40 min, SD 11 min). Five themes emerged: scenario reactions, realistic but not real, mental health confidence, MHFA skills application, feedback and self-reflection.

Conclusion Students enjoyed the post-MHFA simulated psychosis care role-plays, which provided opportunities to apply and reflect on their newly-acquired MHFA skills in a safe learning environment. These experiences enhanced students' confidence to support people in the community, experiencing mental health symptoms or crises, and could be an add-on to MHFA training in the future.

Keywords Mental Health First Aid · Psychosis · Simulation · Pharmacy education · Student experience · Lived experience

Introduction

Pharmacists are accessible and trusted frontline healthcare professionals, with expanding roles in supporting mental health and psychological wellbeing in primary care [1–5]. Pharmacists regularly encounter people experiencing mental health symptoms or crises in the community [4, 6]. Whilst recognising their importance in supporting mental healthcare, many pharmacists do not feel adequately equipped to fulfil this role [4, 7], feeling less comfortable counselling consumers about mental health medicines compared to cardiac medicines [8]. There is a pressing need for additional mental health training in pharmacy education [8–10], and continuing professional development of pharmacists [5], to help improve pharmacists' comfort and confidence engaging with and supporting mental health consumers and carers [2, 4, 7, 11, 12].

Mental Health First Aid (MHFA) training, available in over 20 countries to healthcare professionals and the general public [13], improves mental health knowledge [14, 15], confidence [6, 14, 16, 17], preparedness to perform MHFA behaviours [18] and decreases stigma [14, 15] amongst pharmacists and pharmacy students. MHFA training (typically 12 h) provides an action plan to approach, assess and assist a person who is experiencing mental health symptoms or crises, listen non-judgementally, give support and information, and encourage professional help and other support (ALGEE)

✉ Sarira El-Den
sarira.el-den@sydney.edu.au

[1] The University of Sydney School of Pharmacy, Sydney, NSW, Australia

[19]. A survey of the general public revealed that participants were more comfortable discussing mental illness and had stronger belief in pharmacists' abilities to do so if the pharmacist had completed MHFA training [20]. Pharmacy students and staff endorse the importance of integrating MHFA training into curricula [9]. Hence, it is not surprising that MHFA training is embedded in various tertiary healthcare curricula, including pharmacy [21, 22]. However, few programme providers facilitate opportunities for students to practise their newly acquired MHFA skills post-training, which may impact future practice application [21].

In line with Miller's pyramid of clinical competence [23], assessments involving simulated patient (SP) role-plays allow students to 'show how' they would apply their newly acquired knowledge, rather than self-reporting what they would do in a fictional scenario (i.e. 'knows how') [16, 17]. Through SP role-plays, learners can practise skills with real people and receive feedback on their performance [24], whilst being encouraged to simultaneously reflect on their own practice [25]. SP assessments must be holistic, authentic and realistic in order to meet societal needs and optimise outcomes for mental health consumers/carers [9]. Authentic scenarios, reflective of real-world practice, can be created by collaborating with mental health stakeholders, such as consumers and mental health professionals, for assessment delivery and evaluation [26, 27]. Most mental health simulations in pharmacy education and practice, as well as MHFA evaluations, have demonstrated greater self-reported preparedness of participants to provide MHFA to people experiencing depression or anxiety. Currently, there is less evidence evaluating SP scenarios for psychosis, substance use disorders, or eating disorders [28]. Furthermore, there is evidence pharmacists' knowledge and literacy surrounding psychosis is lacking, with symptoms of schizophrenia less easily recognised by pharmacists than depression [29]. Therefore, the aim of this study was to qualitatively explore pharmacy student experiences of MHFA training and post-MHFA simulated psychosis care role-plays.

Methods

This qualitative study applied an inductive thematic analysis approach to analyse student feedback on MHFA training and simulated psychosis care role-plays, collected via focus group discussions.

Study intervention

Twelve hours of MHFA training was delivered to all final-year Bachelor of Pharmacy (BPharm) and Master of Pharmacy (MPharm) students at The University of Sydney, in workshop groups of approximately 20 students each. MHFA training is embedded into the final-year timetable of the 4 year undergraduate BPharm and 2 year postgraduate MPharm degrees, completed in 1.5 days and over four 3 h sessions, respectively. Post-MHFA training, each of the same MHFA workshop groups attended a 90 min compulsory workshop, with students invited to participate in SP role-plays with trained actors. Three previously co-designed and content validated simulated psychosis care scenarios and associated marking rubrics [27, 30] (relating to a person experiencing first episode psychosis with suicidal thoughts, a carer of someone living with schizophrenia, non-adherence to antipsychotic medicine) were used. Their development in partnership with mental health consumers and professionals is described elsewhere [27]. Students in each workshop were divided into three groups, with whom each of the three scenarios was enacted by a trained actor with a role-playing student, observed by peers, a MHFA-trained tutor and a mental health consumer educator (MHCE). Following each role-play, the role-playing student engaged in self-assessment using the content valid marking rubric pertaining to that scenario, followed by performance feedback and debriefing with peers, the MHCE and tutor.

Actors engaged in a training session (30–60 min) with two members of the research team (TU, who is a MHFA-trained pharmacist, and SE, a pharmacist and Master MHFA instructor) to rehearse their allocated scenario beforehand, to ensure consistency. MHCEs were recruited via not-for-profit organisations One Door Mental Health and Bipolar Australia [31, 32].

Study procedures and data analysis

A semi-structured focus group guide was developed, based on researchers' previous experience and literature [33]. All students were invited, pre- and post-MHFA training via the students' learning management system online and in-person, to participate in a focus group facilitated by TU. The focus groups were digitally recorded and transcribed verbatim by TU. Guided by Braun and Clarke's step-by-step guide to conducting thematic analysis [34], all transcripts were de-identified, then read and re-read by TU for data familiarisation. Initial codes were generated, and preliminary themes mapped by TU using Miro software [35]. A second author (COR, a Master MHFA instructor and pharmacist) independently read and coded 25% of transcripts. Themes and subthemes were iteratively discussed and reviewed, then defined and refined collaboratively with two other co-authors (SE and RM).

Ethics approval and reporting

This study was approved by the Human Research Ethics Committee of The University of Sydney (Project No.

2021/507) and reported in accordance with Standards for Reporting Qualitative Research [36]. All participants provided written informed consent prior to SP workshop and focus group attendance.

Results

Of 209 MHFA-trained students, 86 participated in a SP role-play across 11 workshop sessions, whilst the remaining students observed. The role-plays and focus groups were conducted with MPharm students in May 2022 and BPharm students in October–November 2022, post-MHFA training. Due to scheduling, the focus groups were conducted either immediately post-workshop or 7–10 days post-workshop. Seven focus groups were conducted (two with MPharm, five with BPharm) with a total of 36 students (mean duration 40 min, SD 11 min). Mapping of initial codes and preliminary themes generated from the focus group transcripts is shown in Appendices (Supplementary files) 1 and 2. Five overarching themes emerged: scenario reactions, realistic but not real, mental health confidence, MHFA skills application, feedback and self-reflection.

Scenario reactions

Students described the scenarios as *'intense and confronting'* [FG1P5] and '*shocking'* [FG5P4] for both role-players and observers, who had not experienced these situations before. However, students valued the exposure in preparation for future practice:

> *'… now I've somewhat been exposed. So, like, it would still be a shock, but at least it has helped to show what it could be like… So at least I can somewhat be of help.'* [FG5P2]

Exposure to the psychosis care scenarios within the safe environment of the classroom gave students a realistic *'taste of what could definitely happen in real life'* [FG1P2]:

> *'It's good exposure therapy, especially for our professional expectations in the future, because there's a very real chance we're going to be interacting with these people.'* [FG1P6]

The scenarios challenged personal beliefs and stigma about people experiencing mental health symptoms and crises, especially students' misconceptions of people living with schizophrenia:

> *'…I immediately just thought they would be, like, crazy and, like, yelling and stuff. That's where my brain immediately went. And then she was just like calm… and easy to chat to. And I was not expecting that.'* [FG5P2]

Students shared the *'taboo'* [FG1P5] nature of mental health in their cultures; the role-plays challenged them to experience and interact with mental health scenarios for the first time:

> *'…where I come from…I haven't had connections with people who have mental health or even know that they have these issues. So putting myself out there and being able to talk to these people for…the very first time…was a great opportunity to…realise, you know, it's not a big taboo. It's just part of life.'* [FG1P5]

Realistic but not real

Students unanimously voiced that the SP scenarios were authentic and realistic; role-playing with trained actors provided an enjoyable, immersive experience to practise MHFA skills in a safe learning environment. The scenarios were *'situations that could occur in real life*' [FG5P3] and '*representative of what actually happens'* [FG1P1], especially when initiating conversation about sensitive topics. Furthermore, students reflected that these scenarios enabled them to practise how to gather information to assess for possible medication non-adherence:

> *'…most often than not, you're going to have a patient that comes in and isn't ready to say everything to you, isn't ready to divulge everything. So you have to do a bit of digging.'* [FG1P1]

Role-playing with an unfamiliar SP actor challenged students to modify their tone and language as though communicating with a real lay person:

> *'I can have a really relaxed conversation, make it more like personable to them... this is a patient… I was like, how would I deal with this in real life?'* [FG2P1]

Whilst perhaps *'a lot more confronting'* [FG3P4] than role-playing with peers, engaging with SP actors provided a beneficial learning experience:

> *'Just made it more realistic, better practice than talking to the person who sits next to you every class.'* [FG2P4]

Interacting with SP actors was superior to role-playing with familiar tutors, who might go in and out of character and *'steer'* [FG4P1] students in a particular direction:

> *'With actors…they don't really have any loyalty towards you… So I thought it was more realistic and more engaging and probably a better experience to*

have it be done with an actor as opposed to just the tutor.' [FG4P1]

The SP role-play experience was compared with preparing for and participating in an objective structured clinical examination (OSCE) or a marked assessment, which students described to be *'very scripted, very fake…no emotion in it'* [FG5P3]. However, trained actors enabled genuine engagement with the scenarios:

'Before I started it, like the role-play…I was trying to like plan it out almost like it would be an OSCE or something that's getting marked, and like what the correct solution is and how to get to it… Because it was a real actor, I really quickly forgot that. And it was almost like I was just there talking to someone who was actually having this problem.' [FG2P2]

Whilst students valued the authenticity of the scenarios and the opportunity to practise their MHFA skills in a safe learning environment, they were still aware that the experience was simulated and may be doubtful of their translation into real-life practice:

'It's difficult to say whether or not we'd actually put into effect… Here we always knew that we were safe...' [FG4P1]

Prior knowledge and expectation of a mental health simulation may also have impacted performance behaviour versus actual practice behaviour, especially when negotiating privacy for conversations relating to mental health:

'We still have that knowledge that it's not real, real… because we knew it was Mental Health First Aid the person was like straightaway, "Do you want to go somewhere more private?"' [FG4P5]

Mental health confidence

The SP role-plays enhanced, for both role-playing and observing students, confidence to support people experiencing mental health symptoms or crises:

'Definitely increased my confidence…if I have never encountered this kind of scenario, I'll be doubting myself or I'll be feeling nervous because I don't know where to start or how to start.' [FG2P3]

Students acknowledged that knowledge (what to say) together with application (how to say it) contributes to confidence:

'…with the knowledge you're already, already halfway there, in terms of confidence, but the thing that boosts it is when you actually practise it and you feel the adrenaline and you feel the emotions when you're being confronted with scenarios like that.' [FG5P1]

Feedback from people with lived experience was also important in improving confidence:

'Being put in that situation and…getting people who have actually experienced it say that, you know, it's okay for you to ask those questions and getting that validation…made me a lot more confident…' [FG6P3]

Despite acknowledging enhanced mental health confidence, some students still held doubts regarding the application of MHFA skills in real-world settings:

'…I feel confident that I have the skills and I know the things that I'm meant to say, but my biggest concern is thinking about how the person is going to react to the things that I'm saying… I always assume that they might take it the wrong way or they're a bit scared, I feel I impose myself from doing it… if I had more confidence that things don't always go wrong, and that sometimes it really does help, and they are willing to have that conversation, then I'd be more inclined to do it personally.' [FG4P1]

Students provided suggestions on how their mental health confidence could be further improved. Given the engaging nature of the SP scenarios, students would appreciate *'repeated exposure'* [FG4P1] and more opportunities to apply their MHFA skills:

'…applying the knowledge is something that I think I guess with a lot of us, is something that we're not too confident about. And I feel like this role-play actually really helped with that. And I feel like if I did more role-plays then I'd feel like I'd be more confident.' [FG3P1]

To further improve mental health confidence, especially in preparation for clinical placements, students expressed the desire to receive MHFA training earlier in the degree:

'I do feel like this [MHFA] course is introduced a bit late…' [FG5P4]

Students also requested that more education and guidance on *'how to use the [mental health] resources, and then how to navigate through those resources'* [FG6P4] might help to further enhance confidence to support people experiencing mental health symptoms or crises:

'I think it might be interesting to have some kind of mental health workshop where you've got different services telling you about what they do.' [FG4P5]

MHFA skills application

Students identified that the ALGEE action plan provided in MHFA training gave them a structure to remember and follow, and ultimately confidence, to approach different mental health scenarios:

'After the training I felt like, there's more of a framework that I can follow so it'll be easier for me to navigate that compared to like when I don't have any knowledge at all.' [FG7P1]

Improved confidence enabled students to apply their newly-acquired MHFA skills in the SP role-plays, using the framework provided in MHFA training.

'…we know what it is now, so we can actually identify it and kind of go through it. And then the tutors are here and the people who have that experience to tell us step-by-step on how to navigate through that.' [FG6P5]

The SP role-plays were more engaging and memorable than information delivered from didactic lectures or MHFA training alone. The SP role-plays '*solidified'* [FG2P4] MHFA information, committing both clinical and practical skills to memory:

'It is one thing to learn but another thing to actually implement. Do it yourself and that's how you actually stick to it.' [FG6P6]

Students had previously *'froze in that moment'* [FG4P1] and felt uncomfortable identifying, approaching, helping or managing mental health scenarios (such as whilst on clinical placement or in their current employment), especially around suicide. MHFA training and the opportunity to practise suicide assessment skills in the classroom enhanced confidence for such scenarios in the future:

'I'd actually like had a patient come up to me and tell me that they wanted to end their life… I didn't have that training then… How can I improve for next time, make sure you know, be more prepared rather than just be blindsided like that.' [FG5P3]

A key message that students took away from MHFA training and SP role-plays was the importance of asking a person directly if they are having suicidal thoughts:

'The best thing to do is be direct. So like I think it's important to know… I wouldn't have known otherwise.' [FG2P1]

The experience and learnings from participating and/or observing MHFA role-plays was reported to be translatable to future clinical practice:

'I know if this was to happen in a pharmacy setting, like, I'll know what to do.' [FG3P5]

Feedback and self-reflection

Immediately after each SP role-play, the role-playing student engaged in self-assessment using the purposefully developed rubric pertaining to that scenario, followed by feedback and debriefing with the MHCE, tutor and peers. Students saw the value in immediate self-assessment, recognising that they are their own harshest critic:

'…most of the time you step yourself down quite a lot... And then when you actually get the feedback from the consumer, you feel like, oh, I'm actually not doing that bad…so it builds confidence back…' [FG5P4]

The importance of self-reflection was highlighted; students recognised that reflecting on their performance via self-assessment, alongside feedback and debrief discussions, would impact future practice. If given the '*opportunity to do it a second time, which I probably will in my career, I would do better.'* [FG6P1]. Students acknowledged the role of reflective practice in continuing professional development and self-improvement:

'…in practice as well, no one's going to be able to tell you did this right, didn't do this right. So getting you to think self-reflectively first is a good thing… Once we finish, once we're in our own practice to then self-assess because it's ongoing self-assessment, self-improving.' [FG1P1]

The self-assessment and feedback process enabled students to triangulate feedback from the tutor, lived experience perspective from the MHCE, and rubric criteria:

'…link up what the individual with lived experience was saying, with what the sort of fundamental criteria [in the rubric] are and helping develop that sort of process in our minds...' [FG4P1]

Students especially valued receiving feedback and learning from MHCEs, who provided realistic context from their personal experiences, complementing and going beyond the marking rubric criteria for a beneficial learning experience:

'When you get feedback from tutors it's more like "How many marks did I get? Did I pass or fail?" But then there are things that the consumer will tell you that's not in the rubric and I think that's what's really valuable.' [FG5P1]

Students reflected on the value of feedback provided by MHCEs, which some felt more important than feedback provided by their tutor:

'I would probably value that feedback more than a marker, to be honest, because... These are…real people and the ones we'll be talking to.' [FG1P2]

Whilst receiving feedback from MHCEs was beneficial, students voiced an understanding that consumer feedback was from individual experiences that may not be generalisable to all mental health scenarios:

'…whilst it was useful in that particular context, it's hard to say if, you know, we sort of took it on board and applied it in the next situation that we thought was similar, it was going to be equally effective as what they were saying.' [FG4P1]

Students might have felt reluctant to role-play, or '*scared to have that conversation'* [FG4P1], however they reflected that conducting the role-plays in a group with debrief discussions helped prepare them for when they encounter similar scenarios, on their own in real-life, with actual health implications for the patient:

'I get really scared... But I realised that I'd rather like this happened rather than me do it on my own, because I feel like we had a sort of discussion afterwards about how my performance was, which I found really helpful… they were telling me what I could have done better and what I did good at. And having that kind of debrief afterwards, I felt really helped consolidate what I kind of learnt and what I should do and seeing how other people dealt with their situations and role-play I felt was really good as well, because I also took away from them what I can apply for my own as well.' [FG6P3]

Discussion

This study demonstrated that psychosis care SP scenarios, developed through co-design with MHCEs and content validation with mental health stakeholders, are authentic and relevant to pharmacy practice. SP role-plays allowed students to apply their newly-acquired MHFA skills in a safe learning environment. The realism of the scenarios was enhanced by engaging trained actors to portray the SPs, fostering an enjoyable and immersive experience for the students. The scenarios were at times confronting, but together with a purposefully designed and structured rubric, as well as opportunity to learn from and debrief with MHCEs, tutors and peers, they improved students' mental health confidence for future practice.

Much of the qualitative results concur with previous literature exploring participant opinions of MHFA training; completing MHFA is more valuable than didactic education about mental illnesses and evidence-based treatments [4, 15, 37]. Whilst didactic methods of education may equip pharmacists with knowledge and desire to provide medicines information, participants report lacking confidence and skills necessary for problem-solving and communicating effectively with mental health consumers/carers [9, 37]. Interventions that allow participants to apply desired behaviours, such as via SP role plays, are effective in further improving confidence and enable acquired skills to be integrated into clinical practice [25].

Encountering mental health crisis situations in a pharmacy can be a challenging experience for pharmacy staff; many express uncertainties about their level of training in how to initiate and conduct useful conversations that would not cause discomfort, further distress or harm amongst consumers [3, 7]. As previously demonstrated with medical students practising clinical communication with SPs [25], the unexpected content of the SP scenarios in this study challenged students, however they were reflective of real-world experiences in community pharmacy. The authenticity of the scenarios, delivered in a safe learning environment, allowed students to engage in active learning to apply their skills and self-reflect on aspects that could be improved for future interactions with real patients.

One particular aspect that students commonly voiced increased confidence in, post-MHFA training, was asking about suicidal thoughts. This result concurs with students in a previous study who completed MHFA training as part of an elective, who reported increased comfort in talking about mental health and suicide, awareness of signs and symptoms of common mental health disorders, and increased comfort in providing care for an individual with a mental health diagnosis and identifying signs in themselves [38]. When evaluating MHFA training with pharmacists, the largest effect was also in their reported confidence in asking if someone is having suicidal thoughts [6]. Post-training enhancement of skills and confidence to conduct suicide assessment has furthermore been observed in other behavioural assessment literature beyond pharmacy, such as with social work students [39], in programmes involving social work, midwifery, special needs education and nursing [40], university employees [41], and university hospital staff [42].

The SP role-plays provided a positive experience for students' skill development, regardless of whether they participated in or observed the scenarios. Consistent with broader literature in this area, this suggests live simulation is critical to the MHFA training experience [4], as even observing other students providing MHFA and communicating with SPs about mental health symptoms and crises is a beneficial learning experience for students, which has demonstrated a sustained improvement in confidence post-MHFA training [43]. Concurring with the results of this study, medical students perceived clinical communication training with SP actors more realistic, convincing, safe, motivating and

engaging, than role-playing with student peers, both practically and theoretically; role-playing with a familiar person often feels artificial [25]. Additionally, the theme of feedback and self-reflection emerging from this study concurs with previous research with pharmacy students who participated in suicide crisis scenarios. Being able to observe and engage in feedback and debrief discussions after role-plays allows active self-reflection and professional development [17, 24]. Furthermore aligning with the aforementioned studies, students in this study acknowledged the significance of a teacher's feedback and how it enhanced future contacts with real patients [25], also appreciating the opportunity to receive feedback from someone with a lived experience of mental illness about how they could improve their MHFA and communication skills [17].

When discussing how mental health confidence could be further improved, students suggested introducing MHFA training earlier in their degree, especially since some had already encountered mental health scenarios during clinical placement or in their employment alongside pharmacy coursework. MHFA may be integrated towards the end of healthcare curricula as close as possible to graduation so that students are equipped with necessary mental health skills as they embark on future practice [22]. On the other hand, it is suggested that training university students in the first year of their degrees may equip them to provide peer-to-peer support during their time at university [22], and according to a pharmacy programme representative that offers MHFA training during the internship (fifth) year, students may have informal opportunities to practise MHFA *'in the course and more so in their jobs'*. [21]. As voiced by participants in this and other studies evaluating MHFA training [44], pharmacy professionals need more training in navigating mental health resources. It is recommended that participants acquire more communications training, experiential learning and interprofessional education to improve mental health confidence [9].

A major strength of this study was that students experienced a range of scenarios simulating a person requiring assistance and support relating to psychosis care, which they may encounter in future clinical practice. Engaging trained actors to portray the SPs provided a realistic and immersive experience; actors rehearsed their roles with two members of the research team for consistency in delivery. As for study limitations, social desirability response may have been involved during focus groups, as they were conducted by the same researcher (TU) who was a tutor involved in the SP sessions. However, participation in this study was voluntary and responses were de-identified.

Future work evaluating MHFA training, and the application of MHFA skills via the SP methodology is warranted, both locally and internationally. Whilst MHFA training is available to the general public as well as health professionals, there remains a lack of public awareness of pharmacists having MHFA training [20]. Therefore, it is recommended that MHFA-trained pharmacists promote their credentials within their communities. MHFA accreditation lasts 3 years; there is limited evidence to demonstrate the sustainability of improvements up to 6 months, and no studies have reported findings beyond 1 year post-MHFA training [14, 22]. Longitudinal studies are needed to investigate whether MHFA-trained participants' crisis assessment skills change over time [3], which may also be evaluated via SPs. It is also suggested that studies use a control or comparison group to test the independent impact of MHFA training and/or SP role-play assessments on intervention behaviours [18]. Additionally, it is not clear if the evidence base of perceived confidence and ability to apply MHFA at the tertiary student level is transferable to health professionals in practice [2, 45]. Based on the results of students desiring MHFA training earlier in their degree, future studies may compare the sustainability of acquired skills when these students graduate as practising pharmacy interns and/or registered pharmacists. Due to ethical considerations, it would be difficult to observe and report on behaviours in real-life mental health scenarios in clinical practice, also not possible to predict when such a scenario would present in real-life practice. Future research should involve examining if behaviours in SP role-plays translate to real-life practice, by means of involving mental health crises in real-world community pharmacy settings using the SP methodology, where trained actors present at community pharmacies and report on the experience [3, 6].

Conclusion

This qualitative study has demonstrated that students valued participating in and/or observing simulated psychosis care scenarios post-MHFA training. Engaging trained actors to enact SPs enhanced the realism of the role-plays, and students recognised the importance of receiving performance feedback and learning from MHCEs, to support their confidence in caring for people experiencing mental health problems and crises. Such observed behavioural assessments may complement current evidence of MHFA training to further improve mental health confidence and allow skills application and self-reflection. It is recommended that future studies involve evaluating self-reported MHFA behaviours and confidence in real-world community pharmacy settings.

Supplementary Information The online version contains supplementary material available at https://doi.org/10.1007/s00127-023-02598-7.

Acknowledgements The authors wish to thank all of the students, actors and mental health consumer educators from the Australian not-for-profit organisations One Door Mental Health and Bipolar Australia for their participation in this study.

Author contributions All authors contributed to the study conception and design. Material preparation, data collection, and analysis were led by TU under the supervision of COR, SE and RM. The first draft of the manuscript was written by TU and all authors reviewed, commented and contributed to the manuscript. All authors read and approved the final manuscript.

Funding Open Access funding enabled and organized by CAUL and its Member Institutions. This study received grant funding from the Schizophrenia Fellowship of NSW Ltd Peter Meyer Fund 2020. The aim of the fund is to help young Australian researchers who aim to improve the wellbeing of people living with schizophrenia.

Data availability The datasets generated during and/or analysed during the current study are not publicly available as consent was not obtained for public sharing of data.

Declarations

Conflict of interest The authors declare that they have no conflict of interest.

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit http://creativecommons.org/licenses/by/4.0/.

References

1. Adam B, Keers RN (2022) Exploring the views of healthcare professionals working in a mental health trust on pharmacists as future approved clinicians. Pharmacy 10(4):80. https://doi.org/10.3390/pharmacy10040080
2. Rubio-Valera M, Chen TF, O'Reilly CL (2014) New roles for pharmacists in community mental health care: a narrative review. Int J Environ Res Public Health 11(10):10967–10990. https://doi.org/10.3390/ijerph111010967
3. Ng R, O'Reilly CL, Collins JC, Roennfeldt H, McMillan SS, Wheeler AJ, El-Den S (2023) Mental Health First Aid crisis role-plays between pharmacists and simulated patients with lived experience: a thematic analysis of debrief. Soc Psychiatry Psychiatr Epidemiol 58:1365–1373. https://doi.org/10.1007/s00127-023-02443-x
4. Rickles N, Wertheimer A, Huang Y (2019) Training community pharmacy staff how to help manage urgent mental health crises. Pharmacy 7(3):133. https://doi.org/10.3390/pharmacy7030133
5. El-Den S, Collins JC, Chen TF, O'Reilly CL (2021) Pharmacists' roles in mental healthcare: past, present and future. Pharm Pract 19(3):2545. https://doi.org/10.1854/pharmpract.2021.3.2545
6. Carpini JA, Sharma A, Kubicki Evans M, Jumani S, Boyne E, Clifford R, Ashoorian D (2022) Pharmacists and mental health first aid training: a comparative analysis of confidence, mental health assistance behaviours and perceived barriers. Early Interv Psychiatry 17(7):671–680. https://doi.org/10.1111/eip.13361
7. Kirschbaum M, Peterson G, Bridgman H (2016) Mental health first aid training needs of Australian community pharmacists. Curr Pharm Teach Learn 8(3):279–288. https://doi.org/10.1016/j.cptl.2016.02.015
8. Goodman CS, Smith TJ, LaMotte JM (2017) A survey of pharmacists' perceptions of the adequacy of their training for addressing mental health-related medication issues. Ment Health Clin 7(2):69–73. https://doi.org/10.9740/mhc.2017.03.069
9. Gorton HC, Macfarlane H, Edwards R et al (2021) UK and Ireland survey of MPharm student and staff experiences of mental health curricula, with a focus on Mental Health First Aid. J Pharm Policy Pract 14:73. https://doi.org/10.1186/s40545-021-00364-1
10. Chen J, El-Den S, Pham L, O'Reilly CL, Collins JC (2023) Healthcare professionals' knowledge, confidence, and attitudes in relation to psychosis care: a systematic review. Int J Soc Psychiatry. https://doi.org/10.1177/00207640231194490
11. McKee J, Mospan CM, Benfield M, Gillette C (2019) A call for community pharmacists to complete mental health first aid training. J Am Pharm Assoc 59(2):167. https://doi.org/10.1016/j.japh.2018.10.013
12. Mey A, Knox K, Kelly F, Davey AK, Fowler J, Hattingh L, Fejzic J, McConnell D, Wheeler AJ (2013) Trust and safe spaces: mental health consumers' and carers' relationships with community pharmacy staff. Patient 6:281–289. https://doi.org/10.1007/s40271-013-0032-1
13. MHFA International (2023). Mental Health First Aid Internationalhttps://mhfainternational.org/. Accessed 25 Oct 2023
14. Morgan AJ, Ross A, Reavley NJ (2018) Systematic review and meta-analysis of mental health first aid training: effects on knowledge, stigma, and helping behaviour. PLoS ONE 13(5):e0197102. https://doi.org/10.1371/journal.pone.0197102
15. O'Reilly CL, Bell JS, Kelly PJ, Chen TF (2011) Impact of mental health first aid training on pharmacy students' knowledge, attitudes and self-reported behaviour: a controlled trial. Aust N Z J Psychiatry 45(7):549–557. https://doi.org/10.3109/00048674.2011.585454
16. El-Den S, Chen TF, Moles RJ, O'Reilly C (2018) Assessing mental health first aid skills using simulated patients. Am J Pharm Educ 82(2):185–193. https://doi.org/10.5688/ajpe6222
17. O'Reilly CL, Moles RJ, Boukouvalas E, El-Den S (2019) Assessing students' mental health crisis skills via consumers with lived experience: a qualitative evaluation. J Ment Health Train Educ Pract 14(5):361–371. https://doi.org/10.1108/JMHTEP-01-2019-0007
18. Witry MJ, Fadare O, Pudlo A, Witry MJ, Fadare O, Pudlo A (2020) Pharmacy professionals' preparedness to use Mental Health First Aid (MHFA) behaviors. Pharm Pract 18(4):2102. https://doi.org/10.1854/pharmpract.2020.4.2102
19. Mental Health First Aid (2023). Our purpose, vision and guiding principles https://mhfa.com.au/about/our-activities/our-purpose-vision-mission. Accessed 20 September 2023
20. Dollar KJ, Ruisinger JF, Graham EE, Prohaska ES, Melton BL (2020) Public awareness of mental health first aid and perception of community pharmacists as mental health first aid providers. J Am Pharm Assoc 60(5):S93–S97. https://doi.org/10.1016/j.japh.2020.01.017
21. Pham L, Moles RJ, O'Reilly CL, Carrillo MJ, El-Den S (2022) Mental health first aid training and assessment in Australian medical, nursing and pharmacy curricula: a national perspective using content analysis. BMC Med Educ 22:70. https://doi.org/10.1186/s12909-022-03131-1
22. El-Den S, Moles R, Choong H-J, O'Reilly C (2020) Mental health first aid training and assessment among university students: a systematic review. J Am Pharm Assoc 60(5):e81–e95. https://doi.org/10.1016/j.japh.2019.12.017

23. Miller GE (1990) The assessment of clinical skills/competence/performance. Acad Med 65(9):S63-67. https://doi.org/10.1097/00001888-199009000-00045
24. Jain S (2022) Feedback and debriefing. In: Biyani CS, Van Cleynenbreugel B, Mottrie A (eds) Practical simulation in urology. Springer International Publishing, Cham, pp 373–383
25. Gorski S, Prokop-Dorner A, Pers M et al (2022) The use of simulated patients is more effective than student role playing in fostering patient-centred attitudes during communication skills training: a mixed method study. Biomed Res Int. https://doi.org/10.1155/2022/1498692
26. Mey A, Fowler JL, Knox K, Shum DHK, Fejzic J, Hattingh L, McConnell D, Wheeler A (2014) Review of community pharmacy staff educational needs for supporting mental health consumers and carers. Commun Ment Health J 50:59–67. https://doi.org/10.1007/s10597-012-9580-4
27. Ung TX, O'Reilly CL, Moles RJ, El-Den S (2023) Co-designing psychosis simulated patient scenarios with mental health stakeholders for pharmacy curricula. Int J Clin Pharm. https://doi.org/10.1007/s11096-023-01622-9
28. Ung TX, El-Den S, Moles RJ, O'Reilly CL (2023) The use of mental health simulation in pharmacy practice and education: a systematic review. Am J Pharm Educ 87(6):100058. https://doi.org/10.1016/j.ajpe.2023.100058
29. Morral K, Morral J (2017) The mental health literacy of British community pharmacists. J Ment Health Train Educ Pract 12(2):98–110. https://doi.org/10.1108/JMHTEP-12-2015-0054
30. El-Den S, Moles RJ, Zhang R, O'Reilly CL (2021) Simulated patient role-plays with consumers with lived experience of mental illness post-mental health first aid training: interrater and test re-test reliability of an observed behavioral assessment rubric. Pharmacy 9(1):28.
31. One Door Mental Health (2023). One Door Mental Health https://www.onedoor.org.au/. Accessed 24 Jun 2023
32. Bipolar Australia (2023). Bipolar Australia https://www.bipolaraustralia.org.au. Accessed 24 Jun 2023
33. O'Reilly CL, Bell JS, Chen TF (2012) Mental health consumers and caregivers as instructors for health professional students: a qualitative study. Soc Psychiatry Psychiatr Epidemiol 47:607–613. https://doi.org/10.1007/s00127-011-0364-x
34. Braun V, Clarke V (2006) Using thematic analysis in psychology. Qual Res Psychol 3(2):77–101. https://doi.org/10.1191/1478088706qp063oa
35. Miro (2023). Miro. Accessed 25 May 2023
36. O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA (2014) Standards for reporting qualitative research: a synthesis of recommendations. Acad Med 89(9):1245–1251. https://doi.org/10.1097/ACM.0000000000000388
37. Bell JS, Whitehead P, Aslani P, Sacker S, Chen TF (2006) Design and implementation of an educational partnership between community pharmacists and consumer educators in mental health care. Am J Pharm Educ 70(2):28
38. Robinson JD, Maslo TE, McKeirnan KC, Kim AP, Brand-Eubanks DC (2020) The impact of a mental health course elective on student pharmacist attitudes. Curr Pharm Teach Learn 12(7):885–892. https://doi.org/10.1016/j.cptl.2020.02.011
39. Lee E, Kourgiantakis T (2023) Applying behavioural activation (BA) and simulation-based learning (SBL) approaches to enhance MSW students' competence in suicide risk assessment, prevention, and intervention (SRAPI). Soc Work Educ 42(4):511–530. https://doi.org/10.1080/02615479.2021.1976136
40. Magerman J, Demedts D, De Smet S, Fobelets M (2022) Using simulation to help health professions students learn to talk to clients about suicide. Creat Nurs 28(4):266–273. https://doi.org/10.1891/CN-2022-0036
41. Cross W, Matthieu MM, Lezine D, Knox K (2010) Does a brief suicide prevention gatekeeper training program enhance observed skills? Crisis 31(3):149–159. https://doi.org/10.1027/0227-5910/a000014
42. Cross W, Matthieu MM, Cerel J, Knox KL (2007) Proximate outcomes of gatekeeper training for suicide prevention in the workplace. Suicide Life-Threat Behav 37(6):659–670. https://doi.org/10.1521/suli.2007.37.6.659
43. Boukouvalas EA, El-Den S, Chen TF, Moles R, Saini B, Bell A, O'Reilly CL (2018) Confidence and attitudes of pharmacy students towards suicidal crises: patient simulation using people with a lived experience. Soc Psychiatry Psychiatr Epidemiol 53:1185–1195. https://doi.org/10.1007/s00127-018-1582-2
44. Witry M, Karamese H, Pudlo A (2020) Evaluation of participant reluctance, confidence, and self-reported behaviors since being trained in a pharmacy Mental Health First Aid initiative. PLoS ONE 15(5):e0232627. https://doi.org/10.1371/journal.pone.0232627
45. Mei C, McGorry PD (2020) Mental health first aid: strengthening its impact for aid recipients. BMJ Ment Health 23:133–134. https://doi.org/10.1136/ebmental-2020-300154

CHAPTER FIVE – SUPPLEMENTARY MATERIAL

MHFA training
repetitive ALGEE
understand-able
length of training
tiring/ draining
missing carer content
pharmacists with MH knowledge
heavy content
MHFA trainer making safe space
consistent delivery across instructors
didn't know what do expect
not stimulating /interactive
fear of stigmatising
insightful, exposure
skills that previously didn't have
videos - memorable & helpful
visualising theory
identify risk factors, red flags
framework to approach different MH conditions
brings back to 3rd year. emphasis on approach
reflect on what have done in past for future
approach
actual experiences
comfortable, non-judgemental
logically, systematic-ally
previously only lectures
more prepared rather than blindsided
especially re suicide
previous discomfort
scenario specific:
1. exposure to 'extreme'
2. different perspective
3. px resistance communcation
appreciated group activity and debrief
shy to volunteer but glad they did it
timing b/w MHFA training and RP
disconnected after weeks
different to reading book or speaking w/ fam/friends
more engaging than just writing
training/ manual gives info but RP-HOW to say it
training kicks in
gives more attention to students
better than just doing MHFA
learning is easy, applying in real life is hard
knowledge PLUS practice makes confidence
RP puts MHFA skills into practice
clinical as well as practical knowledge
experience is best way of teaching/ learning
increased confidence more than just MHFA
reinforces/ solidifies what was taught
applying is more memorable
expected MH topic
but still aware of simulation
safe env vs reality
impact of physical pharmacy env
drugs might not come first
holistic approach
side effects
lifestyle consider-ations
patient-centred MH care
juggle of meds and MH
giving px options
bettering for future
practical recommen-dations
support services
practise emotions/ empathy
balancing empathy with issues
assessing situation while maintaining conversation
considering carers
sparked self-directed learning
establishing rapport
communi-cation
patient resistance
'fishing' for info
self-reflections & lessons learnt
types of Qs
'know' to ask but find it hard to
value in silence for opening up
awareness of indicators
suicide assess-ment
might not see urgency to ask
more confident in asking without offending
judgemental Q?
be direct
importance of asking
implementing Q in conversation
reactions to scenarios
confronting
shocked
intense
jarring
heart racing
unexpected
lots going on - lost
overwhelming
potentially trigering
for both RPers and observers
good for ppl prepared for it
helpful because of feedback
rewarding challenge - feedback
eye/mind-opening
never experienced before
memorable exposure
previous beliefs/ stigma/ taboo
baseline experience - less of shock in future
prepared for future
future professional experiences - expect the unexpected
draining - importance of self-care
not the same approach for all
MHFA widely applicable
taste of reality and approach
representative of what happens
need to 'mix it up'
2 LEEs to provide feedback?
LEE first, tutor second to balance
realistic situations in community
existing first-hand practice
think on feet
training kicks in
px not wanting to talk much
negotiating privacy
reflect on ALGEE
no rubric with actual px
pratice still easier than real
future training for LEE feedback delivery
link up with rubric
LEE feedback more personal
constructive vs discouraging
harshness
higher value in LEE feedback than marker
firsthand exp > paper/ rubric
feedback from realistic context
learning from LEEs
sensitivity to words
validation from LEE
definitely increased
more than just MHFA training
emotionally stronger
observing helped confidence too
more simulations - either participate or observe
knew this was safe - doubtful for real world
lack of confidence despite training
impact on MH confidence
change in survey scores
older students/ interns to volunteer
pre-post with actors
more intx with LEEs
everyone participate in RP
respond to videos instead of written vignette
still worried about things going wrong
might not be more confident but more observant
more education on resources/ supports
how to navigate support websites
how to further improve confidence
assessment suggestions
unsure about practical support
brochures
recurring theme across years
introduce MHFA earlier in degree
add to MH UoS
observing/ videotaping more students
uncertainties about crisis team
talk/ workshop from organisations
even if just empathy and not meds yet
MHFA training before placements
placements
mystery shopping after training
different ppl's approaches to same situation
potential to co-design with students???
observing practising MH profs
having opportunity to reflect
oral test
not lecture format
theory vs fact
specific resources
may not be universal
e.g. experience of side effects
written comments
audio/ transcript for students
feedback from consumer/ tutor - confidence
rubric for observers to follow
suggestions for feedback
contrasting scenario/rubric with real practice
some feedback may be questionable
understanding unique experiences
self-assessment
students harshest on themselves
self-assess vs tutor fbk
systematic
robotic
students - rubric/ checklist mentality
immediate self-assessment
don't intx w/ students beforehand
future considerations
more realistic/ believable than OSCE
better experience
lived experience?
actors - immersive & realistic
training with LEEs
more confronting with strangers
tutors can still make good RP
depends on acting, distractions
unfamiliar tutor?
knowledge of marking vs reality
modifying language for px
vs (familiar) tutor/peers
new ppl out of comfort zone
tutors "fake"
tutor cuts in and out of RP
clinical vs more personal w/ actor
tutors might steer RP, actor won't
powerful tool
usually delayed rubric

Appendix 2 Abbreviations used in mind map

env=environment; exp=experience; fam=family; fbk=feedback; intx=interact; LEE=lived-experience educator; MH=mental health; MHFA=Mental Health First Aid; OSCE=objective structured clinical examination; ppl=people; profs=professionals px=patient;

Q=question; re=regarding; RP=role-play; UoS=unit of study; vs=versus; w/=with.

PART D –
EVALUATION WITH PHARMACISTS

OVERVIEW OF PART D

Part D (Chapter 6) extends upon the evaluation of the psychosis care role-plays with students, which was presented in Part C (Chapters 4 and 5). Mental health role-plays were adapted into an educational workshop with pharmacists, to comprise a mixed-methods pilot study. The impact of the role-plays on pharmacists' intended mental health support behaviours, and pharmacists' experiences and opinions on using mental health simulations in clinical practice, were explored.

CHAPTER SIX –

PHARMACISTS' MENTAL HEALTH SUPPORT BEHAVIOURS WITH SIMULATED PATIENTS: A MIXED-METHODS PILOT STUDY

Ung TX, El-Den S, Moles RJ, Collins JC, Ou K, Chen J, O'Reilly CL (2025)

J Am Pharm Assoc 65(1):102263.

https://doi.org/10.1016/j.japh.2024.102263

OVERVIEW OF CHAPTER SIX

Chapter 6 presents the mixed-methods evaluation of mental health role-plays with pharmacists. In partnership with Australia's peak professional pharmacy organisation – the Pharmaceutical Society of Australia (PSA) – pharmacists attended a two-hour SP workshop. Pharmacists participated in and/or observed simulated mental health role-plays, which were conducted in a similar manner as with students. Pharmacists were invited to complete a pre- and post-workshop survey to explore the impact of the role-plays on pharmacists' intended mental health support behaviours. Thirty-five pharmacists attended the workshop. The scores of 14 role-plays were quantitatively analysed. Post-workshop, semi-structured interviews were conducted with four pharmacists to explore their experiences of the workshop and their opinions on adapting mental health role-plays in clinical settings to upskill and monitor pharmacists' mental health support behaviours in practice. Four themes emerged: 'realistic context for skills application and practice', 'benefits of observing', 'self-assessment and feedback', and 'integrating into clinical practice (via mystery shopping)'.

Scenarios 1 and 3 used in Chapter 6 were from Chapters 3 – 5 of this thesis (Appendices IX and XI). Scenario 2 featured in Chapter 6 was co-designed in a separate study to this thesis (Chen J, et al. Co-design and content validation of psychosis care assessment material for medical, pharmacy, nursing, and occupational therapy curricula. BMC Med Educ – under journal review); its pertaining content is in Appendix XIV. Scenario 4 that features in Chapter 6 was previously used in pharmacy education before the conception of this thesis (Appendix XV). Appendix XVI includes the ethics approved documents for Project No. 2023/148, relating to the pharmacist evaluation of the simulated mental health role-plays in Chapter 6.

Journal of the American Pharmacists Association 65 (2025) 102263

Contents lists available at ScienceDirect

Journal of the American Pharmacists Association

journal homepage: www.japha.org

BRIEF REPORT

Pharmacists' mental health support behaviours with simulated patients: a mixed-methods pilot study

Tina X. Ung*, Sarira El-Den, Rebekah J. Moles, Jack C. Collins, Kevin Ou, Jenny Chen, Claire L. O'Reilly

ARTICLE INFO

Article history:
Received 14 June 2024
Accepted 5 October 2024
Available online 12 October 2024

ABSTRACT

Background: Simulated mental health role-plays provide a safe and relevant learning experience for pharmacy students, improving confidence in and attitudes toward providing mental health support. Little research explores the use of mental health role-plays, enacted by trained actors, with pharmacists.

Objectives: This study aimed to pilot the adaptation of simulated patient (SP) role-plays, from the university classroom with students, to a workshop with pharmacists, and explore pharmacists' experiences.

Methods: Pharmacists attended a two-hour workshop. Trained actors enacted simulated scenarios (previously developed for pharmacy education) with pharmacist volunteers while being observed by peers, a workshop facilitator, and mental health consumer educator (MHCE). Pharmacists engaged in self-assessment immediately post-roleplay, followed by performance feedback and debrief discussions with MHCEs, workshop facilitators, and peers. Pharmacists completed pre- and post-workshop surveys exploring intended mental health support behaviours, then invited to participate in an interview exploring their workshop experiences and opinions about using mental health role-plays in clinical practice (via mystery shopping). Non-parametric tests were conducted to analyse role-play and survey scores, and thematic analyses were undertaken on interview transcripts.

Results: Thirty-five pharmacists attended the workshop. Fourteen role-plays were analysed. Pharmacist self-assessment scores were significantly lower than MHCE scores ($P = 0.028$). Overall, the role-plays significantly increased pharmacists' intentions in supporting a person experiencing mental health crises such as suicide and psychosis, as well as encouraging other supports ($P < 0.05$). Four themes emerged from interviews ($n = 4$): realistic context for skills application and practice, benefits of observing, self-assessment and feedback, and integrating into clinical practice (via mystery shopping).

Conclusion: SP role-plays of mental health symptoms and crises, enacted by trained actors, may effectively assess and enhance pharmacists' intended mental health support behaviours. It is recommended that the SP method is adapted into clinical practice, via repeated mystery shopping visits with immediate performance feedback, to shape pharmacists' mental health support behaviours.

© 2024 American Pharmacists Association®. Published by Elsevier Inc. All rights are reserved, including those for text and data mining, AI training, and similar technologies.

Data availability statement: Available upon request to the corresponding author, if in line with ethics approval.

* **Correspondence:** Mrs Tina X. Ung, BPharm (Hons I), Associate Lecturer and PhD Candidate, The University of Sydney School of Pharmacy, Pharmacy and Bank Building A15 Science Rd, Camperdown NSW 2006, Sydney, NSW Australia.
E-mail address: tina.ung@sydney.edu.au (T.X. Ung).

ORCIDs
Tina X. Ung: http://orcid.org/0000-0001-5532-975X
Sarira El-Den: http://orcid.org/0000-0001-7500-3351
Rebekah J. Moles: http://orcid.org/0000-0002-4043-6728
Jack C. Collins: http://orcid.org/0000-0002-0266-5394
Kevin Ou: http://orcid.org/0000-0002-9299-5601
Jenny Chen: http://orcid.org/0009-0007-5920-8702
Claire L. O'Reilly: http://orcid.org/0000-0001-6416-8150

https://doi.org/10.1016/j.japh.2024.102263
1544-3191/© 2024 American Pharmacists Association®. Published by Elsevier Inc. All rights are reserved, including those for text and data mining, AI training, and similar technologies.

Key points

Background:

- Pharmacists have an important and expanding role in supporting people experiencing mental health symptoms and crises but may not feel comfortable or confident to provide mental health support.
- Mental Health First Aid (MHFA) training can increase pharmacists' self-reported skills, knowledge, confidence, and preparedness to provide mental health support, but little is known about how these self-reported outcomes translate to intended or actual MHFA behaviours.
- Simulated patient (SP) role-plays of mental health scenarios, enacted by trained actors and immediately followed by feedback and debrief discussions with mental health consumer educators, enable pharmacy students to practice MHFA skills in a safe learning environment.

Findings:

- Simulated mental health role-plays, previously developed for pharmacy education, were adapted into an educational workshop for pharmacists, creating a realistic context for skills application, and contributing to pharmacists' intended mental health support behaviours.
- Adapting SP scenarios into clinical practice, via repeated mystery shopping visits with immediate performance feedback, may be an acceptable and feasible method of observing and shaping pharmacists' mental health support behaviours.

Background

Pharmacists regularly interact with people experiencing mental health symptoms or crises,[1] but may not feel comfortable or confident in their abilities.[2-4] Mental Health First Aid (MHFA) training is internationally well-accepted, evidence-based,[3,5,6] and can increase learners' self-reported skills, knowledge, confidence, and preparedness to provide mental health support.[1,7,8] All pharmacists are encouraged to complete MHFA training,[9] which is increasingly being embedded in pharmacy curricula in countries such as Australia[10] and the United States.[11-13] However, little is known how self-reported MHFA outcomes translate to intended and actual mental health support behaviours.[7,8]

Simulated mental health role-plays, co-designed with mental health stakeholders,[14] improve pharmacy students' mental health confidence, stigma, and provide enjoyable and relevant learning experiences.[15] Using trained actors to enact simulated patients (SPs) and role-play with students, in a safe and educational environment, enables observation of behaviours with social and psychological fidelity,[16] fostering dynamic and empathetic engagement.[1,17] The learning experience is further enhanced and authenticated by involving consumers with lived experience of mental illness in education design and delivery, providing performance feedback and personal reflections.[17-21] While these benefits have been demonstrated at a university level, it is unknown how pharmacists view the SP method as a means of educating and upskilling healthcare practitioners in responding to individuals seeking or requiring mental health support.

Objectives

This study aimed to pilot the adaptation of mental health role-plays, previously evaluated with students, into an educational workshop with practising pharmacists. The objectives were to assess MHFA behaviours of pharmacists via SP role-plays (with trained actors), explore the impact of SP role-plays on pharmacists' intended behaviours in providing mental health support, and explore pharmacists' experiences of the workshop and their thoughts about using SPs as a mental health training method in clinical practice.

Methods

This mixed-methods study was conducted via three means: SP role-plays, pre- and post-workshop surveys, follow-up semi-structured interviews.

Setting and participants

A two-hour educational workshop was organised in partnership with Australia's peak professional pharmacy organisation, The Pharmaceutical Society of Australia (PSA),[22] and conducted in July 2023 in Sydney, Australia. All pharmacy graduates, interns, and pharmacists in Australia were invited to attend through PSA's marketing channels (email, social media). At the beginning of the workshop, attendees were invited to participate in any or all parts of the study, henceforth referred to as "participants". In November 2023, PSA invited workshop attendees, via email on behalf of the research team, to participate in a follow-up interview via telephone or Zoom videoconferencing.[23]

Interventions

Workshop attendees formed four groups. Volunteers in each group engaged in SP role-plays with actors (who had undergone prior training with TU, a MHFA-trained pharmacist, and/or SE, a licensed MHFA instructor) while being observed by peers, a MHFA-trained workshop facilitator, and mental health consumer educator (MHCE). Four previously developed scenarios and associated marking rubrics were utilised,[14] pertaining to first-episode psychosis with suicidal thoughts, a person living with schizophrenia who has a plan for suicide, non-adherence to antipsychotic medication, and antidepressant-induced mania. The scenarios were conducted round-robin style; each group experienced all four scenarios, for an intended total of 16 role-plays. MHCEs and facilitators used the marking rubric to score participants' performances while the role-plays were being conducted. Immediately following role-plays, role-playing participants engaged in self-assessment using the same rubric. Performance feedback and debriefing with peers, the MHCE, and facilitator then ensued.

Study instruments

Workshop attendees were invited to individually complete a survey to collect demographic data, and the 23-item Mental Health Support Scale (MHSS)-Intended,[24] exploring the impact of the role-plays on participants' intended behaviours to provide mental health support (Appendix 1). Survey data were collected and managed online using the REDCap electronic data capture tool hosted at The University of Sydney.[25] Role-plays were scored using aforementioned rubrics[14]; each item was scored out of 2: 0=no marks, 1=partial marks, 2=full marks. To pass the scenario, a facilitator score greater than 50% and fulfilment of scenario-specific pass/fail criteria were needed (e.g., asking directly about suicidal thoughts).

For the interviews, a semi-structured guide was developed based on researchers' previous experience,[15] exploring participants' experiences of the workshop and their opinions of using SP role-plays with immediate feedback to train pharmacists in providing mental health support (Appendix 2). While not discussed during the workshop, an additional consideration was explored during the interviews to gauge pharmacists' opinions about adapting SP role-plays into clinical practice (via repeated "mystery shopping" visits), to observe and shape pharmacists' mental health support behaviours.

Data collection and analysis

Surveys were completed immediately before (T0) and after (T1) the workshop. Non-parametric (Mann-Whitney U) tests were conducted on unmatched survey data after testing for normality, to explore T0 scores according to MHFA training status, as well as changes in intended behaviours for all participants, also for MHFA-trained and non-MHFA-trained participants alone. Missing data were excluded test-by-test.

Role-play scores were converted to a score out of 100 to facilitate comparison of scores awarded by each rater (self, facilitator, MHCE) for each scenario. Role-play scores were analysed using non-parametric (independent-samples Kruskal-Wallis) and post-hoc tests (pairwise comparisons and Bonferroni correction for multiple tests) after conducting normality tests on data, to explore differences in rater scores. A chi-square test was conducted to explore relationships between pass/fail outcomes according to MHFA training status of participants. Another chi-square test was conducted to explore relationships between pass/fail outcomes according to scenario. Missing data were excluded listwise.

Interviews were conducted between November 2023 and January 2024 via Zoom,[23] digitally recorded, and transcribed verbatim by TU. An inductive thematic analysis approach was applied; all transcripts were de-identified, then read and reread by TU for data familiarisation. Initial codes were generated, preliminary themes and subthemes were mapped in Microsoft Word, iteratively discussed and reviewed, then defined and refined collaboratively with two other co-authors (COR and RM).[26]

Ethics approval and reporting

This study received ethics approval from The University of Sydney Human Ethics Committee (2023/148) and is reported using the COnsolidated criteria for REporting Qualitative research (COREQ) checklist.[27]

Results

Thirty-five participants attended the workshop, with 30 completing the T0 survey (Appendix 3). Most participants identified as female (70%), with a mean age of 44.17 years (SD 15.69). Fifty percent of participants were MHFA-trained. Nine (31%) had a personal diagnosis of mental illness, and 22 (76%) had a close friend or relative living with mental illness.

Role-play performance scores

Sixteen role-plays were conducted, with 14 available for analysis (one excluded as role-played by two people, one participant did not sign consent for data inclusion). Additionally, during two role-plays the actor mistakenly volunteered the pass/fail criterion for that scenario. This criterion was excluded from the pertaining rubrics, the total score was adjusted for those two role-plays, and they were excluded from analyses of pass/fail outcomes. The median self-assessment score (n = 14) was 75.0/100 (IQR 58.2-84.1, range 50.0-90.9). The median facilitator score (n = 14) was 85.7 (IQR 77.3-90.2, range 4.5-100.0). The median MHCE score (n = 13) was 90.9 (IQR 36.4-100.0, range 36.4-100.0). There was a significant difference between raters' scores (H[2] = 7.09, P = 0.029), with MHCEs scoring significantly higher than participants scored themselves overall (P = 0.028).

The relationship between MHFA training and pass/fail outcome was statistically significant; 100% of participants without MHFA training (n = 3) failed and 100% of MHFA-trained participants (n = 9) passed their scenario ($X^2(2)$ = 12.00, P < 0.001, Cramer's V = 1.00). There were no significant differences in pass/fail outcomes per scenario.

Survey scores — Intended behaviours

At T0, MHFA-trained participants (n = 15) were significantly (P < 0.05) more likely, compared with participants without MHFA training (n = 15), to ask if someone has been having thoughts of harming themselves or others (P = 0.02); listen to their problems and try to provide solutions (P = 0.02); convey a message of hope by telling them help is available and things can get better (P = 0.03); and ask if they have been thinking about suicide (P = 0.04).

At T1 (n = 20), there was statistically significant (P < 0.05) increased intent compared to T0 for 8 of 23 items, in areas of active listening, encouraging other supports, responding to suicidal behaviour, immediate risk of suicide and psychotic symptoms, and investigating reluctance to seek help. For non-MHFA trained participants alone (n = 11), there were statistically significant (P < 0.05) increased intent post-roleplays for 6 of 23 items in areas of active listening, responding to suicidal behaviour, immediate risk of suicide and psychotic symptoms, and investigating reluctance to seek help. For MHFA-trained participants alone (n = 9), statistically significant increased intent post-roleplays was found for one item relating to encouraging other supports: discuss with them whether they are interested in self-help strategies (P = 0.025) (Table 1).

Table 1
Changes in survey item scores for all participants, non-MHFA and MHFA-trained participants alone

Time (n)	All participants		Non-MHFA		MHFA-trained	
	T0 (n = 30)	T1 (n = 20)	T0 (n = 15)	T1 (n = 11)	T0 (n = 15)	T1 (n = 9)
Survey item	Median (IQR)					
Ask if they have been having thoughts of harming themselves or others	3.5 (2–4.3)	4 (3.3–5)	3 (2–4)	4 (3–5)	4 (3–5)	4 (3–5)
Discuss with them their wishes about privacy and confidentiality	4 (3.5–4)[a]	4 (4–5)	4 (4–4)	4 (4–5)	4 (3–4.3)[a]	5 (2.5–5)
Listen to their problems and try to provide solutions[b]	4 (4–5)	5 (4–5)[c]	4 (4–4)	5 (4–5)[c]	5 (4–5)	5 (4–5)
Let them know you are listening to what they are saying by restating and summarising what they have said	4 (4–5)	5 (4–5)	4 (4–4)	5 (4–5)	4 (4–5)	5 (4–5)
Communicate clearly and simply, and repeat things where necessary	4 (4–5)	5 (4–5)	4 (4–4)	4 (4–5)	4 (4–5)	5 (4–5)
Tell them they have to get their act together[b]	1 (1–2)	1 (1–1)	1 (1–1)	1 (1–1)	1 (1–2)	1 (1–2)
Convey a message of hope by telling them help is available and things can get better	4 (4–5)	4.5 (4–5)	4 (4–4)	4 (3–5)	5 (4–5)	5 (4–5)
Try to cheer them up by telling them that things don't seem that bad[b]	2 (1–3)	1.5 (1–3)	2 (1–3)	3 (1–4)	2 (1–3)	1 (1–1.5)
Offer them information and resources appropriate to their situation	4 (4–4.3)	5 (4–5)	4 (3–4)	4 (3–5)	4 (4–5)	5 (4–5)
Discuss their options for seeking professional help	4 (4–5)	5 (4–5)	4 (4–5)	5 (4–5)	4 (4–5)	5 (4.5–5)
Ask whether they have other supportive people they can rely on	4 (4–5)	5 (4.3–5)[c]	4 (4–5)	5 (4–5)	4 (4–5)	5 (4.5–5)
Discuss with them whether they are interested in self-help strategies	4 (3–4)	4.5 (4–5)[c]	4 (2–4)	4 (4–5)	4 (4–4)	5 (4–5)[c]
Ask if they have been thinking about suicide	3.5 (3–4)	5 (4–5)[c]	3 (2–4)	5 (4–5)[c]	4 (3–4)	5 (4–5)
Tell them how much it will hurt their family and friends if they were to kill themselves[b]	2 (1–3)	3 (1–4)	2 (1–3)	3 (1–4)	2 (2–3)	3 (1–3.5)
Try to make them understand that suicide is wrong[b]	2 (1–3)	3 (1–3)	2 (1–3)	3 (1–3)	2 (1–2)	3 (1–4)
Ask if they have a plan for suicide – for example, how, when and where they intend to die	3 (2–4)	4 (3–5)[c]	3 (1–4)	4 (4–5)[c]	4 (2–4)	3 (2.5–5)
Time (n)	T0 (n=29)	T1 (n=19)	T0 (n=15)	T1 (n=11)	T0 (n=14)	T1 (n=8)
Encourage them to get appropriate professional help as soon as possible – for example, see a mental health professional or someone at a mental health service	4 (4–5)	5 (4–5)[c]	4 (4–5)	5 (4–5)	4 (4–5)	5 (4–5)
Make sure they are not left on their own	4 (4–4)	5 (5–5)[c]	4 (4–4)	5 (4–5)[c]	4 (3.8–5)	5 (4.3–5)
Acknowledge they might be frightened by what they are experiencing	4 (4–4)	5 (4–5)[c]	4 (4–4)	5 (4–5)[c]	4 (4–5)	5 (4.3–5)
Try to convince them that their beliefs and perceptions are false[b]	2 (1–3)	1 (1–4)	2 (2–3)	1 (1–4)	2 (1–3)	1.5 (1–3.8)
Listen to them talk about their experiences even though you know they are not based in reality	4 (4–5)	4 (4–5)	4 (4–4)	4 (4–5)	5 (4–5)	4 (4–5)
Find out if there are specific reasons why they do not want to seek professional help	4 (4–4)	4 (4–5)[c]	4 (4–4)	5 (4–5)[c]	4 (4–5)	4 (4–5)
Let them know they can contact you if they change their mind about seeking help	4 (4–5)	5 (4–5)	4 (4–4)	4 (4–5)	4 (4–5)	5 (4–5)

IQR, interquartile range; MHFA, Mental Health First Aid.
Survey items were rated on a five-point Likert scale: 1 = very unlikely-5 = very likely.
[a] 1 participant did not answer these questions, therefore n = 29 T0 all participants, n = 14 T0 MHFA-trained participants for this item.
[b] Not recommended, reverse scored.
[c] Statistically significant ($P < 0.05$).

Follow-up interviews

Four interviews were conducted (mean duration 36 minutes, SD 9 minutes) with pharmacist participants. Four overarching themes emerged: realistic context for skills application and practice, benefits of observing, self-assessment and feedback, and integrating into clinical practice (via mystery shopping). Table 2 provides narrative points and illustrative quotes for each theme.

Discussion

This study piloted trained actors enacting simulated scenarios of mental health symptoms and crises, with pharmacists in an educational workshop. The workshop created a realistic context for skills application, contributing to pharmacists' intended mental health support behaviours, which could be integrated into clinical practice.

Concurring with previous SP studies, the realistic context of the workshop was enhanced by using trained actors; this is well-documented to enhance learning authenticity and fidelity.[16] Involving people with lived experience increased participants' awareness of consumers'/carers' feelings during the interactions.[18] Role-play scores from pharmacist self-assessment were significantly lower than MHCEs. Self-doubt of pharmacists' abilities was mentioned in interviews, mirroring what students have voiced in focus groups after participating in a similar educational activity.[15] Engaging in self-assessment, then receiving feedback from a facilitator and MHCE enabled participants to triangulate their performance with reflection for future practice; a point also raised previously by students.[15]

In this study, participants who had prior MHFA training performed differently from those who had not, as seen by the significantly different pass/fail outcomes according to MHFA training status. In previous studies, the largest effect post-MHFA training was in pharmacists' self-reported confidence in asking someone if they are having suicidal thoughts.[1] The results of this study align; MHFA-trained participants were significantly more likely than non-MHFA trained to assess for crisis such as suicide at T0.

Table 2
Themes, narrative points, and quotes from interviews.

Theme	Narrative points	Quotes
Realistic context for skills application and practice	Pharmacists appreciated the authenticity of the workshop scenarios, and the realism that synchronous interactions with trained SP actors contributed.	*"...in a live situation and you've got to think on your feet"* [P4]
	The intensity of the actors' skills made the scenarios realistic, fostering a valid experience and valuable opportunity to practise mental health support skills.	*"The actors were very good at making it realistic… physical response in terms of tears and movements…you would expect to get in the pharmacy..."* [P2]
	Pharmacists appreciated that the role-plays were not verbosely scripted, providing opportunity to practise interviewing skills to ascertain information from the SP as they would realistically in practice.	*"The amount of information that I received was realistic… They don't come and spit it all out at you. They give you bits and pieces."* [P4]
	Involving people with lived experience to provide feedback on how they would personally feel about the pharmacist's response in a real-life scenario was tremendously powerful.	*"…sense of reality…a sense of the person's feeling coming through."* [P4]
Benefits of observing	Role-playing in front of peers was confronting for some pharmacists.	*"….noticed there was a lot of hesitancy in participating."* [P4]
	Despite hesitancy to role-play, pharmacists who observed found it interesting and a beneficial learning experience.	*"…definitely get a sense of it even if you just watch someone."* [P4]
	Both positive and negative mental health support behaviours were observed by pharmacists.	*"…listening to what others were doing…identify what I wouldn't do…. Also pick up points that I would do."* [P1]
	Observing alone provided reassurance on pharmacists' own mental health support behaviours.	*"…I feel like I would have handled it much the same…did give me confidence that I'd be going about things in the right way."* [P2]
	Pharmacists could recognise who had completed prior MHFA training, by observing the role-playing pharmacist's approach, communication skills, and management of the scenarios. MHFA-trained pharmacists' communication skills were positively acknowledged.	*"…empathy was greater…engaged appropriately and they provided the supports that the patient required, including taking them to another area and having a much more private conversation with them; the low slow voice was good… reducing anxiety intentions…also looking at how matching their responses with the patient's response..."* [P1]
	While pharmacists could attend this workshop irrespective of MHFA training status, the workshop highlighted the importance of completing MHFA training.	*"I actually hadn't done my Mental Health First Aid course…as a result of that…workshop… subsequently did my Mental Health First Aid course." [P1]*
Self-assessment and feedback	Immediately after each role-play, the role-playing pharmacist engaged in self-assessment, followed by feedback from the workshop facilitator and MHCE, then group debrief discussions. Self-assessment was a valuable opportunity for self-reflection.	*"Have I gone through all the steps that I should have gone through? ...Was my style comforting enough, reassuring enough without being pushy? Did I provide the right information, the right triage outcome at that time?"* [P4]
	No pharmacist gave themselves full marks for any role-play. During self-assessment, pharmacists may doubt their abilities and look for the negative things in their performance.	*"I think everyone had doubt in their mind about how they actually went through it…"* [P1]
	Immediate performance feedback was highly valued, said to be a crucial element of the workshop for instant recall and reflection on practice.	*"The immediacy of the feedback I think is important…even like a week later or a month later the memory of that scenario and your participation in it can be quite varied and flawed…"* [P4]
	Delivered in an intentionally positive and supportive environment, the scenarios enabled pharmacists to practise their existing mental health support skills. Coupled with feedback from people with lived experience, pharmacists could receive feedback on how someone realistically would feel, and to engage in relevant reflection.	*"I was looking at the patient a lot and the reason I do that normally is because I'm trying to assess visuals like physical feedback…and yet she thought it would be intimidating or problematic and that was interesting, because my eagerness can be interpreted differently by the patient..."* [P4]
	The opportunity to triangulate self-assessment with facilitator and MHCE feedback provided pharmacists with personal self-assurance, boosting mental health confidence.	*"…I ticked most of the boxes and I was reassured I was not doing anything glaringly incorrectly or there wasn't anything major that I had missed… with [facilitator's] feedback and the patient's*

(*continued on next page*)

Table 2 (*continued*)

Theme	Narrative points	Quotes
		feedback was very good and also my own assessment…I thought yes, I've done this and highlight the areas that I felt I needed to pay attention to next time….” [P4]
	Group debriefing discussions were invaluable for pharmacists to learn from each other.	*“…you hear someone else's perception of the incident and what line they would have taken or what words they would have chosen…pick up other styles or helpful expressions or angles...”* [P4]
Integrating into clinical practice (via mystery shopping)	Pharmacists expressed a clear desire and necessity for more practice of mental health support skills and voiced that role-playing is key to further training, especially for pharmacists who don't often see crises and those who find crisis situations quite intimidating. More practice enhances sustainability of skills.	*“…once a year at a conference gives you a taste but then they don't get repeated…it's a little bit of a waste of an opportunity…there would definitely be value in something like the repeat in your pharmacy or workplace to see the impact of this training...”* [P4]
	Pharmacists spoke positively about mystery shopping (SP visits in clinical practice settings), expressing that more needs to be done; mystery shopping is underutilised in pharmacy to observe real-life practice and motivate pharmacists to consistently provide optimal care to the community.	*“…there might be a mystery shopper all the time… always be on the top of the game…”* [P2]
	Immediate performance feedback would remain vital if integrating this training into practice settings, to facilitate real-time reflection.	*“…if they can walk right back in at that point and give you feedback, I think that is excellent…the best representation of how you handle people at that point…far more valuable than a report, you know, like in the mail a week later.* [P2]
	Repeated visits with immediate feedback and coaching would help to consolidate training and shape practice over time.	*“…if that similar scenario with them is repeated… it's how you learn, isn't it? How you learn and how you consolidate…the skills or the knowledge that you're brushing up on.”* [P3]
	Suicide assessment remains a challenge for many pharmacists, said to be one particularly important element to be included in future scenarios.	*“…question of ‘Are you going to suicide, are you going kill yourself?’ – that I think is a big hurdle – people have difficulties asking someone so those that should be commonly repeated.”* [P4]
	While crisis management such as suicide is important, other suggested scenarios included advising about the very rare, but possible, potential for suicidal thoughts on commencement of an SSRI (selective serotonin reuptake inhibitor), and exploring comorbidities and their role in mental health.	*“…questioning to really find out the underlying issue…treating the mental illness if they still have a substance abuse problem really does not help.”* [P3]
	Pharmacists may also need further training to identify local mental health support services.	*“Pharmacists also need to know what resources are out there.”* [P3]
	Regarding challenges, concerns were raised about the confronting nature of mystery shopping. This may be alleviated by first completing some mental health skills training to prepare.	*“some people might feel spooked by it especially if they haven't done any work in that area…I would have some requirements of our staff to have done some work initially or some observation at least so that they have a sense of what the purpose of the program is…an education session of all the staff because that way they're on got some sense of the philosophy behind it and the intention.”* [P4]
	Protective processes would need to be in place to safeguard the mental health and wellbeing of mystery shopping recipients and avoid participant harm.	*“…interaction with challenging behaviour…has a psychological toll on the provider…continuous psychological micro injuries throughout the day...become accumulative over time… I think we just have to be careful about the vicarious harm that might come from this…you might need to... provide some psychological backup as well.”* [P1]
	Mystery shoppers would need to be adequately trained, to both enact the SP, as well as gauging the wellbeing of the participants.	*“The mystery shopper needs to have two hats; they need to play the role of the affected person but they also need to pay attention to the recipient of this as well to make sure that it's matched and that there's no escalation and that they are well-skilled I suppose in going ‘maybe we're going too far’ and/or just call it quits.”* [P1]
	Mystery shopping performance in clinical practice would be affected by the work	*“...you're surrounded by, ‘Can you do this? Can you do that? This patient wants this’ and so it*

Table 2 (*continued*)

Theme	Narrative points	Quotes
	environment and may depend on what is happening in the pharmacy at the time, especially as pharmacists are busy juggling tasks.	*would probably be a lot briefer… Unless there's a booking, when you know you're sitting down and giving a cognitive service."* [P3]
	Pharmacy infrastructure, such as time and availability of a private consultation room, may influence mystery shopping performance and the quality of service provision.	*"…if there was some privacy available, if there were other work pressures or interruptions… Pressures is often people waiting or sometimes management in places…you hear anecdotally… don't spend more than so many minutes with someone…"* [P4]
	The lack of remuneration for participating in mental health research and support services was raised, with hesitancy from pharmacists to utilise their resources without payment.	*"…what is the point to do all this if we're not remunerated for it?….The consumer won't pay for it…haven't got the money to pay for it."* [P3]
	Mental health is an important and evolving area of research. While evaluation studies often involve pre- post interventions, the direct clinical outcomes of mental health training on service recipients are difficult to measure.	*"…a very important area and it's often underplayed…a lot of people don't consider it important and they tend to shy away from it… We desperately need research in this area… You don't know how many people you've prevented from suiciding … How do you know your intervention did anything at all…did it affect the patients? Well we don't know because we never see them again."* [P1]

Analyses of T1 survey scores for participants overall also aligned with previous findings; further mental health training increases likelihood of encouraging other supports, by means of asking about supportive people they can rely upon, and discussing self-help strategies.[1] Furthermore in this study, the likelihood of suicide assessment by participants overall increased significantly at T1, also for non-MHFA trained participants alone. While research increasingly explores the effects of suicide prevention training on pharmacists' attitudes, perceptions, and confidence, little is known about pharmacists' behaviours and ability to engage in suicide prevention in practice,[28] hence the importance of including such scenarios in ongoing mental health training for pharmacists.

Self-reported intentions to provide MHFA can predict actual mental health support behaviours.[7,29,30] However, there is a need to collect direct observational data to supplement self-report, to determine the effectiveness of training on pharmacists' behaviours, and clinical outcomes.[8,31] This can be challenging as it hinges upon opportunities for pharmacists to provide mental health support in practice.[30] This study hence explored workshop attendees' opinions of adapting the SP method into clinical practice (via mystery shopping),[32-34] to help evaluate the training and address self-reporting biases of trainee behaviour.[29,35,36]

A consistent finding between this study and others is that while single educational events such as workshops are effective, pharmacists desire interactive and contextually relevant continuing education.[18] The clear interest in continuing education post-workshop could involve managing mental health crisis situations in the community pharmacy setting, as standard MFHA training does not address the environmental constraints of a community pharmacy.[8] Mystery shopping may be considered workplace-based assessment, exploring translation of educational workshop performance to clinical practice.[37] The interviews in this study indicated a positive response to the idea of repeated mystery shopping visits, to measure behavioural change longitudinally. The scenarios would depict real patient experiences, and immediate feedback and coaching would be provided to foster reflection and discussions on how practice can be improved.[17] Mystery shopping is valuable and previously piloted in community pharmacy[34,38]; there is a definite need in mental health support settings. Future mental health training programs for continuing professional development should involve mental health consumers with lived experience, and role-plays of real-life scenarios in the community pharmacy setting for pharmacists to practise skills.[18,31]

All of the challenges regarding mystery shopping raised in this study concur with previous research: significant contextual factors include time constraints, high workloads, and the lack of reimbursement to deliver mental health services.[1,36] Adapting mental health scenarios for mystery shopping purposes is associated with numerous ethical considerations[39,40]; the scenarios and method must be designed to protect the psychological safety of all participants involved, with comprehensive debriefing opportunities. Other factors potentially influencing quality of healthcare delivery include lack of infrastructure such as private space for counselling, staff shortages, inadequate mental health training, limited time, and difficulties communicating with mental health consumers.[18] Pharmacists may also need more training in navigating local mental health resources.[8]

The challenge that remains is in determining if mental health training improves the mental health of the general public,[30] something that was also voiced in this study to be difficult to measure. While the best way to address this is to evaluate the actual benefits to individuals who are exposed to mental health support interventions, with a possible follow-up on these patients/participants,[41] repeated mystery shopping visits and reports may be the closest alternative.

Strength and limitations

This study provided the opportunity for pharmacists to apply their skills in a range of authentic mental health scenarios and receive feedback from people with lived experience. The survey data are based on self-reporting, which was not matched with specific role-play performances. There may have been variability in how respondents interpreted certain survey items, subject to social desirability bias. There also could be self-selection bias as participants voluntarily role-played and volunteered to complete the surveys and interviews.[8] The Hawthorne effect[42] may have been involved during the role-plays, with participants modifying their behaviours under the awareness of being observed. Furthermore, the performance of participants who completed role-plays after the first rotation may have been affected; these participants had already been exposed to aspects of the marking rubric and participated in feedback/debriefing discussions for the previously enacted scenarios.

This was a pilot-study, to observe and explore the needs, acceptance, and feasibility of using the SP training method with pharmacists in an educational setting and adapting it to clinical practice. Given the small sample size, the results of this study may not be generalisable to all pharmacists. Finally, first author TU (an experienced pharmacist and educator) conducted the interviews, therefore researcher subjectivity is acknowledged per reflexivity practices.[43]

Conclusion

SP role-plays of mental health symptoms and crises, enacted by trained actors with pharmacists while being observed by peers, workshop facilitators, and MHCEs, may be an effective method to assess and enhance pharmacists' intended mental health support behaviours. There remains a gap between intended behaviours and actual mental health support provision and outcomes. Adapting the SP method into clinical practice, via mystery shopping, may be an acceptable means of shaping pharmacists' mental health support provision longitudinally.

Disclosure

The authors declare no relevant conflicts of interest or financial relationships.

Acknowledgements

The Authors wish to thank The Pharmaceutical Society of Australia for their support in promoting the workshop to pharmacists, Ms Lily Pham for her support at the workshop, the pharmacists who attended the workshop and participated in the study, as well as the actors and mental health consumer educators involved in the delivery of the workshop.

References

1. Carpini JA, Sharma A, Kubicki Evans M, et al. Pharmacists and Mental Health First Aid training: a comparative analysis of confidence, mental health assistance behaviours and perceived barriers. *Early Interv Psychiatry*. 2023;17(7):670–680.
2. Goodman CS, Smith TJ, LaMotte JM. A survey of pharmacists' perceptions of the adequacy of their training for addressing mental health–related medication issues. *Ment Health Clin*. 2017;7(2):69–73.
3. Kirschbaum M, Peterson G, Bridgman H. Mental health first aid training needs of Australian community pharmacists. *Curr Pharm Teach Learn*. 2016;8(3):279–288.
4. Alzubaidi H, Saidawi W, Goldstone L, et al. A roadmap beyond dispensing for educating and training community pharmacists on key mental health competencies: a mixed-methods national study. *Res Soc Adm Pharm*. 2024;20(6):134–145.
5. Kitchener BA, Jorm AF. Mental Health First Aid: an international programme for early intervention. *Early Interv Psychiatry*. 2008;2(1):55–61.
6. Kitchener BA, Jorm AF. Mental Health First Aid training for the public: evaluation of effects on knowledge, attitudes and helping behavior. *BMC Psychiatry*. 2002;2(1):10.
7. Morgan AJ, Ross A, Reavley NJ. Systematic review and meta-analysis of Mental Health First Aid training: effects on knowledge, stigma, and helping behaviour. *PLoS One*. 2018;13(5):e0197102.
8. Witry MJ, Fadare O, Pudlo A. Pharmacy professionals' preparedness to use Mental Health First Aid (MHFA) behaviors. *Pharm Pract Granada*. 2020;18(4):2102.
9. McKee J, Mospan CM, Benfield M, Gillette C. A call for community pharmacists to complete Mental Health First Aid training. *J Am Pharm Assoc (2003)*. 2019;59(2):167.
10. Pham L, Moles RJ, O'Reilly CL, Carrillo MJ, El-Den S. Mental Health First Aid training and assessment in Australian medical, nursing and pharmacy curricula: a national perspective using content analysis. *BMC Med Educ*. 2022;22(1):70.
11. Frick A, Osae L, Ngo S, et al. Establishing the role of the pharmacist in mental health: implementing Mental Health First Aid into the Doctor of Pharmacy core curriculum. *Curr Pharm Teach Learn*. 2021;13(6):608–615.
12. Dulellari S, Vesey M, Mason NA, Marshall VD, Bostwick JR. Needs assessment and impact of mental health training among Doctor of Pharmacy students. *Curr Pharm Teach Learn*. 2022;14(6):729–736.
13. McKeirnan KC, MacCamy KL, Robinson JD, Ebinger M, Willson MN. Implementing mental health first aid training in a doctor of pharmacy program. *Am J Pharm Educ*. 2023;87(8):100006.
14. Ung TX, O'Reilly CL, Moles RJ, El-Den S. Co-designing psychosis simulated patient scenarios with mental health stakeholders for pharmacy curricula. *Int J Clin Pharm*. 2023;45(5):1184–1191.
15. Ung TX, El-Den S, Moles RJ, O'Reilly CL. Simulated psychosis care role-plays for pharmacy curricula: a qualitative exploration of student experiences. *Soc Psychiatry Psychiatr Epidemiol*. 2024;59(7):1269–1277.
16. Hogg G, Ker J, Stewart F. Over the counter clinical skills for pharmacists. *Clin Teach*. 2011;8(2):109–113.
17. Weldon SM, Ralhan S, Paice L, Kneebone R, Bello F. Sequential simulation of a patient journey. *Clin Teach*. 2017;14(2):90–94.
18. Wheeler A, Mey A, Kelly F, Hattingh L, Davey K. Education and training for community pharmacists in mental health practice: how to equip this workforce for the future. *J Ment Health Train Educ Pract*. 2014;9(3):133–144.
19. Towle A, Godolphin W. Patients as educators: interprofessional learning for patient-centred care. *Med Teach*. 2013;35(3):219–225.
20. Voorhees HL, Mackert M. Helping future providers talk about mental health. *Clin Teach*. 2021;18(3):247–251.
21. Ung TX, El-Den S, Moles RJ, O'Reilly CL. The use of mental health simulation in pharmacy practice and education: a systematic review. *Am J Pharm Educ*. 2023;87(6):100058.
22. Pharmaceutical Society of Australia. We're for Pharmacists. Available at: https://www.psa.org.au. Accessed March 24, 2024.
23. Archibald MM, Ambagtsheer RC, Casey MG, Lawless M. Using Zoom videoconferencing for qualitative data collection: perceptions and experiences of researchers and participants. *Int J Qual Methods*. 2019;18:1609406919874596.
24. Morgan AJ, Wright J, Mackinnon AJ, Reavley NJ, Rossetto A, Jorm AF. Development of the Mental Health Support Scale: a new measure of Mental Health First Aid behaviors. *Assessment*. 2023;30(5):1486–1498.
25. Harris PA, Taylor R, Thielke R, Payne J, Gonzalez N, Conde JG. Research Electronic Data Capture (REDCap) – a metadata-driven methodology and workflow process for providing translational research informatics support. *J Biomed Inform*. 2009;42(2):377–381.
26. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol*. 2006;3(2):77–101.
27. Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *Int J Qual Health Care*. 2007;19(6):349–357.
28. Stover AN, Lavigne JE, Carpenter DM. A scoping review of suicide prevention training programs for pharmacists and student pharmacists. *Am J Pharm Educ*. 2023;87(3):ajpe8917.
29. Forthal S, Sadowska K, Pike KM, Balachander M, Jacobsson K, Hermosilla S. Mental Health First Aid: a systematic review of trainee

behavior and recipient mental health outcomes. *Psychiatr Serv*. 2022;73(4):439–446.
30. Hadlaczky G, Hökby S, Mkrtchian A, Carli V, Wasserman D. Mental Health First Aid is an effective public health intervention for improving knowledge, attitudes, and behaviour: a meta-analysis. *Int Rev Psychiatry*. 2014;26(4):467–475.
31. Ng R, El-Den S, Collins JC, et al. Evaluation of a training program to support the implementation of a community pharmacist-led support service for people living with severe and persistent mental illness. *J Am Pharm Assoc*. 2023;63(3):807–816.e2.
32. Björnsdottir I, Granas AG, Bradley A, Norris P. A systematic review of the use of simulated patient methodology in pharmacy practice research from 2006 to 2016. *Int J Pharm Pract*. 2020;28(1):13–25.
33. Xu T, de Almeida Neto ACde A, Moles RJ. A systematic review of simulated-patient methods used in community pharmacy to assess the provision of non-prescription medicines. *Int J Pharm Pract*. 2012;20(5): 307–319.
34. Collins JC, Schneider CR, Naughtin CL, Wilson F, de Almeida Neto AC, Moles RJ. Mystery shopping and coaching as a form of audit and feedback to improve community pharmacy management of non-prescription medicine requests: an intervention study. *BMJ Open*. 2017;7(12): e019462.
35. El-Den S, Moles RJ, Zhang R, O'Reilly CL. Simulated patient role-plays with consumers with lived experience of mental illness post-Mental Health First Aid training: interrater and test re-test reliability of an observed behavioral assessment rubric. *Pharmacy (Basel)*. 2021;9(1):28.
36. Ng R, El-Den S, Stewart V, et al. Pharmacist-led interventions for people living with severe and persistent mental illness: a systematic review. *Aust N Z J Psychiatry*. 2022;56(9):1080–1103.
37. Lim A, Krishnan S, Singh H, et al. Linking assessment to real life practice – comparing work based assessments and objective structured clinical examinations using mystery shopping. *Adv Health Sci Educ*. 2023;29: 859–878.
38. Xu T, de Almeida Neto AC, Moles RJ. Simulated caregivers: their feasibility in educating pharmacy staff to manage children's ailments. *Int J Clin Pharm*. 2012;34(4):587–595.
39. Collins JC, Moles RJ, Penm J, Schneider CR. Ethical considerations for mystery shopper studies of pharmaceutical sales. *Bull World Health Organ*. 2020;98(6):375, 375A.
40. Collins JC, Chong WW, de Almeida Neto AC, Moles RJ, Schneider CR. The simulated patient method: design and application in health services research. *Res. Social Adm. Pharm*. 2021;17(12):2108–2115.
41. Chowdhary A, Zlotnikova V, Lucas C, Lonie JM. How do Mental Health First Aid™ interventions influence patient help-seeking behaviours? A dilemma for pharmacist Mental Health First Aid responders. *Res Soc Adm Pharm*. 2019;15(1):106–108.
42. McCambridge J, Witton J, Elbourne DR. Systematic review of the Hawthorne effect: new concepts are needed to study research participation effects. *J Clin Epidemiol*. 2014;67(3):267–277.
43. Olmos-Vega FM, Stalmeijer RE, Varpio L, Kahlke R. A practical guide to reflexivity in qualitative research: AMEE Guide No. 149. *Med Teach*. 2023;45(3):241–251.

Tina X. Ung, BPharm (Hons I), Associate Lecturer and PhD Candidate, The University of Sydney School of Pharmacy, Sydney, NSW, Australia

Sarira El-Den, BPharm (Hons I), MIPH PhD GradCertEdStud (Higher Ed), Senior Lecturer, The University of Sydney School of Pharmacy, Sydney, NSW, Australia

Rebekah J. Moles, BPharm, DipHospPharm PhD, Professor, The University of Sydney School of Pharmacy, Sydney, NSW, Australia

Jack C. Collins, BPharm (Hons I) PhD GradCertEdStud (HigherEd), Lecturer, The University of Sydney School of Pharmacy, Sydney, NSW, Australia

Kevin Ou, BPharm, MClinPharm, GradCertAppPharmPrac, Manager - Training Delivery & Assessment, Pharmaceutical Society of Australia, Sydney, NSW, Australia

Jenny Chen, BPharm (Hons I), Research Assistant, The University of Sydney School of Pharmacy, Sydney, NSW, Australia

Claire L. O'Reilly, BPharm(Hons) PhD, Associate Professor, The University of Sydney School of Pharmacy, Sydney, NSW, Australia

CHAPTER SIX – SUPPLEMENTARY MATERIAL

Appendix 1. Pre- and post-workshop survey, including the Mental Health Support Scale (MHSS)-Intended.

What are the last THREE digits of your mobile number? ☐☐☐

What day of the month you were born? (please express in double digits e.g. if you were born on 1st December then please type '01') ☐☐

Note that your responses are confidential and the identifier is for research purposes only.

SECTION A: DEMOGRAPHICS

Please answer these questions about yourself to help us analyse the results of the survey.

1	Age				
2	Sex	Male	Female	Other	Prefer not to respond
3	Years of pharmacy experience				
4	Have you received MHFA training?	Yes Year of MHFA training accreditation _____			No
5	Did you role-play with a simulated patient in this study?*	Yes			No

*additional question included only in post-simulated patient role-play survey i.e. T1 survey

SECTION B: MENTAL HEALTH SUPPORT SCALE – INTENDED

For the purposes of this study, a 'mental health problem' occurs when a person feels depressed, anxious or emotionally stressed over a period of weeks or more, and this interferes with their life. It could include, for example, depression, anxiety disorders, eating disorders, substance use disorders, schizophrenia, bipolar disorder or personality disorders.

Take a moment to think about somebody you know or a customer in your pharmacy. Imagine this person is experiencing a mental health problem, experiencing a worsening of an existing mental health problem, or is in a mental health crisis (e.g. they are suicidal, experiencing symptoms of psychosis).

How likely is it that you would take the following actions with the person?

[Response scale: Very unlikely (1), Unlikely (2), Neither likely nor unlikely (3), Likely (4), Very likely (5)]

1 Ask if they have been having thoughts of harming themselves or others. (A)
2 Discuss with them their wishes about privacy and confidentiality. (A)
3* Listen to their problems and try to provide solutions. (L)
4 Let them know you are listening to what they are saying by restating and summarising what they have said. (L)
5 Communicate clearly and simply, and repeat things where necessary. (L)
6* Tell them they have to get their act together. (G)
7 Convey a message of hope by telling them help is available and things can get better. (G)
8* Try to cheer them up by telling them that things don't seem that bad. (G)
9 Offer them information and resources appropriate to their situation. (G)
10 Discuss their options for seeking professional help. (EP)
11 Ask whether they have other supportive people they can rely on. (EO)
12 Discuss with them whether they are interested in self-help strategies. (EO)

For the next few questions, imagine you suspect that this person may be thinking about suicide. How likely is it

that you would take the following actions with the person?

13 Ask if they have been thinking about suicide. (S)
14* Tell them how much it will hurt their family and friends if they were to kill themselves. (S)
15* Try to make them understand that suicide is wrong. (S)
16 Ask if they have a plan for suicide – for example, how, when and where they intend to die. (S)

Imagine this person is at immediate risk of suicide. How likely is it that you would take the following actions?

17 Encourage them to get appropriate professional help as soon as possible – for example, see a mental health professional or someone at a mental health service. (I)
18 Make sure they are not left on their own. (I)

For the next few questions, imagine this person was out of contact with reality, for example, experiencing delusions, hallucinations, or paranoia. How likely is it that you would take the following actions with the person?

19 Acknowledge they might be frightened by what they are experiencing. (P)
20* Try to convince them that their beliefs and perceptions are false. (P)
21 Listen to them talk about their experiences even though you know they are not based in reality. (P)
Imagine the person's mental health problem is having a major impact on their life but they are reluctant to seek professional help. How likely is it that you would take the following actions?

22 Find out if there are specific reasons why they do not want to seek professional help. (R)
23 Let them know they can contact you if they change their mind about seeking help. (R)

(Note. * denotes item on the Not Recommended Scale and is reverse scored. A: Approach, assess and assist with any crisis. L: Listen and communicate non-judgmentally. G: Give support and information. EP: Encourage the person to get appropriate professional help. EO: Encourage other supports. S: Suicidal behaviour. I: Immediate risk of suicide. P: Psychotic symptoms. R: Reluctance to seek help)

SECTION C: PERSONAL EXPERIENCES OF MENTAL ILLNESS

The final 2 questions inquire about your personal experiences with mental illness.

1.	Have you ever been diagnosed with a mental illness (e.g. mood disorder, anxiety disorder, substance use disorder, etc.)?	Yes	No
2.	Does someone close to you (e.g. close friend or relative) live with a mental illness?	Yes	No

Thank you for completing this survey.

If you feel distressed by your participation in this survey, please contact:

Your GP, Pharmacists' Support Service (1300 244 910) or Lifeline (13 11 14).

Appendix 2. Semi-structured interview guide.

AIM: To explore pharmacists' experiences of participating in and/or observing SP role-plays at the educational workshop, and their opinions on using covert SP (mystery shopping) visits and coaching to shape behaviours when supporting people experiencing mental health symptoms or crises.

SCRIPT: "Thank you for volunteering to take part in this interview about your experiences of the SP workshop you attended. We anticipate the discussion to take approximately 30 minutes. I would like to remind you that the interview is being audio recorded and whatever you say will be de-identified."

QUESTIONS TO ASK

1. Recently you attended an educational workshop conducted by The University of Sydney and The Pharmaceutical Society of Australia (PSA). How did you feel about this workshop?

2. As part of the workshop activities, you participated in and/or observed SP role-play scenarios. How did you feel about these scenarios?
    a. Ask about each scenario individually

3. What did you think about the feedback process?
    a. Self-assessment
    b. Feedback from an educator with lived experience of mental illness

4. How has participating in the educational workshop overall impacted your confidence in supporting people experiencing mental health symptoms or crises?
    a. How could we further improve this?

5. What would you think about using the SP method (with immediate feedback and coaching) to train pharmacists in providing MHFA to people experiencing mental health symptoms or crises?

Thank you for sharing your SP workshop experiences. I'd now like to ask about your thoughts on adapting the SP method to real-life practice and workplace settings.

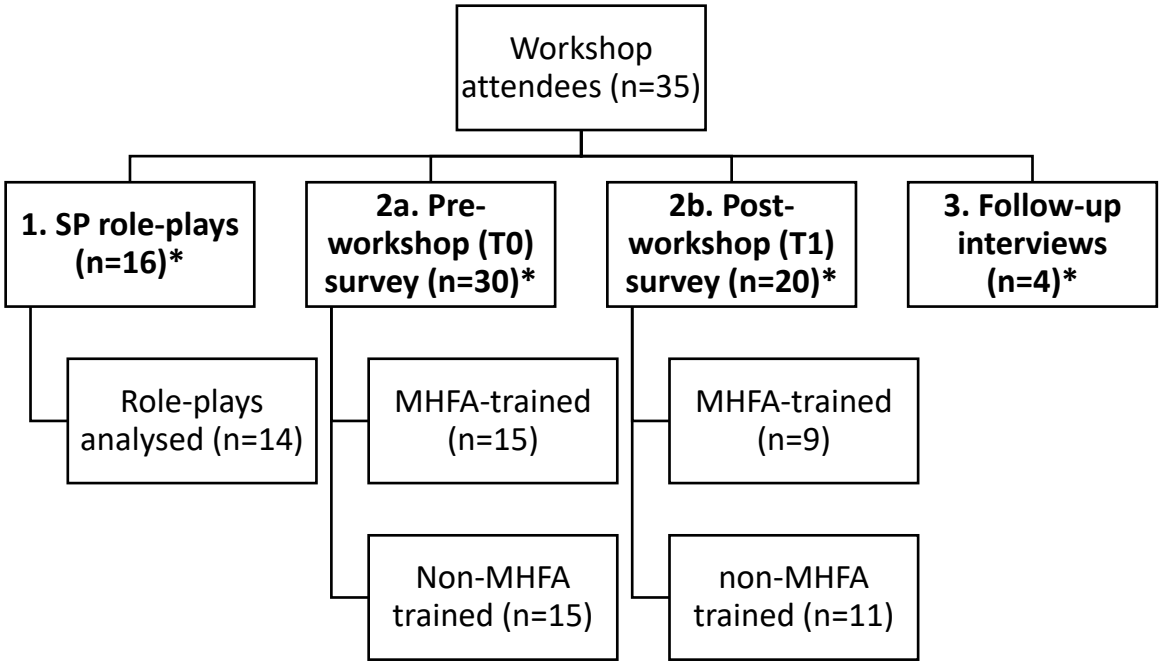
6. How would you feel about having a SP-enacted mental health scenario in your workplace?
    a. How do you think you would compare responding to these scenarios in real-life practice vs the workshop setting?

7. How acceptable would you say repeated covert visits from SPs (mystery shopping) with immediate feedback and coaching would be to improve practice in supporting people experiencing mental health symptoms or crises?
    a. What would be the strengths/facilitators to this method?
    b. Challenges/barriers?
        i. How could they be mitigated?

8. Anything else you would like to share about your experience participating in this study?

THANK YOU

Appendix 3. Flow of participants via the three means of data collection.



*Workshop attendees could participate at any or all data collection points.

MHFA, Mental Health First Aid; SP, simulated patient.

PART E –

DISCUSSION AND CONCLUSIONS

OVERVIEW OF PART E

Part E (Chapter 7) concludes this thesis with a summary and discussion of the main findings from Chapters 2 – 6, strengths and limitations of the studies conducted, conclusions that can be drawn, and future research directions arising from this body of work focusing on the use of mental health simulation in pharmacy practice and education.

CHAPTER SEVEN –

DISCUSSION, CONCLUSIONS, AND FUTURE DIRECTIONS

The aim of this thesis was to co-design and evaluate simulated mental health role-plays for pharmacy education and practice. This discussion summarises the thesis findings, pertaining to: i) how mental health simulation has previously been utilised in pharmacy practice and education settings; ii) the co-design, content validation, and evaluation process, with mental health stakeholders, of three authentic psychosis care scenarios that were used in SP role-plays with final year pharmacy students to observe and assess their mental health support behaviours post-MHFA training; iii) the experiences of pharmacy students in participating and observing the psychosis care role-plays; iv) the adaptation of simulated mental health role-plays into an educational workshop with pharmacists; and v) pharmacists' experiences of the workshop and opinions about adapting the SP method with immediate feedback and coaching into clinical practice (via repeated mystery shopping visits) to monitor and shape pharmacists' mental health support behaviours over time.

7.1 Mental health simulation in pharmacy practice and education

The systematic review (Chapter 2) exploring how mental health simulation has been used in pharmacy practice and education identified that the majority of studies in pharmacy education utilised live human SPs, with many simulated scenarios relating to depression with or without suicidal thoughts. In pharmacy practice, the most commonly simulated mental health content was insomnia due to stress. Pharmacy students and the future workforce need to be skilled and confident in their ability to recognise signs of, and support, people experiencing common mental health symptoms. However, as described in Chapter 1, while psychotic illnesses such as schizophrenia have a lower prevalence than depression and anxiety, they are associated with significant disability and impairment of quality of life.[1,2] In relation to pharmacists' existing interactions and familiarity in supporting people living with mental illness, pharmacists' ability to recognise signs and symptoms varies across different mental illnesses, whereby pharmacists more easily identify symptoms of depression or anxiety than psychotic illnesses such as schizophrenia.[3]

Living with schizophrenia is associated with high self-stigma,[4] which can impair consumers' willingness to access help or supportive care.[5,6] Furthermore, interpersonal stigma experienced from the healthcare professional's perspective is also high, which can hinder their knowledge, attitudes, behaviour,[7] and hence quality of their mental health support provision.[4] Both of these factors relating to stigma can impede recovery[8] and negatively impact the health outcomes of people living with psychotic illnesses.

Despite these gaps in mental health literacy and high levels of stigma, the systematic review (Chapter 2) revealed few mental health simulation studies incorporated content relating to psychosis. This highlighted an important opportunity for simulation-based education to provide

and support mental healthcare across all mental illnesses, in order to narrow the gaps in pharmacists' mental health literacy and practices. Mental health education, specifically designed to upskill pharmacy students and the future pharmacist workforce in providing and supporting psychosis care, is warranted.

Additionally, the systematic review (Chapter 2) found that few studies provided specific details about the design and development process of the simulated content. As per the notion 'nothing about us without us',[9] including people with lived experience in the development, delivery, and evaluation of educational material enhances its authenticity and relevance for both learners (students) and the population group to whom the informed care or service is directed.[10] Given the lack of detail in describing the development of simulated content, the systematic review thus highlighted a gap in research and the need to partner with people with lived experience of mental illness to develop authentic content for the purposes of pharmacy education, especially pertaining to providing psychosis care.

7.2 Co-design and development of authentic simulation-based educational material

Three authentic psychosis care role-plays were co-designed with mental health consumers and carers (Chapter 3). While co-design is becoming increasingly popular in health education and services, a review of research with co-design methods in health education,[10] as well as the systematic review in this thesis (Chapter 2), revealed that there is a lack of detail provided specifying exactly how co-design methods are being used and evaluated. The co-design process documented in this thesis serves to guide future researchers in partnering with stakeholders to develop material (scenarios and marking rubrics) for simulation-based education. The co-designed educational material was then content validated by mental health stakeholders, pilot-tested with pharmacy students (Chapter 3), then evaluated in the university classroom (Chapters 4 and 5) and in an educational workshop with pharmacists (Chapter 6).

7.2.1 Lived experience in co-design

Templates of previously published and psychometrically tested SP scenarios and associated marking rubrics[11] were utilised during the co-design meeting to provide points of discussion for the mental health consumers to contribute their firsthand experiences and thoughts. Three scenarios pertaining to psychosis care were discussed – a person experiencing first-episode psychosis, a carer of somebody living with schizophrenia, and a person who is diagnosed with schizophrenia and is non-adherent to their antipsychotic medicine. These topics were decided a priori to create a variety of psychosis care scenarios from different consumer/carer perspectives – from the perspective of a person experiencing psychosis symptoms but has not been diagnosed with any mental illness, a person who may have the potential to develop their own mental health symptoms as a result of caring for someone living with schizophrenia, and someone who has been diagnosed with schizophrenia but is experiencing undesirable side effects from pharmacological treatment. The co-design meeting between three members of the

research team and two mental health consumers, was an invaluable opportunity to capture the real experiences of the mental health consumers, in particular the content of auditory hallucinations and how somebody experiencing them might self-manage, for example, wishing to purchase earplugs to quieten down the voices (Chapter 3, Scenario 1 – Appendix IX). It was also particularly insightful to hear and integrate into the scenarios, the extent and burden of adverse effects experienced from treatment with antipsychotic medicines, especially weight gain and associated metabolic effects on the body (Chapter 3, Scenario 3 – Appendix XI). Consumers also highlighted the impact that living with psychosis can have on family and friends, and these issues were 'brought to life' within Scenario 2 where the focus was on the carer (Chapter 3, Appendix X).

As discussed in Chapter 1, carers of people living with mental illness may experience poorer mental health outcomes and quality of life than non-carers.[12–14] An interesting and important discussion point that emerged from student focus groups evaluating the psychosis care role-plays (Chapter 5), was that students found the scenario about a carer of somebody living with schizophrenia different, in that usually they would focus their clinical attention and advice to the person diagnosed and living with mental illness, rarely considering the implications and emotional toll that caregiving can have. This highlights the importance to continue educating students to be prepared to not only provide optimal mental healthcare to those living with mental illness, but carers also. Literature has reported that there is a general lack in support for carers, and that it varies between countries.[13,15] Of particular interest would be to continue co-designing and developing educational material and services that specifically support carers of people experiencing first episode psychosis.[16]

A major strength of this thesis was that people with lived experience were actively involved at all steps of co-design and content validation (Chapter 3), as well as delivery and evaluation (Chapters 4 – 6) of mental health education. This continuous involvement of stakeholders is not regularly reported in co-design literature, despite co-delivery being an essential element of co-design; the stakeholders for whom the content is being planned and delivered for, should be involved in both the planning and delivery of the intervention.[10]

There may still be wider scope and possibilities for integrating and advancing lived experience in co-designing educational material. It may be helpful for future co-design research to involve mapping stakeholder involvement against existing co-design frameworks. Figure 1 portrays Towle's six-levelled taxonomy of patient involvement containing six attributes,[17,18] (with adapted terminology) to indicate the domains involved in this thesis. The work in this thesis would be categorised between levels 4 (patient-teacher(s) i.e. MHCEs are involved in teaching or evaluating students) and 5 (patient-teacher(s) i.e. MHCEs are equal partners in student education, evaluation, and curriculum development). MHCEs had 'moderate-extensive' involvement across the various attributes of the framework, including contact with learners, autonomy, training, and planning the learning activities. Despite this high level of engagement, there is potential for further MHCE involvement in educational decision-making, especially in partnership with institutional (University) policies.

(A) Degree to which consumers/carers are involved in the learning activity	(B) Duration of contact with learners	(C) Consumer/carer autonomy during the encounter	(D) Training for the consumer/carer	(E) Consumer/carer involvement in planning the encounter and curriculum	(F) Institutional commitment to consumer/carer involvement in education
(1) Consumers/carers are encountered via paper-based or electronic scenarios	None	N/A	N/A	None	Low
(2) Consumers/carers encounter students as scripted standardised or volunteer patients in a clinical setting	Only for encounters	None	None	None	Low
(3) Consumers/carers share their experiences with students during a faculty-planned encounter	Only for encounters	Low	Brief, simple	None	Low
(4) MHCEs are involved in teaching, evaluating students' performance, or providing feedback	Variable	***Moderate:*** ***MHCEs used marking rubrics to guide feedback then contributed freely***	***Structured, extensive:*** ***MHCEs were familiar and trained with using marking rubrics***	Low-moderate	***Low-moderate:*** ***Potential to be integrated into wider curriculum***
(5) MHCEs are equal partners in making decisions about curriculum development, delivery and evaluation	***Moderate-extensive:*** ***MHCEs were in contact with learners for the entire workshop***	High	Extensive	***Moderate-extensive:*** ***MHCEs co-designed, content validated, and were key in evaluating educational material***	Moderate
(6) All of (5) plus institutional (University) policies ensure MHCE involvement in educational decision-making	Extensive	High	Extensive	High	High

Grey shaded areas with text in bold, italicised font indicate domains involved in this thesis.

Figure 1. Towle's taxonomy of patient involvement,[17,18] with terminology adapted for this thesis.

Another existing co-design framework that future studies may consider using is Tew's ladder of involvement in mental health education.[19,20] For example, mental health consumers and carers have been involved in the overarching curricular design of mental health education in an undergraduate pharmacy program in Ireland, resulting in advancement along Tew's ladder from level 2 (limited involvement) to level 3 (growing involvement).[20] Figure 2 highlights how the work presented in this thesis maps to Tew's ladder, and could be considered to align with levels 3 (growing involvement) and 4 (collaboration). While consumers/carers were team members in curriculum planning, delivery, and assessment, this suggests the potential future challenge to advance to the highest level 5 (partnership) with consumer/carer involvement across all curriculum areas.

(1) No involvement	•Curriculum planned and delivered without any input from consumers/carers
(2) Limited involvement	•Consumers/carers invited to share their experiences but do not participate in curriculum design
(3) Growing involvement	•***Consumers/carers contribute regularly to at least two of: planning, delivery,*** student selection, ***assessment***, management or evaluation •Consumers/carers not represented in curriculum decision-making •***Payment provided for teaching activities*** •No consistent support, supervision or training •No discrimination against consumers/carers accessing programs as students*
(4) Collaboration	•***Consumers/carers are involved as full team members in at least three of: planning, delivery,*** student selection, ***assessment***, management or evaluation •***Consumers/carers contribute to key decisions on curriculum*** •***Payment provided for teaching activities*** •Regular support, supervision and training •Positive steps made to encourage consumers/carers to access programs as students*
(5) Partnership	•Consumers/carers and teaching staff work together systematically and strategically across all areas - underpinned by an explicit statement of partnership values •All key decisions on curriculum jointly made •Employed on secure or long-term contracts (between programs and independent training groups) •Infrastructure and funding in place for induction, support and training •Positive steps made to encourage consumers/carers to join programs as learners even if not (yet) in a position to achieve qualifications*

Bold, italicised and underlined font indicates aspects that were involved in this thesis.
*Not applicable to this thesis.

Figure 2. Tew's ladder of involvement in mental health education,[19,20] with terminology adapted for this thesis.

7.2.2 SP actors

The authenticity of the SP scenarios and role-plays in this thesis was enhanced with the employment of trained actors to enact the SPs. As voiced in the student focus groups following the psychosis care role-plays (Chapter 5) and in previous literature,[21] SP scenarios are most commonly enacted by students' tutors or with peers in the classroom. Students voiced their appreciation for the opportunity to practise their MHFA skills with trained actors, as it was helpful to role-play with a completely unfamiliar person, as opposed to a familiar peer or tutor. This contributed to the authenticity of the experience as though the students were interacting with a real client in the pharmacy. This result aligns with other simulation education studies whereby actors have been found to provide a better role-playing experience than peers or tutors (faculty members).[22,23] Lovink et al.[24] explored the contributions of SP actors to meaningful learning, suggesting that during the SP scenario, learners may receive implicit feedback-in-action from the SP. The authentic verbal and non-verbal reactions by the SP may signal to the learner how well the encounter is going, which may facilitate reflection-in-action (and sometimes immediate correction or adaptation of the learner's behaviour), all while the learner and SP are actively engaging in the role-play.

Mental health consumers have also previously been trained to enact the SP in previous studies.[11,25] For this thesis trained actors were employed to protect the mental health consumers from potential triggers and to conserve their energy, as role-playing multiple consecutive scenarios can be an exhausting experience. The MHCEs were still very much involved in observing and actively providing performance feedback to the role-playing pharmacy students (Chapters 4 and 5) and pharmacists (Chapter 6). Trained actors were also engaged to ensure consistency in delivery and learning experience for the students; the actors were trained by two MHFA-trained members of the research team. The actors were provided with 30-60 minutes

training with one or two members of the research team, who had both received MHFA training and are regular teaching staff at the University, thus familiar with anticipated student behaviours during simulations. The researcher enacted the role-playing student asking them anticipated questions and providing feedback on the actor's responses, to enable consistent delivery of the SP role-plays by the actors in the classroom with students (Chapters 4 and 5) and in the educational workshop with pharmacists (Chapter 6). It would be interesting to explore the perspectives of actors on this training, via interviews or focus groups, in terms of what they found helpful, how they otherwise prepared for their role, their experiences enacting a SP, and what else could help support them in their role. Anecdotally, some actors shared that in addition to this training, they also spoke with friends or family members who are living with mental illness to explore their perspectives, and researched videos online of psychosis signs and symptoms. These anecdotes and further query into the actors' perspectives may contribute to the findings reported by Pritchard et al.,[26] which revealed insights into SPs' perspectives on their roles in simulation-based education with health professional students. Themes generated from their focus groups were 'becoming and being a SP', 'preparing for a SP role', and 'performing a SP role', which may reflect the perspectives of the actors involved in this thesis. While the actor training sessions were led by experienced MHFA-trained educators, it may be beneficial in future to include MHCEs at the training sessions to ensure the acting aligns with their own real-life experiences. The training and orientation process for SP actors could also be extended,[23,27] perhaps including filming, viewing, and marking SP training videos[28] to ensure consistency in delivery.[27]

7.3 Content validation

To fill the research gap identified by the systematic review (Chapter 2) in relation to the lack of detail provided in studies about the development of simulation-based educational material, including assessment of student performance, this thesis presents a rigorous and replicable process for future researchers wishing to co-design and content validate simulation-based educational material with relevant stakeholders. After the co-design meeting (Chapter 3), drafts of the three scenarios and marking rubrics were created and finalised within the research team, then disseminated to a panel of mental health stakeholders – four mental health consumers/carers, different to the ones who were involved in co-design, plus five healthcare professionals (two pharmacist researchers, one psychiatrist, one academic psychologist, one counsellor/mental health social worker) – for content validation.

The content validation process in this thesis included a modified two-round Delphi method, as per the RAND/UCLA appropriateness method.[29,30] The RAND/UCLA method is a systematic consensus process, where expert panellists rate (via survey), discuss then rerate (at a meeting) items to finalise the content being developed.[31] This modified Delphi method was chosen for content validation of the psychosis care scenarios and marking rubrics (Chapter 3), as the original Delphi method may be a much lengthier process depending upon the number of panellists involved and number of rounds needed to reach consensus.[32] Additionally, the original Delphi method relies upon the panellists completing several rounds of survey in isolation,[33] and thus not appropriate if personal contact amongst participants is necessary,[32] which in the case of this thesis, was essential to truly capture the essence of authentic co-design. The RAND/UCLA appropriateness method was adopted in this thesis in preference over another consensus method used in the field of health services research – the nominal group technique (NGT).[32] NGT starts from scratch, asking participants to first individually list ideas

to contribute to the content being developed. A group meeting is then held where each participant shares, one-by-one, the top idea on their list. All shared ideas are then listed, discussed, then each participant individually ranks the ideas in order of importance.[34,35] While the NGT is also a rigorous content validation method encouraging personal interaction between participants, in the case of this thesis, the educational material was already drafted after the co-design meeting and made available for the content validation panel, so the NGT was not adopted in this research. Instead, the modified two-round RAND/UCLA method was adopted, which featured elements from both the original Delphi method and NGT.

As recommended by previous co-design research, intentions were made to specifically recruit a diverse range of healthcare professionals with varied mental health roles and/or experiences, with mix of consumers/carers to balance power dynamics,[36] and to a total of six to ten panellists.[37] Round 1 of content validation involved completing a survey, to rate each item of the scenarios and associated marking rubrics for relevance, clarity, and essentiality,[38–40] to provide quantitative data (with qualitative data in the form of open written comments) to inform any items that required preliminary revisions, which were then made by the research team. As per the RAND/UCLA method,[29,30] Round 2 of content validation involved a meeting, whereby the content validity scores and ratios were presented, followed by discussion of the preliminary changes and finalisation of the educational material (scenarios and marking rubrics).[29,30] An interesting discussion point from Round 2 of the content validation process was that the gender of the SP was deemed to be insignificant across all three scenarios, and age ranges were widened (Chapter 3). This would enable students to be exposed to a wider variety of clientele in practice, and allow for a range of actors to role-play these scenarios.

7.4 Evaluation of MHFA training and SP role-plays

As discussed in Chapter 1 of this thesis, it is already well-established and documented that MHFA training itself improves self-reported knowledge and skills,[41] confidence,[42–44] and reduces stigma[45,46] in relation to providing mental health support. Given the evolving role of pharmacists in supporting mental healthcare,[47] MHFA training is embedded in various healthcare curricula, including pharmacy.[48] This thesis further contributes to this body of evidence, with the addition that psychosis care role-plays post-MHFA training provide a unique, safe, and authentic learning opportunity for students to practise their newly acquired MHFA skills (Chapters 4 and 5), which is otherwise lacking in pharmacy and other health curricula.[48] Concurring with the results of Alexander et al.'s study evaluating mental health simulations with undergraduate nursing students,[49] SP role-plays in this thesis were found to enable practical application of the theory presented in mental health skills training, with the results from Chapters 4 and 5 suggesting improved mental health confidence and reduced stigma. As previously demonstrated with interprofessional (physical therapy, physician assistant, and occupational therapy) students, synchronous (live) post-MHFA training simulation activities, such as interviewing a SP about their signs and symptoms of alcohol withdrawal and formulating a plan of next steps, strengthen mental health literacy (defined as 'the ability to recognise and respond to mental health concerns').[50] Post-MHFA training simulations have been embedded in a training package for pharmacists and pharmacy staff when implementing a support service for people living with severe and persistent mental illness, which demonstrated that they may enable learners to acquire additional mental health knowledge and skills in supporting the physical healthcare needs of mental health consumers, beyond MHFA training alone.[51] Evaluation of the co-designed psychosis care role-plays in this thesis (Chapters 4 and 5) concur with previous MHFA simulation studies, in that they may be associated with improvements in mental health confidence and reductions in stigma post-MHFA training.

Pharmacists commonly encounter people experiencing mental health symptoms or crises in the community,[41,42] however many may experience discomfort or unpreparedness when addressing these situations.[52,53] With continuing education in mental health skills, usually delivered didactically or asynchronously online, there are few opportunities for pharmacists to practise these skills to support their upskilling and training. The results of the SP role-play evaluations with students (Chapters 4 and 5) presented a unique opportunity for the educational material to be adapted into a pilot study with registered pharmacists. By partnering with a professional pharmacy organisation, mental health role-plays enacted by trained actors, with immediate performance feedback and debriefing with peers, MHCEs, and workshop facilitators (who were all MHFA-trained academics experienced in delivering mental health education), were successfully adapted from the university classroom into an educational workshop with pharmacists, and evaluated quantitatively and qualitatively (Chapter 6).

7.4.1 SP role-play performances

Quantitative analyses of the mental health role-play scores awarded by each of the three raters – role-playing student/pharmacist, MHCE, tutor (as known in Chapters 4 and 5 in the classroom setting with students)/workshop facilitator (as known in Chapter 6 in the educational workshop with pharmacists) – revealed that during self-assessment, both students and pharmacists were harshest on themselves, with no role-playing student or pharmacist awarding themselves full marks (Chapters 4 and 6). Students also reflected on this phenomenon in the focus groups (Chapter 5), when students were asked to comment on their experiences of self-assessment using the same marking rubrics as the MHCEs and tutors post-roleplay. Pharmacists who role-played a mental health scenario during the educational workshop were also critical of their performances during self-assessment: *"I think everyone had doubt in their mind about how they actually went through it"* (Chapter 6).

The mean scores awarded by both MHCE and tutor were significantly higher than students' self-assessment scores (Chapter 4), and median MHCE scores were significantly higher than pharmacists' self-assessment scores (Chapter 6). The results of this thesis relating to pharmacy students and pharmacists underrating themselves (Chapters 4 and 6) contribute to previous literature quantitatively comparing student self-ratings with teachers' ratings, which found that medical students tend to underrate themselves compared to teaching staff.[54,55] It has been suggested that high-achieving students tend to be realistic or underrate their performance, while low-achieving students tend to be more generous with their own self-assessments.[54,55] However, this was not explored in the current thesis but indicates a potential area for future research. Nonetheless, this may tie in with the limitations of the evaluation of the SP role-plays (Chapter 4), in that higher achieving students may have been more likely to volunteer to participate in the SP role-plays and thus more likely to underrate themselves. Finally, there may also be a trend that 'more mature' students, for example in the later years of courses (such as final year students who participated in Chapters 4 and 5) and graduates (such as the pharmacists, interns, and pharmacy graduates who were invited to the educational workshop in Chapter 6), tend to underestimate their own performance more than 'less mature' students.[55]

7.4.2 Impact of SP role-plays on self-reported measures

The results presented in this thesis contribute to the body of evidence that MHFA training improves students' self-reported mental health knowledge, confidence, and attitudes towards supporting people experiencing mental health symptoms or crises. Participating in and/or observing simulated psychosis care role-plays may also be associated with improved mental health confidence and stigma amongst pharmacy students post-MHFA training (Chapter 4). In addition, participating in and/or observing simulated mental health role-plays may enhance pharmacists' intentions to provide mental health support (Chapter 6).

Evaluation of the SP role-plays with students (Chapter 4) focussed on exploring the impact of MHFA training and psychosis care role-plays on students' confidence and stigma in supporting people experiencing mental health symptoms or crises, and hence utilised a 15-item survey comprised of eight mental health confidence items and the seven-item Social Distance Scale (SDS). MHFA training and psychosis care role-plays were suggested to improve pharmacy students' mental health confidence and stigma. Simulated mental health role-plays have been used in training pharmacists to deliver a community pharmacy-based mental health service,[51] however, have not involved trained SP actors or scenarios relating to psychosis care. This led to the opportunity to explore the impact of mental health role-plays on registered pharmacists' intended behaviours when supporting people in the community experiencing mental health symptoms or crises. For the evaluation of the simulated mental health role-plays with pharmacists (Chapter 6), a different and newer validated scale was utilised – the Mental Health Support Scale-Intended (MHSS-Intended).[56] The MHSS is comprised of 23 items of recommended and not recommended actions, based on the MHFA ALGEE action plan.[56] This thesis pilots the use of the new MHSS-Intended as a pre- and post-intervention measure. Results from the pharmacists' evaluation suggested that participating in and/or observing the SP role-plays enhanced intended mental health support behaviours, particularly in the survey items relating to supporting a person experiencing mental health crises such as suicide and psychosis, as well as encouraging other supports (Chapter 6).

Quantitative evaluation of SP role-play scores and self-reported confidence post-MHFA training and post-roleplay, suggested that one particular area that remains challenging for students and pharmacists when supporting people experiencing mental health symptoms or crises, is navigating suicidal thoughts and behaviours. While a previous study involving post-MHFA training role-plays found a positive effect in sustaining pharmacy student confidence in

discussing suicidal behaviour with SPs enacting people living with depression,[57] quantitative evaluation of the psychosis care scenarios post-MHFA training (Chapter 4) suggested decreased student confidence in addressing suicidal thoughts post-roleplays. This may potentially be linked to the theory of conscious competence (four stages of learning), which is a step-wise model for learning new skills to master a task.[58,59] The four stages of learning are: i) unconscious incompetence (you don't know that you don't know – one does not have the required skills to perform the task and cannot judge one's own competency); ii) conscious incompetence (knowing that you don't know – when one understands that they lack the ability or skills to perform the task); iii) conscious competence (knowing that you know – having the ability or skillset to complete the task, but requires concentration and attention); and iv) unconscious competence (doing the task without having to think about it – the abilities or skills are innate or second nature to successfully complete the task).[58,59] The function of the conscious competence model was indicated where students had self-reported increased confidence in asking directly about suicidal thoughts post-MHFA training, however upon attempted practical application of this skill in SP role-plays, they may have realised consciously that they were not yet competent in this area. This highlights the importance of suicide assessment training in pharmacy curricula and further opportunities to practise their skills in safe learning environments, to help students progress from 'conscious incompetence' to 'conscious competence', and finally through to 'unconscious competence' by the time they enter the workforce for clinical practice. This is of utmost importance given that 85% of Australian and Canadian pharmacists have reported coming in contact with consumers at risk of suicide, yet approximately 60% reported feeling uncomfortable in supporting this population.[53]

The conscious competence model has been integrated into a contextualised reflective competence framework that assists both students and educators in developing, maintaining,

and ensuring reflective practice in their context of professional experiences.[60] This may be integrated into future research to help students reflect upon their professional and personal growth as they undertake training to be healthcare providers. It may also be stipulated that the theory of conscious competence, coupled with the opportunity to self-assess simulated role-play performances, may promote intrinsic motivation[61] and self-determination[62] to reflect on current practices and pursue CPD in areas that they are not yet 'unconsciously competent'.

7.4.3 Qualitative exploration of SP workshop experiences

SP workshop experiences were qualitatively explored, from the students' perspectives via focus groups (Chapter 5), and via semi-structured interviews with pharmacists (Chapter 6). Overlapping themes emerged from the student focus groups and pharmacist interviews, also aligning with previous research exploring learners' experiences of simulation-based education.

Qualitative analyses of students' experiences of MHFA training and the SP role-plays revealed five themes of 'scenario reactions', 'realistic but not real', 'mental health confidence', 'MHFA skills application', and 'feedback and self-reflection' (Chapter 5). These themes overlap with previous qualitative studies analysing students' opinions of SP role-plays in relation to mental health scenarios. O'Reilly et al.[25] gathered experiences of pharmacy students who participated in and/or observed SP role-plays enacted by people with lived experience of mental illness, and themes that emerged included 'benefits of participating', 'the value of having a lived experience', 'challenges with suicide assessment', 'communication', and 'the value of immediate feedback and debrief'. Concurring with the themes relating to having a lived experience and immediate feedback and debrief, exploration of students' experience of the psychosis care role-plays (Chapter 5) reaffirmed the valuable insights that immediate performance feedback delivered by MHCEs provide, relevant to pharmacy practice. Students

cited that the feedback delivered by the MHCEs would bear more weight for the students than the feedback provided by academic tutors, as *"these are…real people and the ones we'll be talking to"* (Chapter 5). Haracz et al.[63] explored open-ended responses from surveys after occupational therapy students participated in a simulation with a SP actor enacting a person diagnosed with mental illness. Five themes of 'authentic experience', 'developing skills', 'feedback and reflection', 'we should do more of this', and 'developing the experience further' emerged. Again, these themes are similar to those discussed in Chapter 5 of this thesis, highlighting the importance of involving people with lived experience to deliver authentic educational material. This aligns with levels 4 and 5 of Towle's taxonomy (Figure 1) and levels 3 and 4 of Tew's ladder (Figure 2), including feedback and debriefing discussions with learners immediately after SP role-plays.

The themes relating to developing (or practising MHFA) skills, and feedback and (self-)reflection, which emerged from the study by Haracz et al.,[63] were also paralleled by students who participated in and/or observed the psychosis care role-plays (Chapter 5). As discussed in Chapter 1, while MHFA training is embedded in various healthcare curricula including pharmacy, there is little opportunity for students to practise their newly acquired MHFA skills before entering clinical practice.[48] Much literature affirms that MHFA training alone improves self-reported outcomes such as knowledge, attitudes, and confidence in providing mental health support, however there is a need for greater emphasis on objective effects of MHFA training, such as on the quality of actual mental health support behaviours; this could be assessed via realistic opportunities for learners to practise their skills, via SP role-plays.[64,65]

Students valued the opportunity to consolidate the theoretical aspects learned during MHFA training, via authentic SP role-plays with trained actors, and the unique opportunity this presented to practise their mental health communication skills with 'strangers' and gain insightful feedback on their performance from people with lived experience (Chapters 4 and 5). When pharmacists were asked about their experiences of the mental health role-plays (Chapter 6), the themes were again similar to students (Chapter 5) in that the actors provided a 'realistic and authentic environment to apply mental health support skills', 'benefits of observing', 'self-assessment and feedback', and 'integrating into clinical practice (via mystery shopping)'. It is therefore important for SP role-plays to be enacted by trained actors, and to continue collaborations with people with lived experience to deliver performance feedback and when debriefing with learners.

Students voiced, both during initial pilot-testing on Zoom® (Chapter 3) and formal evaluation in-person (Chapter 5), that while the co-designed psychosis care scenarios (Chapter 3) were confronting, they appreciated the exposure, and the experience contributed to their future mental health confidence. Previous research exploring the perceptions of learning via a patient simulation scenario requiring suicidal assessment, from the student, teacher, and SP's perspectives also revealed that 'emotionally loaded' scenarios force students to identify new ways of communicating, thus enhancing professional development.[66] Participation in the mental health role-plays with students (Chapters 4 and 5) and pharmacists (Chapter 6) involved asking for volunteers to role-play in a group, in front of their peers, and both students and pharmacists voiced that they may have felt nervous, reluctant, or hesitant to do this. Similarly, literature pertaining to nursing curricula demonstrates that anxiety is often experienced by students during simulation activities, however exposure to mental health simulation in a safe learning environment ultimately decreases anxiety toward real life mental health clinical

experiences.[67,68] Through the process of formative self-assessment, feedback, and debriefing, simulation-based education enables students to identify (through critical thinking and clinical reasoning) their own personal deficiencies and make adjustments to enhance future practice of skills[69], such as empathy and communication skills[70], which are essential to optimising patient outcomes. The primary research in this thesis adopted multiple perspectives of feedback and debriefing, first asking the role-playing student to engage in self-assessment using the developed marking rubrics, then inviting observing peers, MHCEs, and tutors/workshop facilitators to provide performance feedback and participate in debriefing discussions. MHCE interaction and feedback, in particular, was highly praised as an opportunity to gain feedback from someone with lived experience, and students and pharmacists could triangulate self-, tutor/workshop facilitator, and MHCE feedback for comprehensive self-reflection for future practice.

7.5 Considerations for future MHFA training and simulation-based education

The results of this thesis suggest future considerations relating to MHFA training, as well as its association with simulation-based education. Students have voiced their desire for MHFA training earlier in their pharmacy degree, to help prepare them for mental health interactions while on placement during coursework. Several students reported having uncomfortable situations prior to receiving MHFA training and wished they had completed it beforehand to know what to do or how to respond. The idea of providing experiential learning opportunities for MHFA-trained healthcare students within their tertiary education institutions has been suggested, to help give students experience in navigating MHFA scenarios before entering clinical settings.[71] Mental health role-plays may be a suitable extension to MHFA training, to allow students the opportunity to consolidate the theory and skills learned during MHFA training. Considerations can also be made to include pre- and post-roleplays to more closely examine the impact of MHFA training on learners' behaviours, compared with baseline skills explored pre-MHFA training.

Overall, MHFA training provided a practical, structured action plan to approach, assess, and assist a person experiencing mental health symptoms or crises, and the psychosis care role-plays enabled students to apply these skills in an authentic and safe learning environment, with trained SP actors as though they were real clients presenting in a pharmacy. For some students, because the simulations were conducted soon after MHFA training sessions, they anticipated the simulated scenario to be related to mental health and so immediately knew they needed to apply the MHFA ALGEE action plan. It may be suggested that future evaluation of skills combine assessment of other therapeutic or communication skills, besides only mental health, to simulate even further the ad-hoc nature of real pharmacist-consumer interactions in the community pharmacy setting, as one would not expect only mental health scenarios. Future

work may also explore if there is any difference in performance when students are or are not aware beforehand of, or prepared for, the topic to be simulated.

Additionally, even after MHFA training and participating in and/or observing psychosis care role-plays, students shared in the focus groups (Chapter 5) that they remained unsure exactly of which self-help or other supports to refer mental health consumers to in specific circumstances. It is recommended that pharmacy curricula invest in developing educational material that focuses on navigating local mental health resources, perhaps providing a roadmap or decision-making process in determining the best mental health support services available for referral. The co-designed content may be delivered in the form of a workshop or exhibition event, inviting representatives from various mental health organisations to present on the services and support they each specifically provide. This content should be co-designed with mental health consumers, professionals, as well as students, to fulfil students' learning desires and enhance their engagement.

There may also be opportunity to explore the experiences of stakeholders in future co-design projects, in relation to the implementation science of co-design in healthcare curricula and services. Research comparing co-designed material with 'business as usual', or evaluating the real-world impact of co-design on improved patient outcomes is lacking.[72] Future studies may continue to engage with relevant stakeholders to adapt and extend upon the co-design and content validation process to develop authentic educational material for other clinical topic areas and for other health curricula.

7.5.1 Mystery shopping as a potential training method

In this thesis, students (Chapters 4 and 5) and pharmacists (Chapter 6) were provided the opportunity to practise their mental health support skills in an educational setting and gain feedback on their performance. However, few studies have observed how the educational outcomes of MHFA training and mental health simulation-based education may translate into practice in the clinical setting, especially over the long-term (beyond six months).[65] It was also voiced by pharmacists that they would appreciate MHFA skills training to be provided in their natural practice environments (Chapter 6). This relates to the concept of in situ simulation, defined as "simulation-based education that takes place in the clinical setting where participants usually work, rather than dedicated training centres".[73]

The acceptability and feasibility of utilising the SP method with immediate performance feedback and coaching, to upskill pharmacists' mental health support provision and shaping practice in real-life clinical settings (such as community pharmacy), was explored after the educational workshop (Chapter 6). Otherwise known as mystery shopping, the SP method used within healthcare settings may be an effective way to observe, monitor, and assess real-life practice, and there is potential for feedback and coaching to shape practice behaviour over time. Previously Xu et al.[74] piloted mystery shopping with immediate feedback and coaching in community pharmacies in Australia, which was found to be an acceptable and feasible training tool for community pharmacists and pharmacy staff in managing common childhood ailments. Other studies have utilised student pharmacists to conduct repeated mystery shopping visits with immediate feedback; this affected the outcome of scenarios requiring referral to a medical practitioner, especially with increased questioning and involvement of the pharmacist in the interaction, however did not improve pharmacy staff performance over time.[75] Collins et al.[76]

found that repeated mystery shopping visits with feedback were associated with improved pharmacy performance over time when managing non-prescription medicine requests.

To extend upon the promising results relating to the effect of mystery shopping in community pharmacy settings, it is recommended that methodologically sound studies are designed to translate mental health simulation outcomes to future performance and practice.[77] This may involve following the Considerations for In Situ Simulation (CISS) framework, which entails six stages: planning, briefing, scenario(s), debrief, repetition, and evaluation.[73] This framework could be used to design workplace-based assessments,[78] or in work integrated learning (WIL)[79] activities that students participate in while on clinical placement as part of their coursework.

Mystery shopping has been utilised as a method to conduct workplace-based assessments. Lim et al.[78] used SPs to examine the translation of performance in objective structured clinical examinations (OSCEs) into clinical practice in community pharmacy, using the same simulated scenarios and marking rubrics. This research highlighted there is a difference in how students prepare for these assessments in the simulated and natural environment, and that there are numerous factors that influence performance in each setting (such as the reliance on memorising information for OSCEs, which may not be applicable to real-life scenarios). Workplace-based assessments via mystery shopping may be a way to observe and assess retention of mental health skills over time, especially if psychometrically tested instruments (marking rubrics) are utilised to provide immediate feedback and coaching. This may also enable observations and assessments to be reproducible across multiple sites, with adequate sample sizes, for evaluation in a standardised manner.[77] Repeated visits with immediate feedback and coaching would foster continuous self-reflection and professional development,

in both mental health support behaviours and in the otherwise scarcely explored area of research relating to the translation of skills acquired through MHFA training into practice.[80]

7.5.2 Challenges associated with future mystery shopping involving mental health scenarios

A major concern with adapting simulated mental health scenarios into clinical practice settings is that there would be important ethical implications involved in designing and conducting research that protects the mental health of all participants involved; that is, the pharmacist who may be subject to a potentially stressful interaction, and the mystery shopper who is enacting the scenario. This concern was voiced by a pharmacist in Chapter 6: *"The mystery shopper needs to have two hats; they need to play the role of the affected person but they also need to pay attention to the recipient of this as well to make sure that it's matched and that there's no escalation…"* It would be most important for potential participants to have MHFA training and practise with role-plays in a safe learning environment first. MHFA training includes discussions about the importance of self-care for the mental health support provider (MHFAider). Adequate training and safeguards would need to be in place for the actor and the pharmacists and staff involved in mystery shopping visits featuring mental health scenarios. Simulation and mystery shopping may help equip pharmacists with skills and confidence to provide mental health support in real-life clinical practice. However, research has found that pharmacists who provide care for people at risk of suicide infrequently access professional support or care for themselves, with main reasons being unsure of where to seek help, lacking access to support, or no sources of support recommended for pharmacists.[81] These findings highlight the importance of mental health simulation and mystery shopping training to include awareness of safeguards and protective measures, and how to access pharmacist-specific support networks and telephone lines such as the Pharmacists' Support Service.[82] Debriefing

discussions amongst participants post-interaction are also essential in safeguarding pharmacists who provide mental health support in the community.

It was also expressed in Chapter 6 that the context of the pharmacy would have implications on performance, in terms of busyness and time, as well as the set-up of the pharmacy for privacy, and documentation of the interaction. Adapting mental health skills training into clinical practice settings requires pharmacists and staff to be adequately trained, and it is noted that participating in SP interactions may detract from their competing duties. However, if viewed as an important part of pharmacists' and staff ongoing training, these barriers may be able to be overcome.

Another consideration is in relation to the scenarios used for the mystery shopping visits. For this thesis the MHFA role-plays were developed specifically for pharmacy, and for potential crises scenarios such as psychosis and suicide. Further research is recommended to include other scenarios relating to mental health, such as communicating about rare and serious adverse effects (such as suicidal thoughts) pertaining to newly prescribed psychotropic medicines (such as selective serotonin reuptake inhibitors (SSRIs)), or ascertaining the impact of comorbidities (such as substance abuse) on mental health. With a large suite of scenarios, ongoing in situ training, via mystery shopping with feedback and coaching, could potentially improve the care that pharmacists and their staff provide to consumers and their carers.

7.5.3 Increasing the scalability of simulation

The systematic review (Chapter 2) revealed that live SPs are the most used simulation technique for mental health content in pharmacy education and practice. There are, however, limitations to using this simulation technique, in that employing and training actors can be

time-consuming and costly, and it requires participants to be in the same place at the same time for synchronous delivery. MHFA training is available in-person as well as online, with the advantage of reaching learners who may live geographically distant from each other. If MHFA simulations are to be added on to the existing MHFA training, then the simulations may need to be conducted online too to provide consistency in delivery and evaluation.

Virtual reality (VR) (with the aid of artificial intelligence (AI)) may be an option for delivery of simulation-based education in mental health. The use of VR and AI is evolving in pharmacy education, providing learners the opportunity to be further immersed in active learning scenarios than ever before.[83] VR for primary care and minor ailment prescribing has been explored,[84] with learners reporting both positive and negative experiences. It has also been pilot-tested for suicide ideation assessment training.[85] Furthermore, Fonseca et al.[86] evaluated the impact of a VR-guided mindfulness intervention as a method to reduce perioperative paediatric caregiver anxiety, which resulted in high participant satisfaction. While investment and initial design may be intensive, reproducibility may be higher than live simulation. As VR and AI technologies continue to improve, there may be opportunities to develop mental health scenarios that are otherwise difficult to standardise and simulate consistently with live SPs.[87] Kang[88] explored the use of virtual SPs to teach medical students in communicating bad news, such as a cancer diagnosis, and suggested that VR is used in clinical communication skills education in combination with other simulation methods. This presents a possible future direction in mental health simulation-based education, especially in relation to enhancing students' suicidal assessment skills and behaviours. It would also be interesting to explore any differences in the impact upon MHFA outcomes depending on mode of training or simulation delivery; that is, in-person versus virtually, with AI.

7.5.4 Evaluating the impact of mental health education on real-life patient outcomes

There remains a significant challenge for research to explore the actual mental health outcomes of patients who have been supported by healthcare professionals who have engaged in MHFA training and/or simulations.[89] There is a need to develop and implement programs and services that produce evidence of learning and transfer of skills and knowledge from the classroom environment, to clinical practice, with resulting implications on patient outcomes. For example, a randomised controlled trial was recently conducted, which involved delivering MHFA training to community pharmacists, followed by SP role-plays,[51] in order to prepare the pharmacists to deliver a pharmacy-based goal-planning service to support the physical and mental health of people living with severe and persistent mental illness.[90,91] Consumers who received this service voiced positive experiences, including meaningful support to make positive behavioural changes.[92] However, these positive consumer experiences may not have been directly linked to the training that pharmacists received to provide the supportive service. Future research should be designed to explore the direct impact of mental health skills and services training on consumer outcomes. A particular area to focus on in the future is suicidal assessment and interventions, which were mentioned to be ongoing challenges for both pharmacy students and pharmacists alike. These results align with findings from a systematic review exploring simulation-based training for suicidal assessment interventions, which found that there are limited studies assessing the benefits of suicide assessment training and interventions for patients.[93] Future research with rigorous and safe methodologies are warranted to explore patient outcomes of MHFA and suicide training.

7.6 Strengths and limitations

The overarching aim of this thesis was to co-design and evaluate simulated mental health role-plays for pharmacy education and practice. A major strength of this thesis is that mental health consumers/carers were involved in all stages of the research – co-design and development, content validation, delivery and evaluation of the SP role-plays (Chapters 3 – 6). In line with co-design literature, there was an intentional mix of mental health consumers/carers and professionals involved in the content validation process, which is important for power-sharing. The co-design and content validation process was rigorous and replicable, offering guidance on how to incorporate an inclusive representation of both mental health consumers/carers and healthcare professionals with extensive interest and experience in mental healthcare, enabling genuine integration of lived experience from the patient and professional perspectives to co-develop authentic mental health educational material for pharmacy students.

While the co-design meeting was held in-person, due to the COVID-19 pandemic the content validation meeting was held online via Zoom®. This alternate (yet necessary at the time) mode of delivery may have affected the group dynamics between panel members, as there would have been lost opportunities for informal interactions between panel members during breaks and before and/or after an in-person meeting, which may have otherwise enhanced rapport.[31] The first iteration of pilot-testing with final year pharmacy students (Chapter 3) was also conducted via Zoom® and the scenarios were enacted by a tutor/researcher, which may have affected the learning experience of the role-playing students, as well as the group observation experience of peers. While online learning via Zoom® was a necessity during the peak of the COVID-19 pandemic, research with undergraduate students suggests that they prefer learning in traditional in-person classroom settings over the online environment, for better engagement, motivation, understanding, and communication with peers and teachers.[94,95] It was thus crucial

for the subsequent evaluation of MHFA training and SP role-plays to be conducted live in-person as soon as safely possible, with the continued involvement of people with lived experience.

The results from the evaluation of the SP role-plays with students (Chapter 4) and pharmacists (Chapter 6) may not be generalisable, due to small sample size; the sample size available was dependent upon the number of students in the final year pharmacy cohort and workshop attendees. Additionally, the impact upon pharmacy students' mental health confidence and stigma, and pharmacists' intended mental health support behaviours, was measured in the short-term. Future studies may deliver MHFA role-plays before as well as at multiple timepoints after MHFA training, to explore the impact of MHFA training on behaviours, and evaluate the impact of MHFA training on intended MHFA behaviours via SP role-plays over time.

7.7 Conclusions

Through co-design with people with lived experience of mental illness and other mental health stakeholders, three authentic simulated psychosis care role-plays and associated marking rubrics were developed and content validated for pharmacy curricula. Evaluation of the co-designed educational material with pharmacy students and pharmacists suggests that simulated mental health scenarios, enacted by trained actors, may complement MHFA training, allowing learners to apply and consolidate the mental health skills and theory they are presented with in MHFA training (specifically, the ALGEE action plan). Future studies may deliver SP role-plays pre- and post-MHFA training to further evaluate the impact of the training on learners' mental health skills and behaviours. The SP actor training experience may also be explored via interviews or focus groups with actors, which may provide suggestions on how to further support and enhance the actor training process. Alternative simulation techniques such as virtual SPs (with AI) may be investigated alongside live human SPs to increase the scalability of simulation-based education.

Pharmacy students and pharmacists alike had positive attitudes toward using SP role-plays, with immediate feedback and debriefing discussions, with MHCEs, as a training tool to enhance their mental health support behaviours. The longer-term effects and translation of MHFA behaviours from the classroom into clinical practice warrants further research, and this can be done by integrating SP role-plays into workplaces via mystery shopping. Adapting the SP method into CPD activities in clinical practice, via repeated mystery shopping visits, may be an acceptable and feasible means of observing and evaluating the translation of mental health skills from the university classroom into real-life settings, with the potential to shape mental health practice behaviours over time. Finally, upon overcoming ethical challenges, it would be beneficial to explore, via safe and rigorous methods, if there are actual impacts on

patient outcomes arising from training healthcare professionals in MHFA and providing them with opportunities to practise their mental health support skills via simulation in clinical practice.

7.8 References

1. Australian Institute of Health and Welfare. Prevalence and impact of mental illness. Updated February 14, 2024. Accessed April 27, 2024. https://www.aihw.gov.au/mental-health/overview/prevalence-and-impact-of-mental-illness
2. Global, regional, and national burden of 12 mental disorders in 204 countries and territories, 1990–2019: a systematic analysis for the Global Burden of Disease Study 2019. *The Lancet Psychiatry*. 2022;9(2):137-150. doi:10.1016/S2215-0366(21)00395-3
3. Morral K, Morral J. The mental health literacy of British community pharmacists. *J Ment Health Train Educ Pract*. 2017;12(2):98-110. doi:10.1108/JMHTEP-12-2015-0054
4. Aluh DO, Anyachebelu OC, Ajaraonye CI. Comparison of pharmacists' mental health literacy: developed versus developing countries. *J Am Pharm Assoc*. 2020;60(5S):S64-S72. doi:10.1016/j.japh.2020.05.003
5. Dockery L, Jeffery D, Schauman O, et al. Stigma- and non-stigma-related treatment barriers to mental healthcare reported by service users and caregivers. *Psychiatry Res*. 2015;228(3):612-619. doi:10.1016/j.psychres.2015.05.044
6. Sickel AE, Seacat JD, Nabors NA. Mental health stigma update: a review of consequences. *Adv Ment Health*. 2014;12(3):202-215. doi:10.1080/18374905.2014.11081898
7. Henderson C, Noblett J, Parke H, et al. Mental health-related stigma in health care and mental health-care settings. *Lancet Psychiatry*. 2014;1(6):467-482. doi:10.1016/S2215-0366(14)00023-6

8. Lien YY, Lin HS, Lien YJ, et al. Challenging mental illness stigma in healthcare professionals and students: a systematic review and network meta-analysis. *Psychol Health*. 2021;36(6):669-684. doi:10.1080/08870446.2020.1828413

9. Bell J, Lim A, Williams R, Girdler S, Milbourn B, Black M. 'Nothing about us without us': co-production ingredients for working alongside stakeholders to develop mental health interventions. *Adv Ment Health*. 2021;0(0):1-13. doi:10.1080/18387357.2021.2020143

10. Iniesto F, Charitonos K, Littlejohn A. A review of research with co-design methods in health education. *Open Ed Stud*. 2022;4(1):273-295. doi:10.1515/edu-2022-0017

11. El-Den S, Moles RJ, Zhang R, O'Reilly CL. Simulated patient role-plays with consumers with lived experience of mental illness post-Mental Health First Aid training: interrater and test re-test reliability of an observed behavioral assessment rubric. *Pharmacy*. 2021;9(1):28. doi:10.3390/pharmacy9010028

12. Sin J, Elkes J, Batchelor R, et al. Mental health and caregiving experiences of family carers supporting people with psychosis. *Epidemiol Psychiatr Sci*. 2021;30:e3. doi:10.1017/S2045796020001067

13. Rahmani F, Ebrahimi H, Seyedfatemi N, Namdar Areshtanab H, Ranjbar F, Whitehead B. Trapped like a butterfly in a spider's web: experiences of female spousal caregivers in the care of husbands with severe mental illness. *J Clin Nurs*. 2018;27(7-8):1507-1518. doi:10.1111/jocn.14286

14. Onwumere J, Shiers D, Chew-Graham C. Understanding the needs of carers of people with psychosis in primary care. *Br J Gen Pract*. 2016;66(649):400-401. doi:10.3399/bjgp16X686209

15. Peng MM, Xing J, Tang X, Wu Q, Wei D, Ran MS. Disease-related risk factors for caregiver burden among family caregivers of persons with schizophrenia: a systematic review and meta-analysis. *Int J Environ Res Public Health*. 2022;19(3):1862. doi:10.3390/ijerph19031862

16. Dillinger RL, Kersun JM. Caring for caregivers: understanding and meeting their needs in coping with first episode psychosis. *Early Interv Psychiatry*. 2020;14(5):528-534. doi:10.1111/eip.12870

17. Towle A, Bainbridge L, Godolphin W, et al. Active patient involvement in the education of health professionals. *Med Educ*. 2010;44(1):64-74. doi:10.1111/j.1365-2923.2009.03530.x

18. Jenkins HE, Boddy K, Bull SA. The patient voice: more than a tick box exercise? *Clin Teach*. 2023;20(6):e13595. doi:10.1111/tct.13595

19. Tew J, Gell C, Foster S. *Learning From Experience: Involving Service Users and Carers in Mental Health Education and Training.* Higher Education Academy/NIMHE/Trent Workforce Development Confederation; 2004.

20. Keating D, McWilliams S, Hynes C, Purcell A, Clarke M, Strawbridge J. Patients and caregivers helping to shape the undergraduate pharmacy mental health curriculum. *Am J Pharm Educ*. 2019;83(9):7138. doi:10.5688/ajpe7138

21. Rønning SB, Bjørkly S. The use of clinical role-play and reflection in learning therapeutic communication skills in mental health education: an integrative review. *Adv Med Educ Pract*. 2019;10:415-425. doi:10.2147/AMEP.S202115

22. Gorski S, Prokop-Dorner A, Pers M, et al. The use of simulated patients is more effective than student role playing in fostering patient-centred attitudes during communication skills training: a mixed method study. *BioMed Res Int*. 2022;2022. doi:10.1155/2022/1498692

23. ElGeed H, El Hajj MS, Ali R, Awaisu A. The utilization of simulated patients for teaching and learning in the pharmacy curriculum: exploring pharmacy students' and recent alumni's perceptions using mixed-methods approach. *BMC Med Educ*. 2021;21(1):562. doi:10.1186/s12909-021-02977-1

24. Lovink A, Groenier M, van der Niet A, Miedema H, Rethans JJ. The contribution of simulated patients to meaningful student learning. *Perspect Med Educ*. 2021;10(6):341-346. doi:10.1007/s40037-021-00684-7

25. O'Reilly CL, Moles RJ, Boukouvalas E, El-Den S. Assessing students' mental health crisis skills via consumers with lived experience: a qualitative evaluation. *J Ment Health Train Educ Pract*. 2019;14(5):361-371. doi:10.1108/JMHTEP-01-2019-0007

26. Pritchard SA, Denning T, Keating JL, Blackstock FC, Nestel D. "It's not an acting job… Don't underestimate what a simulated patient does": a qualitative study exploring the perspectives of simulated patients in health professions education. *Simul Healthc*. 2020;15(1):21. doi:10.1097/SIH.0000000000000400

27. Zhang S, Soreide KK, Kelling SE, Bostwick JR. Quality assurance processes for standardized patient programs. *Curr Pharm Teach Learn*. 2018;10(4):523-528. doi:10.1016/j.cptl.2017.12.014

28. Perera J, Perera J, Abdullah J, Lee N. Training simulated patients: evaluation of a training approach using self-assessment and peer/tutor feedback to improve performance. *BMC Med Educ*. 2009;9(1):37. doi:10.1186/1472-6920-9-37

29. Fitch K, Bernstein SJ, Aguila MD, et al. *The Rand/UCLA Appropriateness Method User's Manual*. RAND; 2001.

30. Basger BJ, Chen TF, Moles RJ. Validation of prescribing appropriateness criteria for older Australians using the RAND/UCLA appropriateness method. *BMJ Open*. 2012;2(5):e001431. doi:10.1136/bmjopen-2012-001431

31. Broder MS, Gibbs SN, Yermilov I. An adaptation of the RAND/UCLA modified Delphi panel method in the time of COVID-19. *J Healthc Leadersh*. 2022;14:63-70. doi:10.2147/JHL.S352500

32. Fink A, Kosecoff J, Chassin M, Brook RH. Consensus methods: characteristics and guidelines for use. *Am J Public Health*. 1984;74(9):979-983. doi:10.2105/ajph.74.9.979

33. Cantrill JA, Sibbald B, Buetow S. The Delphi and nominal group techniques in health services research. *Int J Pharm Pract*. 1996;4(2):67-74. doi:10.1111/j.2042-7174.1996.tb00844.x

34. McMillan SS, King M, Tully MP. How to use the nominal group and Delphi techniques. *Int J Clin Pharm*. 2016;38(3):655-662. doi:10.1007/s11096-016-0257-x

35. Mullen R, Kydd A, Fleming A, McMillan L. A practical guide to the systematic application of nominal group technique. *Nurse Res.* 2021. doi: 10.7748/nr.2021.e1777

36. Singh DR, Sah RK, Simkhada B, Darwin Z. Potentials and challenges of using co-design in health services research in low- and middle-income countries. *Glob Health Res Policy*. 2023;8(1):5. doi:10.1186/s41256-023-00290-6

37. Yusoff MSB. ABC of content validation and content validity index calculation. *Educ Med J*. 2019;11:49-54. doi:10.21315/eimj2019.11.2.6

38. Lynn MR. Determination and quantification of content validity. *Nurs Res*. 1986;35(6):382-385.

39. McKenzie J, Wood, Kotecki, Clark J, Brey R. Establishing content validity: using qualitative and quantitative steps. *Am J Health Behav*. 1999;23:311-318. doi:10.5993/AJHB.23.4.9

40. Rodrigues IB, Adachi JD, Beattie KA, MacDermid JC. Development and validation of a new tool to measure the facilitators, barriers and preferences to exercise in people with osteoporosis. *BMC Musculoskelet Disord*. 2017;18(1):540. doi:10.1186/s12891-017-1914-5

41. Rickles N, Wertheimer A, Huang Y. Training community pharmacy staff how to help manage urgent mental health crises. *Pharmacy.* 2019;7(3):133. doi:10.3390/pharmacy7030133

42. Carpini JA, Sharma A, Kubicki Evans M, et al. Pharmacists and Mental Health First Aid training: a comparative analysis of confidence, mental health assistance behaviours and perceived barriers. *Early Interv Psychiatry.* 2023;17:670-680. doi:10.1111/eip.13361

43. El-Den S, Chen TF, Moles RJ, O'Reilly C. Assessing Mental Health First Aid skills using simulated patients. *Am J Pharm Educ.* 2018;82(2):185-193. doi:10.5688/ajpe6222

44. O'Reilly CL, Bell JS, Chen TF. Mental health consumers and caregivers as instructors for health professional students: a qualitative study. *Soc Psychiatry Psychiatr Epidemiol.* 2012;47(4):607-613. doi:10.1007/s00127-011-0364-x

45. O'Reilly CL, Bell JS, Kelly PJ, Chen TF. Impact of Mental Health First Aid training on pharmacy students' knowledge, attitudes and self-reported behaviour: a controlled trial. *Aust N Z J Psychiatry.* 2011;45(7):549-557. doi:10.3109/00048674.2011.585454

46. McKeirnan KC, MacCamy KL, Robinson JD, Ebinger M, Willson MN. Implementing Mental Health First Aid training in a Doctor of Pharmacy program. *Am J Pharm Educ.* 2023;87(8):100006. doi:10.1016/j.ajpe.2023.01.001

47. El-den S, Collins JC, Chen TF, O'Reilly CL. Pharmacists' roles in mental healthcare: past, present and future. *Pharm Pract (Granada)*. 2021;19(3):2545-2545. doi:10.18549/PharmPract.2021.3.2545

48. Pham L, Moles RJ, O'Reilly CL, Carrillo MJ, El-Den S. Mental Health First Aid training and assessment in Australian medical, nursing and pharmacy curricula: a national perspective using content analysis. *BMC Med Educ.* 2022;22(1):70. doi:10.1186/s12909-022-03131-1

49. Alexander L, Sheen J, Rinehart N, Hay M, Boyd L. Mental health simulation with student nurses: a qualitative review. *Clin Sim Nurs.* 2018;14:8-14. doi:10.1016/j.ecns.2017.09.003

50. Murphy KL, Klug KB, Kasimatis MD. Strengthening mental health literacy in interprofessional health science students utilizing Mental Health First Aid and simulation. *Educ Health Prof.* 2023;6(1):22. doi:10.4103/EHP.EHP_1_23

51. Ng R, El-Den S, Collins JC, et al. Evaluation of a training program to support the implementation of a community pharmacist-led support service for people living with severe and persistent mental illness. *J Am Pharm Assoc.* 2023;63(3):807-816.e2. doi:10.1016/j.japh.2023.01.007

52. Kirschbaum M, Peterson G, Bridgman H. Mental Health First Aid training needs of Australian community pharmacists. *Curr Pharm Teach Learn.* 2016;8(3):279-288. doi:10.1016/j.cptl.2016.02.015

53. Murphy AL, O'Reilly CL, Ataya R, et al. Survey of Australian and Canadian community pharmacists' experiences with patients at risk of suicide. *Psychiatr Serv*. 2020;71(3):293-296. doi:10.1176/appi.ps.201900244

54. Langendyk V. Not knowing that they do not know: self-assessment accuracy of third-year medical students. *Med Educ.* 2006;40(2):173-179. doi:10.1111/j.1365-2929.2005.02372.x

55. Boud D, Falchikov N. What does research tell us about self assessment? In: *Enhancing Learning Through Self-Assessment.* Routledge; 1995.

56. Morgan AJ, Wright J, Mackinnon AJ, Reavley NJ, Rossetto A, Jorm AF. Development of the Mental Health Support Scale: a new measure of Mental Health First Aid behaviors. *Assessment*. 2023;30(5):1486-1498. doi:10.1177/10731911221106767

57. Boukouvalas EA, El-Den S, Chen TF, et al. Confidence and attitudes of pharmacy students towards suicidal crises: patient simulation using people with a lived experience. *Soc Psychiatry Psychiatr Epidemiol.* 2018;53(11):1185-1195. doi:10.1007/s00127-018-1582-2

58. Adams L. Learning a new skill is easier said than done. Updated 2021. Accessed October 29, 2023. https://www.gordontraining.com/free-workplace-articles/learning-a-new-skill-is-easier-said-than-done/

59. Keeley C. Conscious competence model and medicine. *Foot Ankle Surg: Techniques, Reports & Cases.* 2021;1(3). doi:10.1016/j.fastrc.2021.100053

60. Lane AS, Roberts C. Contextualised reflective competence: a new learning model promoting reflective practice for clinical training. BMC *Med Educ*. 2022;22:71. doi:10.1186/s12909-022-03112-4

61. McMillan JH, Hearn J. Student self-assessment: the key to stronger student motivation and higher achievement. *Educ Horiz.* 2008;87(1):40-49.

62. Bartlett A, Pace J, Arora A, Penm J. Self-reflection and peer-assessments effect on pharmacy students' performance at simulated counselling sessions. *Pharmacy.* 2023;11(1):5. doi:10.3390/pharmacy11010005

63. Haracz K, Arrighi G, Joyce B. Simulated patients in a mental health occupational therapy course: a pilot study. *Brit J Occup Ther.* 2015;78(12):757-766. doi:10.1177/0308022614562792

64. Maslowski AK, LaCaille RA, LaCaille LJ, Reich CM, Klingner J. Effectiveness of Mental Health First Aid: a meta-analysis. *Ment Health Rev.* 2019;24(4):245-261. doi:10.1108/MHRJ-05-2019-0016

65. Morgan AJ, Ross A, Reavley NJ. Systematic review and meta-analysis of Mental Health First Aid training: effects on knowledge, stigma, and helping behaviour. *PLoS ONE.* 2018;13(5):e0197102. doi:10.1371/journal.pone.0197102

66. Erici S, Lindqvist D, Lindström MB, Gummesson C. Three perspectives on learning in a simulated patient scenario: a qualitative interview study with student, simulated patient, and teacher. *Adv Sim*. 2023;8(1):10. doi:10.1186/s41077-023-00249-0

67. Szpak JL, Kameg KM. Simulation decreases nursing student anxiety prior to communication with mentally ill patients. *Clin Sim Nurs.* 2013;9(1):e13-e19. doi:10.1016/j.ecns.2011.07.003

68. Hall K. Simulation-based learning in Australian undergraduate mental health nursing curricula: a literature review. *Clin Sim Nurs.* 2017;13(8):380-389. doi:10.1016/j.ecns.2017.04.002

69. Andrade HL. A critical review of research on student self-assessment. *Front Educ.* 2019;4. doi:10.3389/feduc.2019.00087

70. Teherani A, Hauer KE, O'Sullivan P. Can simulations measure empathy? Considerations on how to assess behavioral empathy via simulations. *Patient Educ Couns*. 2008;71(2):148-152. doi:10.1016/j.pec.2008.01.003

71. Mantzios M, Cook A, Egan H. Mental Health First Aid for students in the health professions: exploring opportunities for experiential learning in higher education. *Health Prof Educ*. 2019;5(4):281-282. doi:10.1016/j.hpe.2019.03.001

72. Slattery P, Saeri AK, Bragge P. Research co-design in health: a rapid overview of reviews. *Health Res Policy Sys.* 2020;18(1):17. doi:10.1186/s12961-020-0528-9

73. Martin A, Cross S, Attoe C. The use of in situ simulation in healthcare education: current perspectives. *Adv Med Educ Pract.* 2020;11:893-903. doi:10.2147/AMEP.S188258

74. Xu T, de Almeida Neto AC, Moles RJ. Simulated caregivers: their feasibility in educating pharmacy staff to manage children's ailments. *Int J Clin Pharm.* 2012;34(4):587-595. doi:10.1007/s11096-012-9648-9

75. Collins JC, Schneider CR, Faraj R, Wilson F, de Almeida Neto AC, Moles RJ. Management of common ailments requiring referral in the pharmacy: a mystery shopping intervention study. *Int J Clin Pharm.* 2017;39(4):697-703. doi:10.1007/s11096-017-0505-8

76. Collins JC, Schneider CR, Naughtin CL, Wilson F, de Almeida Neto AC, Moles RJ. Mystery shopping and coaching as a form of audit and feedback to improve community pharmacy management of non-prescription medicine requests: an intervention study. *BMJ Open.* 2017;7(12):e019462. doi:10.1136/bmjopen-2017-019462

77. Cantrell MA, Franklin A, Leighton K, Carlson A. The evidence in simulation-based learning experiences in nursing education and practice: an umbrella review. *Clin Sim Nurs.* 2017;13(12):634-667. doi:10.1016/j.ecns.2017.08.004

78. Lim A, Krishnan S, Singh H, et al. Linking assessment to real life practice – comparing work based assessments and objective structured clinical examinations using mystery shopping. *Adv in Health Sci Educ.* 2024;29(3):859-878. doi:10.1007/s10459-023-10284-1

79. Jackson D, Fleming J, Rowe A. Enabling the transfer of skills and knowledge across classroom and work contexts. *Vocat Learn.* 2019;12(3):459-478. doi:10.1007/s12186-019-09224-1

80. Gordon MJ. Self-assessment programs and their implications for health professions training. *Acad Med.* 1992;67(10):672.

81. El-Den S, Choong HJ, Moles RJ, et al. Exploring the impact of suicide care experiences and post-intervention supports sought among community pharmacists: a cross-sectional survey. *Int J Clin Pharm*. 2022;44(6):1247-1258. doi:10.1007/s11096-022-01398-4

82. Support for Pharmacists. Pharmacists' Support Services. Updated 2021. Accessed November 27, 2024. https://supportforpharmacists.org.au/

83. Coyne L, Merritt TA, Parmentier BL, Sharpton RA, Takemoto JK. The past, present, and future of virtual reality in pharmacy education. *Am J Pharm Educ.* 2019;83(3):7456. doi:10.5688/ajpe7456

84. Ho C, Chen AQH, Yao A, et al. Pharmacist prescribing for minor ailments: an opportunity for virtual interactive case system innovation. In: Life Long Learning in Pharmacy (LLLP) conference abstracts 2023: blazing new trails. *Pharm Educ.* 2024;24(4):1-40. doi:10.46542/pe.2024.244.140

85. Yao A, Chen AQH, Giannini J, et al. Virtual reality simulation of suicide risk assessment performed by pharmacy learners. In: Life Long Learning in Pharmacy (LLLP) conference abstracts 2023: blazing new trails. *Pharm Educ.* 2024;24(4):1-40. doi:10.46542/pe.2024.244.140

86. Fonseca A, Qian D, Forbes T, et al. Reducing preoperative caregiver anxiety with virtual reality: a pragmatic, randomized controlled study. *J Patient Exp.* 2024;11:23743735231220190. doi:10.1177/23743735231220190

87. Ventola CL. Virtual reality in pharmacy: opportunities for clinical, research, and educational applications. *P T.* 2019;44(5):267-276.

88. Kang W. The use of virtual patients for breaking bad news: a rapid review. *Clin Teach.* 2024;21(2):e13681. doi:10.1111/tct.13681

89. Williams B, Reddy P, Marshall S, Beovich B, McKarney L. Simulation and mental health outcomes: a scoping review. *Adv Simul.* 2017;2(1):2. doi:10.1186/s41077-016-0035-9

90. Wheeler AJ, O'Reilly CL, El-Den S, Byrnes J, Ware RS, McMillan SS. Bridging the gap between physical and mental illness in community pharmacy (PharMIbridge): protocol for an Australian cluster randomised controlled trial. *BMJ Open.* 2020;10(7):e039983. doi:10.1136/bmjopen-2020-039983

91. O'Reilly CL, McMillan SS, El-Den S, et al. Implementing a randomised controlled trial through community pharmacies to support people living with severe and persistent mental illness: lessons learnt during the COVID-19 pandemic. *Contemp Clin Trials.* 2023;131:107246. doi:10.1016/j.cct.2023.107246

92. Stewart V, McMillan SS, Hu J, et al. Experiences of goal planning in Australian community pharmacy settings for people experiencing mental illness: a qualitative study. *Health Expect.* 2023;26(6):2205-2215. doi:10.1111/hex.13818

93. Richard O, Jollant F, Billon G, Attoe C, Vodovar D, Piot MA. Simulation training in suicide risk assessment and intervention: a systematic review and meta-analysis. *Med Educ Online.* 2023;28(1):2199469. doi:10.1080/10872981.2023.2199469

94. Photopoulos P, Tsonos C, Stavrakas I, Triantis D. Remote and in-person learning: utility versus social experience. *SN Comput Sci.* 2023;4(2):116. doi:10.1007/s42979-022-01539-6

95. Peper E, Wilson V, Martin M, Rosegard E, Harvey R. Avoid Zoom fatigue, be present and learn. *NeuroRegulation.* 2021;8(1):47-47. doi:10.15540/nr.8.1.47

APPENDICES

APPENDIX I –

LETTERS OF ETHICS APPROVAL

The following letters are evidence of ethics approval from The University of Sydney Human Research Ethics Committee to conduct the research presented in this thesis.

The Project Numbers and corresponding Chapters in which they appear in this thesis are as follows:

- Project No. 2020/776 and 2015/626 – Chapter 3
- Project No. 2021/507 – Chapters 4 and 5
- Project No. 2023/148 – Chapter 6

Tuesday, 15 December 2020

Dr Sarira El-Den
Pharmacy; Faculty of Medicine and Health
Email: sarira.el-den@sydney.edu.au

Dear Sarira,

The University of Sydney Human Research Ethics Committee (HREC) has considered your application.

I am pleased to inform you that after consideration of your response, your project has been approved.

Details of the approval are as follows:

Project No.:	**2020/776**
Project Title:	**Co-design and Content Validation of Simulated Schizophrenia Role-plays to Educate and Assess Pharmacy Students**
Authorised Personnel:	**El-Den Sarira; Moles Rebekah; O'Reilly Claire; Xu Tina;**
Approval Period:	**15 December 2020** to **15 December 2024**
First Annual Report Due:	**15 December 2021**

Documents Approved:

Date Uploaded	Version Number	Document Name
02/12/2020	Version 2	PIS HCP Content Validation v2 CLEAN
02/12/2020	Version 2	Consent Form HCP v2 CLEAN
02/12/2020	Version 2	PIS Co-design v2 CLEAN
02/12/2020	Version 2	Consent form MHC v2 CLEAN
02/12/2020	Version 2	Email to One Door v2 CLEAN
02/12/2020	Version 2	Email to HCP v2 CLEAN
02/12/2020	Version 2	PIS MHC Content Validation v2 CLEAN
02/12/2020	Version 2	Suggested email for One Door potentials v2 CLEAN
02/12/2020	Version 2	Letter of award - Peter Meyer grant
10/11/2020	Version 1	Sample rubric
10/11/2020	Version 1	Sample case
10/11/2020	Version 1	Sample content validity index v2

Special Condition/s of Approval

- It is a condition of approval that you submit a modification for Part 2 when you have scoped the initial tool and made changes.

Condition/s of Approval

- Research must be conducted according to the approved proposal.
- An annual progress report must be submitted to the Ethics Office on or before the anniversary of approval and on completion of the project.
- You must report as soon as practicable anything that might warrant review of ethical approval of the project including:
  - Serious or unexpected adverse events (which should be reported within 72 hours).
  - Unforeseen events that might affect continued ethical acceptability of the project.
- Any changes to the proposal must be approved prior to their implementation (except where an amendment is undertaken to eliminate *immediate* risk to participants).

- Personnel working on this project must be sufficiently qualified by education, training and experience for their role, or adequately supervised. Changes to personnel must be reported and approved.

- Personnel must disclose any actual or potential conflicts of interest, including any financial or other interest or affiliation, as relevant to this project.

- Data and primary materials must be retained and stored in accordance with the relevant legislation and University guidelines.

- Ethics approval is dependent upon ongoing compliance of the research with the *National Statement on Ethical Conduct in Human Research*, the *Australian Code for the Responsible Conduct of Research*, applicable legal requirements, and with University policies, procedures and governance requirements.

- The Ethics Office may conduct audits on approved projects.

- The Chief Investigator has ultimate responsibility for the conduct of the research and is responsible for ensuring all others involved will conduct the research in accordance with the above.

This letter constitutes ethical approval only.

Please contact the Ethics Office should you require further information or clarification.

Sincerely,

[redacted]

Associate Professor Helen Mitchell
Chair
Human Research Ethics Committee (HREC 1)

The University of Sydney of Sydney HRECs are constituted and operate in accordance with the National Health and Medical Research Council's (NHMRC) National Statement on Ethical Conduct in Human Research (2018) and the NHMRC's Australian Code for the Responsible Conduct of Research (2018)

Friday, 28 May 2021

Dr Sarira El-Den
Pharmacy; Faculty of Medicine and Health
Email: sarira.el-den@sydney.edu.au

Dear Sarira,

Your request to modify this project, which was submitted on 12 May 2021, has been considered.

This project has been approved to proceed with the proposed amendments.

Protocol Number: **2020/776**

Protocol Title: **Co-design and Content Validation of Simulated Schizophrenia Role-plays to Educate and Assess Pharmacy Students**

Annual Report Due: **15 December 2021**

Documents Approved:

Date Uploaded	Version Number	Document Name
11/05/2021	Version 1	Phase 2 Content Validation Tool

Please contact the ethics office should you require further information.

Sincerely,

[redacted]

Associate Professor Stephen Fuller
Chair
Modification Review Committee Chair (MRC 1)

The University of Sydney of Sydney HRECs are constituted and operate in accordance with the National Health and Medical Research Council's (NHMRC) National Statement on Ethical Conduct in Human Research (2018) and the NHMRC's Australian Code for the Responsible Conduct of Research (2018)

Research Integrity
Human Research Ethics Committee

Thursday, 13 August 2015

Dr Rebekah Moles
Pharmacy; Faculty of Pharmacy
Email: rebekah.moles@sydney.edu.au

Dear Rebekah

I am pleased to inform you that the University of Sydney Human Research Ethics Committee (HREC) has approved your project entitled "**Evaluation of Professional Practice - Is Simulation in pharmacy practice an appropriate way to learn?"**.

Details of the approval are as follows:

Project No.: **2015/626**

Approval Date: **10 August 2015**

First Annual Report Due: **10 August 2016**

Authorised Personnel: **Moles Rebekah; Chaar Bouad Betty; Chen Timothy; El-Den Sarira; Luckie Kate Helen; O'Reilly Claire; Saini Bandana; Schneider Carl;**

Documents Approved:

Date	Type	Document
07/08/2015	Advertisements/Flyer	Blackboard announcement version 2 clean
04/08/2015	Participant Consent Form	Consent form for group interview clean
04/08/2015	Interview Questions	Student focus group guide clean
13/07/2015	Participant Info Statement	PIS stage 1
13/07/2015	Participant Consent Form	Consent form stage 1
13/07/2015	Participant Info Statement	PIS stage 2
13/07/2015	Participant Consent Form	Consent stage 2
13/07/2015	Interview Questions	Focus group example questions
13/07/2015	Other Type	Student Handbook
13/07/2015	Recruitment Letter/Email	Blackboard announcement focus groups

HREC approval is valid for four (4) years from the approval date stated in this letter and is granted pending the following conditions being met:

Condition/s of Approval

- Continuing compliance with the National Statement on Ethical Conduct in Research Involving Humans.

- Provision of an annual report on this research to the Human Research Ethics Committee from the approval date and at the completion of the study. Failure to submit reports will result in withdrawal of ethics approval for the project.

- All serious and unexpected adverse events should be reported to the HREC within 72 hours.

- All unforeseen events that might affect continued ethical acceptability of the project should be reported to the HREC as soon as possible.

- Any changes to the project including changes to research personnel must be approved by the HREC before the research project can proceed.

- Note that for student research projects, a copy of this letter must be included in the candidate's thesis.

Chief Investigator / Supervisor's responsibilities:

1. You must retain copies of all signed Consent Forms (if applicable) and provide these to the HREC on request.

2. It is your responsibility to provide a copy of this letter to any internal/external granting agencies if requested.

Please do not hesitate to contact Research Integrity (Human Ethics) should you require further information or clarification.

Yours sincerely

[redacted]

Associate Professor Rita Shackel
Chair
Human Research Ethics Committee

This HREC is constituted and operates in accordance with the National Health and Medical Research Council's (NHMRC) National Statement on Ethical Conduct in Human Research (2007), NHMRC and Universities Australia Australian Code for the Responsible Conduct of Research (2007) and the CPMP/ICH Note for Guidance on Good Clinical Practice.

Tuesday, 27 July 2021

Dr Sarira El-Den
Pharmacy; Faculty of Medicine and Health
Email: sarira.el-den@sydney.edu.au

Dear Sarira,

The University of Sydney Human Research Ethics Committee (HREC) has considered your application.

I am pleased to inform you that after consideration of your response, your project has been approved.

Details of the approval are as follows:

Project No.:	**2021/507**
Project Title:	**Evaluation of simulated patient role-plays of mental health problems and crises in health curricula**
Authorised Personnel:	**El-Den Sarira; Schneider Carl; Moles Rebekah; O'Reilly Claire; Xu Tina;**
Approval Period:	**27 July 2021** to **27 July 2025**
First Annual Report Due:	**27 July 2022**

Documents Approved:

Date Uploaded	Version Number	Document Name
21/07/2021	Version 2	PIS v2 CLEAN
21/07/2021	Version 2	canvas announcement
21/07/2021	Version 2	PCF v2 CLEAN
22/06/2021	Version 1	IRMA Q365 & Q367 formatted
03/06/2021	Version 1	Focus group guide
03/06/2021	Version 1	Survey

Condition/s of Approval

- Research must be conducted according to the approved proposal.
- An annual progress report must be submitted to the Ethics Office on or before the anniversary of approval and on completion of the project.
- You must report as soon as practicable anything that might warrant review of ethical approval of the project including:
  - Serious or unexpected adverse events (which should be reported within 72 hours).
  - Unforeseen events that might affect continued ethical acceptability of the project.
- Any changes to the proposal must be approved prior to their implementation (except where an amendment is undertaken to eliminate *immediate* risk to participants).
- Personnel working on this project must be sufficiently qualified by education, training and experience for their role, or adequately supervised. Changes to personnel must be reported and approved.
- Personnel must disclose any actual or potential conflicts of interest, including any financial or other interest or affiliation, as relevant to this project.
- Data and primary materials must be retained and stored in accordance with the relevant legislation and University guidelines.

- Ethics approval is dependent upon ongoing compliance of the research with the *National Statement on Ethical Conduct in Human Research*, the *Australian Code for the Responsible Conduct of Research*, applicable legal requirements, and with University policies, procedures and governance requirements.

- The Ethics Office may conduct audits on approved projects.

- The Chief Investigator has ultimate responsibility for the conduct of the research and is responsible for ensuring all others involved will conduct the research in accordance with the above.

This letter constitutes ethical approval only.

Please contact the Ethics Office should you require further information or clarification.

Sincerely,

[redacted]

Associate Professor Helen Mitchell
Chair
Human Research Ethics Committee (HREC 1)

The University of Sydney of Sydney HRECs are constituted and operate in accordance with the National Health and Medical Research Council's (NHMRC) National Statement on Ethical Conduct in Human Research (2018) and the NHMRC's Australian Code for the Responsible Conduct of Research (2018)

THE UNIVERSITY OF SYDNEY

Research Integrity & Ethics Administration
Human Research Ethics Committee

Wednesday, 19 April 2023

Dr Claire O'Reilly
Pharmacy; Faculty of Medicine and Health
Email: claire.oreilly@sydney.edu.au

Dear Claire

The University of Sydney Human Research Ethics Committee (HREC) has considered your application.

After consideration of your response to the comments raised your project has been approved.

Approval is granted for a period of four years from **18/04/2023** to **18/04/2027**

Project title: **Exploring how pharmacists support people experiencing mental health symptoms or crises through mystery shopping: a simulated patient study**

Project no.: **2023/148**

First Annual Report due: **18/04/2024**

Authorised Personnel: **O'Reilly Claire; Xu Tina; Collins Jack; El-Den Sarira; Moles Rebekah; Ou Kevin;**

Documents Approved:

Date Uploaded	Version number	Document Name
11/04/2023	Other Type	Example SP scenario
11/04/2023	Recruitment Letter/Email	email to Stage 1 workshop attendees
11/04/2023	Participant Consent Form	Pharmacist CF clean
10/02/2023	Questionnaires/Surveys	Attachment 2a - Stage 1 T0T1 MHSS-Intended
10/02/2023	Questionnaires/Surveys	Attachment 5 - Stage 4 T2T3 MHSS-Provided
10/02/2023	Study Protocol	PROTOCOL
10/02/2023	Participant Info Statement	Attachment 1a - All Stages Pharmacist PIS
10/02/2023	Participant Consent Form	Attachment 1b - All Stages CF
10/02/2023	Questionnaires/Surveys	Attachment 3a - Stage 2 Covert SP demographics questionnaire
10/02/2023	Participant Info Statement	Attachment 3b - Stage 2 Pharmacy Owner Authorised Rep PIS
10/02/2023	Interview Questions	Attachment 4a - Stage 3 Pharmacist interview guide
10/02/2023	Participant Info Statement	Attachment 4b - Stage 3 Actor PIS
10/02/2023	Participant Consent Form	Attachment 4c - Stage 3 Actor CF
10/02/2023	Interview Questions	Attachment 4d - Stage 3 Actor interview guide

Condition/s of Approval

- Research must be conducted according to the approved proposal.
- An annual progress report must be submitted to the Ethics Office on or before the anniversary of approval and on completion of the project.

- You must report as soon as practicable anything that might warrant review of ethical approval of the project including:
  - Serious or unexpected adverse events (which should be reported within 72 hours).
  - Unforeseen events that might affect continued ethical acceptability of the project.

- Any changes to the proposal must be approved prior to their implementation (except where an amendment is undertaken to eliminate *immediate* risk to participants).

- Personnel working on this project must be sufficiently qualified by education, training and experience for their role, or adequately supervised. Changes to personnel must be reported and approved.

- Personnel must disclose any actual or potential conflicts of interest, including any financial or other interest or affiliation, as relevant to this project.

- Data and primary materials must be retained and stored in accordance with the relevant legislation and University guidelines.

- Ethics approval is dependent upon ongoing compliance of the research with the *National Statement on Ethical Conduct in Human Research*, the *Australian Code for the Responsible Conduct of Research*, applicable legal requirements, and with University policies, procedures and governance requirements.

- The Ethics Office may conduct audits on approved projects.

- The Chief Investigator has ultimate responsibility for the conduct of the research and is responsible for ensuring all others involved will conduct the research in accordance with the above.

- The Clinical Trials Support Office has been notified as outlined in the University's Clinical Trials Policy where a clinical trial is being undertaken.

This letter constitutes ethical approval only.

Please contact the Ethics Office should you require further information or clarification.

Sincerely,

Associate Professor Stephen Fuller
Chair
Human Research Ethics Committee (HREC 2)

The University of Sydney of Sydney HRECs are constituted and operate in accordance with the National Health and Medical Research Council's (NHMRC) National Statement on Ethical Conduct in Human Research (2018) and the NHMRC's Australian Code for the Responsible Conduct of Research (2018)

Wednesday, 1 November 2023

Dr Claire O'Reilly
Pharmacy; Faculty of Medicine and Health
Email: claire.oreilly@sydney.edu.au

Dear Claire,

Your request to modify this project, which was submitted on 04 October 2023 has been considered.

This project has been approved to proceed with the proposed amendments (*seek the feedback of Stage 1 (SP educational workshop) pharmacists on their experiences of the SP workshop as role-playing and/or observing pharmacists, via semi-structured interviews and qualitatively analyse this data as has already been approved for the Stage 2 pharmacists).*

Protocol Number: **2023/148**

Protocol Title: **Exploring how pharmacists support people experiencing mental health symptoms or crises through mystery shopping: a simulated patient study**

Annual Report Due: **18 April 2024**

Documents Approved:

Date Uploaded	Version Number	Document Name
04/10/2023	Version 1	CF
04/10/2023	Version 1	Interview guide
04/10/2023	Version 1	PIS

Please contact the ethics office should you require further information.

Sincerely,

[redacted]

Dr Joanne Hart
Chair
Modification Review Committee (MRC 3)

The University of Sydney of Sydney HRECs are constituted and operate in accordance with the National Health and Medical Research Council's (NHMRC) National Statement on Ethical Conduct in Human Research (2018) and the NHMRC's Australian Code for the Responsible Conduct of Research (2018)

APPENDIX II –

DESCRIPTION OF JOURNALS

The following are descriptions of the journals in which the work presented in this thesis is published or submitted. Journal descriptions have been extracted from the official journal websites.

American Journal of Pharmaceutical Education

The *American Journal of Pharmaceutical Education* is an official scholarly publication of the American Association of Colleges of Pharmacy (AACP). Its purpose is to document and advance pharmaceutical education in the United States and internationally. The journal's impact factor is 3.3 (2022).

BMC Medical Education

BMC Medical Education is an open access journal publishing original peer-reviewed research articles in relation to the education and training of healthcare professionals. The journal welcomes studies on students and professionals across all levels of education; education delivery aspects; and other education-related topics. The journal's impact factor is 2.7 (2023) and 5-year impact factor is 3.4.

International Journal of Clinical Pharmacy

International Journal of Clinical Pharmacy is a bi-monthly, peer-reviewed journal publishing topics in the broad field of clinical pharmacy and related subjects. The journal's impact factor is 2.6 (2023).

Journal of the American Pharmacists Association

The mission of the *Journal of the American Pharmacists Association* (*JAPhA*) is to connect science and practice by publishing high-quality empirical studies, reviews on important healthcare topics, and thoughtful opinion pieces with the ultimate goal of optimizing medication use to improve patient and population health outcomes. The journal's impact factor is 2.5 (2023).

Social Psychiatry and Psychiatric Epidemiology

Social Psychiatry and Psychiatric Epidemiology is a scholarly journal dedicated to diverse aspects of psychiatric disorders' epidemiology and particularly social, biological, and genetic dimensions. The journal's impact factor is 3.6 (2023) and 5-year impact factor is 4.5.

APPENDIX III –

AWARD: RUNNER UP – BEST STUDENT ORAL PRESENTATION AT INTERNATIONAL SOCIAL PHARMACY WORKSHOP (SYDNEY HUB) 2022

International
Social Pharmacy Workshop
Building global capacity in a time of change
The University of Sydney, Australia / 11–14 July 2022

THE UNIVERSITY OF SYDNEY

Runner up of the
Best Student
Oral Presentation
Sydney Hub

Awarded to

Tina Ung

For the presentation

'Simulated schizophrenia role-plays for pharmacy students: Co-design and content validation by mental health stakeholders'

[redacted]

July 14, 2022

Professor Timothy Chen

The University of Sydney

[redacted]

July 14, 2022

Dr Carl Schneider

The University of Sydney

On behalf of the ISPW 2022 Organising Committee

APPENDIX IV –

AWARD: BEST ORAL PRESENTATION IN PHARMACY AND PHARMACEUTICAL SCIENCE EDUCATION AT AUSTRALASIAN PHARMACEUTICAL SCIENCE ASSOCIATION ANNUAL CONFERENCE 2021

Australasian Pharmaceutical Science Association
www.apsa-online.org | info@apsa-online.org

Outstanding Oral Presentation in Pharmacy and Pharmaceutical Science Education

This prize is presented to:

Tina Ung

Associate Professor Joe Nicolazzo
APSA President

December, 2021

APPENDIX V –

CERTIFICATES OF ACCREDITATION:

MENTAL HEALTH FIRST AID

MENTAL HEALTH FIRST AID Australia

CERTIFICATE OF **ACCREDITATION**

MENTAL HEALTH FIRST AID AUSTRALIA

accredits

TINA UNG

as a **Standard Mental Health First Aider**

after successful completion of the course and assessment.

This 12-hour course teaches skills for providing initial help to a person who is developing a mental health problem or experiencing a mental health crisis.

Claire O'Reilly

MHFA INSTRUCTOR(S)

17/03/2020

ACCREDITATION DATE

17/03/2023

ACCREDITATION EXPIRY DATE

MENTAL HEALTH FIRST AID AUSTRALIA ACCREDITED

MENTAL HEALTH FIRST AID Australia

CERTIFICATE OF **ACCREDITATION**

MENTAL HEALTH FIRST AID AUSTRALIA
accredits

TINA UNG

as a **Standard Mental Health First Aider**
after successful completion of the course and assessment.

This 12-hour course teaches skills for providing initial help to a person who is developing a mental health problem or experiencing a mental health crisis.

Sarira El-Den

MHFA INSTRUCTOR(S)

23/08/2023

ACCREDITATION DATE

23/08/2026

ACCREDITATION EXPIRY DATE

MENTAL HEALTH FIRST AID AUSTRALIA ACCREDITED

APPENDIX VI –

CERTIFICATE OF ATTENDANCE: AUSTRALIAN CONSORTIUM FOR SOCIAL AND POLITICAL RESEARCH INC. FUNDAMENTALS OF STATISTICS

ACSPRI
Australian Consortium for
Social & Political Research Inc.

CERTIFICATE OF COMPLETION

This certificate is awarded to

Tina Ung

for attendance of the short course on:

Fundamentals of Statistics: Online

which was run at the

Summer Program 2023
16 - 20 January 2023

--------[redacted]

Signed by Rob Ackland, Chair
for the Australian Consortium for Social and Political Research Inc. (ACSPRI)

APPENDIX VII –

THE USE OF MENTAL HEALTH SIMULATION IN PHARMACY PRACTICE AND EDUCATION: A SYSTEMATIC REVIEW (PROSPERO)

The Use of Mental Health Simulation in Pharmacy Practice and Education: A Systematic Review

To enable PROSPERO to focus on COVID-19 submissions, this registration record has undergone basic automated checks for eligibility and is published exactly as submitted. PROSPERO has never provided peer review, and usual checking by the PROSPERO team does not endorse content. Therefore, automatically published records should be treated as any other PROSPERO registration. Further detail is provided here.

Citation

Tina Ung, Sarira El-Den, Rebekah Moles, Claire O'Reilly. The Use of Mental Health Simulation in Pharmacy Practice and Education: A Systematic Review. PROSPERO 2021 CRD42021233864 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42021233864

Review question

1. How has mental health-related simulation been used in the context of pharmacy practice and education?

2. What type of simulation techniques have been employed in pharmacy practice and education?

3. Which mental health related content has been simulated in the field of pharmacy practice and education?

Searches

The databases MEDLINE, Embase, PsycINFO, CINAHL and Scopus will be searched, with no restrictions placed on publication date. The search will not be restricted to any language, so long as an English version is published and accessible. We intend on conducting the search to March 2021.

Types of study to be included

No restrictions on the types of studies. All publications reporting on primary research will be considered for inclusion

Condition or domain being studied

Mental health conditions

Participants/population

Studies that directly involve pharmacists, pharmacy staff, pharmacy students and/or pharmacy interns either as the study population or as those impacted by the simulation.

Intervention(s), exposure(s)

Inclusion criteria:

1. studies involving simulation of mental health related content

2. studies employing any type of simulation technique e.g. live simulated patients, computer simulation

3. simulation occurring in any setting e.g. community pharmacy, simulation labs, hospital

4. primary studies employing any study design

5. studies published in the English language

Exclusion criteria:

1. studies focussing on economic modelling with no reference to pharmacists, pharmacy staff, pharmacy students and/or pharmacy interns

2. non-primary journal publications and conference abstracts

Comparator(s)/control

Not relevant

Context

Studies conducted in any setting will be considered for inclusion, as long as the study involves pharmacists, pharmacy staff and/or pharmacy students. Where studies do not involve pharmacists, pharmacy staff, pharmacy students and/or pharmacy interns, they will be considered eligible for inclusion, regardless of the setting, if they explicitly report on the impact of the simulation on pharmacy practice and/or pharmacy education

Main outcome(s)

This systematic review will explore the following context of pharmacy practice and education:

1. The use of mental health-related simulation

2. The types of mental health simulation techniques and methods employed

3. The mental health related content that has been simulated

Measures of effect

N/A - as studies will not be excluded based on study design, measures of effect cannot be determined a priori

Additional outcome(s)

None

Measures of effect

N/A

Data extraction (selection and coding)

Potential studies for inclusion will be identified using the search strategy in five electronic databases. All citations identified in the search will be exported into EndNote and duplicates will be removed using both automatic and manual means. One member of the research team will screen references for inclusion in two successive stages of title/abstract screening and then full-text screening for references meeting title/abstract criteria. The reference lists of included full-text citations will also be screened by this member of the research team to identify any potentially relevant publications for inclusion. Any discrepancies will be discussed and resolved through consultations with two other members of the research team.

Data extraction will be performed by one member of the research team.

Risk of bias (quality) assessment

All studies that meet the inclusion criteria will be included in this systematic review, regardless of study design. An appropriate critical appraisal tool, such as MMAT, which allows for assessment of both qualitative or quantitative studies, will be used as appropriate depending on the included study designs if necessary.

Strategy for data synthesis

It is expected that the data will be heterogeneous, as we will not exclude studies based on study design. Therefore, we expect to use both quantitative or narrative synthesis techniques depending on the types of studies included in this review. It is expected that there will be heterogeneity in the reporting of data, hence, a meta-analysis may not be appropriate.

Analysis of subgroups or subsets

An analysis of subgroups is planned according to the type of simulations used in the included studies (e.g. simulated patient, role-play, computer simulation), which mental health related content is identified in the included studies (e.g. specific mental illnesses, mental health crises, psychotropic medicines), and setting (e.g. community or hospital pharmacy, university).

Contact details for further information

Tina Ung

tina.xu@sydney.edu.au

Organisational affiliation of the review

University of Sydney

Review team members and their organisational affiliations [1 change]

Mrs Tina Ung. The University of Sydney

Dr Sarira El-Den. The University of Sydney

Professor Rebekah Moles. The University of Sydney

Assistant/Associate Professor Claire O'Reilly. The University of Sydney

Type and method of review

Systematic review

Anticipated or actual start date

28 January 2021

Anticipated completion date

30 June 2021

Funding sources/sponsors

None

Conflicts of interest

Language

English

Country

Australia

Stage of review [1 change]

Review Completed published

Details of final report/publication(s) or preprints if available [1 change]

Ung TX, El-Den S, Moles RJ, O'Reilly CL (2023) The use of mental health simulation in pharmacy practice and education: a systematic review. Am J Pharm Educ 87(6):100058.

https://doi.org/10.1016/j.ajpe.2023.100058

Subject index terms status

Subject indexing assigned by CRD

Subject index terms

Education, Pharmacy; Humans; Mental Health; Pharmacy; Students, Pharmacy

Date of registration in PROSPERO

19 March 2021

Date of first submission

17 February 2021

Stage of review at time of this submission [1 change]

Stage	Started	Completed
Preliminary searches	Yes	Yes
Piloting of the study selection process	Yes	Yes
Formal screening of search results against eligibility criteria	Yes	Yes
Data extraction	Yes	Yes
Risk of bias (quality) assessment	Yes	Yes
Data analysis	Yes	Yes

Revision note

Review was submitted in May 2022 and published in March 2023.

The record owner confirms that the information they have supplied for this submission is accurate and complete and they understand that deliberate provision of inaccurate information or omission of data may be construed as scientific misconduct.

The record owner confirms that they will update the status of the review when it is completed and will add publication details in due course.

Versions

19 March 2021

19 March 2021

04 October 2023

APPENDIX VIII –

ETHICS APPROVED DOCUMENTS FOR PROJECT NO. 2020/776 (CO-DESIGN AND CONTENT VALIDATION)

Appendix VIII includes the following ethics approved documents for Project No. 2020/776:

- Participant Information Statement for co-design
- Participant Consent Form for co-design and content validation (MHCEs)
- Co-design templates
- Participant Information Statement for content validation (MHCEs)
- Participant Information Statement for content validation (HCPs)
- Participant Consent Form for content validation (HCPs)
- Content validation survey

THE UNIVERSITY OF SYDNEY

School of Pharmacy
Faculty of Medicine and Health

ABN 15 211 513 464

Dr Sarira El-Den
Lecturer

Badham Room 501
Pharmacy and Bank Building (A15)
The University of Sydney
NSW 2006 AUSTRALIA
Telephone: +61 2 8627 6417
Email: sarira.el-den@sydney.edu.au
Web: http://www.sydney.edu.au/

Co-design and Content Validation of Simulated Schizophrenia Role-plays to Educate and Assess Pharmacy Students

PARTICIPANT INFORMATION STATEMENT
Phase 1 – Co-design

(1) What is this study about?

You are invited to take part in a research study to expand the mental health education of pharmacy students. Specifically, this study aims to develop and content validate educational material that relates to supporting people living with schizophrenia, and their carers.

You have been invited to participate in this study because you have been identified as an important stakeholder in mental health and schizophrenia care and research. This Participant Information Statement tells you about the research study. Knowing what is involved will help you decide if you want to take part in the study. Please read this sheet carefully and ask questions about anything that you don't understand or want to know more about.

Participation in this research study is voluntary.

By giving consent to take part in this study you are telling us that you:
- ✓ Understand what you have read.
- ✓ Agree to take part in the research study as outlined below.
- ✓ Agree to the use of your personal information as described.

You will be given a copy of this Participant Information Statement to keep.

(2) Who is running the study?

The study is being carried out by the following researchers from The University of Sydney Pharmacy School (SPS):

- Dr Sarira El-Den, Lecturer
- Dr Claire O'Reilly, Senior Lecturer
- Dr Rebekah Moles, Associate Professor
- Mrs Tina Ung, Associate Lecturer and PhD Candidate

Tina Ung is conducting this study as the basis for the degree of Doctor of Philosophy at The University of Sydney. This will take place under the supervision of Dr Claire O'Reilly, A/Prof Rebekah Moles and Dr Sarira El-Den.

This study is funded by One Door Mental Health / Peter Meyer Fund.

(3) What will the study involve for me?

You are invited to be on the co-design panel for this project. Your participation in this project will involve attending a group meeting with mental health consumers, carers and the research team. During this meeting you will be asked to discuss your views of pharmacists' and pharmacy students' roles in mental health, with a specific focus on caring for people living with schizophrenia and their carers. The discussions during this meeting and the information gathered from this meeting will be used to co-design educational material for the purpose of educating and assessing pharmacy students. Three cases will be developed using your input and these will go through a second phase of development and validation with another panel of key stakeholders. The three cases will be around:

a. a person experiencing first-episode psychosis,
b. a carer of someone living with schizophrenia, and
c. a person living with schizophrenia who is non-adherent to their antipsychotics and at risk of relapse.

The panel meeting will be audio-recorded with your consent. Audio-recording is for research purposes only, to ensure that we can transcribe the panel meeting discussions accurately and review the panel's responses while we are analysing the data, after the meeting has concluded. Your discussion input will be transcribed and all personal and identifying information will be de-identified in the transcription.

The audio-recording and the transcribed meeting will be stored securely, and your identity/information will be kept strictly confidential, except as required by law. Study findings may be published, but you will not be individually identifiable in these publications.

(4) How much of my time will the study take?

We anticipate that the co-design panel meeting will take approximately 3 hours of your time. The research team will schedule the time and date of the meeting to suit you and the other panel members.

(5) Who can take part in the study?

Stakeholders in mental health and schizophrenia care and research. You have been invited to participate due to your experience as a mental health consumer and/or carer.

(6) Do I have to be in the study? Can I withdraw from the study once I've started?

Being in this study is completely voluntary and you do not have to take part. Your decision whether to participate will not affect your current or future relationship with the researchers or anyone else at The University of Sydney.

If you take part in the co-design panel, you are free to stop participating at any stage or to refuse to answer any of the questions. However, it will not be possible to withdraw your individual comments from our records once the panel meeting has started, as it is a group discussion.

If you decide to withdraw from the study, we will not collect any more information from you. Any information that we have already collected, however, will be kept in our study records and may be included in the study results.

If you choose to withdraw from the study, you can do this by contacting Dr Sarira El-Den at sarira.el-den@sydney.edu.au or on 02 8627 6417.

(7) Are there any risks or costs associated with being in the study?

Aside from giving up your time, we do not expect that there will be any risks or costs associated with taking part in this study. However, if any topic raised in the panel meeting causes any distress, all members of the research team have mental health first aid training and will immediately put you in contact with your contact at One Door Mental Health, and if necessary, will help you connect with the appropriate health professional (e.g. your GP) or mental health service (e.g. Lifeline) to ensure adequate help and support is provided. You may also have a carer or support person accompany you to the panel meeting if you wish (no reimbursement provided for carer or support person; reimbursement will only be provided to the person participating in the study).

(8) Are there any benefits associated with being in the study?

You will be reimbursed for your time in participating in the study via One Door Mental Health who will invoice the University. You will need to attend the co-design panel meeting to receive reimbursement.

We also hope that the findings of this research will help to enhance mental health education for pharmacy students.

(9) What will happen to information about me that is collected during the study?

By providing your consent, you are agreeing to us collecting personal information about you for the purposes of this research study. Your information will only be used for the purposes outlined in this Participant Information Statement, unless you consent otherwise.

Your information will be stored securely, and your identity/information will be de-identified and kept strictly confidential, except as required by law. Study findings may be published, but you will not be individually identifiable in these publications.

(10) Can I tell other people about the study?

Yes, you are welcome to tell other people about the study.

(11) What if I require further information about the study or my involvement in it?

When you have read this information, Dr Sarira El-Den or Mrs Tina Ung will be available to discuss it with you further and answer any questions you may have. If you would like to know more or have any questions at any stage during the study, please feel free to contact Dr Sarira El-Den on sarira.el-den@sydney.edu.au or 02 8627 6417.

(12) Will I be told the results of the study?

You have a right to receive feedback about the overall results of this study. You can tell us that you wish to receive feedback by ticking the relevant box on the consent form and providing your email address. This feedback will be in the form of a publication, such as a journal article. You will receive this feedback after the study is finished.

(13) What if I have a complaint or any concerns about the study?

Research involving humans in Australia is reviewed by an independent group of people called a Human Research Ethics Committee (HREC). The ethical aspects of this study have been approved by the HREC of the University of Sydney (Protocol Number: **2020/776).** As part of this process, we have agreed to carry out the study according to the *National Statement on Ethical Conduct in Human Research (2007).* This statement has been developed to protect people who agree to take part in research studies.

If you are concerned about the way this study is being conducted or you wish to make a complaint to someone independent from the study, please contact the university using the details outlined below. Please quote the study title and protocol number.

The Manager, Ethics Administration, University of Sydney:

- **Telephone:** +61 2 8627 8176
- **Email:** human.ethics@sydney.edu.au
- **Fax:** +61 2 8627 8177 (Facsimile)

This information sheet is for you to keep

THE UNIVERSITY OF SYDNEY

School of Pharmacy
Faculty of Medicine and Health

ABN 15 211 513 464

Dr Sarira El-Den
Lecturer

Badham Room 501
Pharmacy and Bank Building (A15)
The University of Sydney
NSW 2006 AUSTRALIA
Telephone: +61 2 8627 6417
Email: sarira.el-den@sydney.edu.au
Web: http://www.sydney.edu.au/

Co-design and content validation of simulated schizophrenia role-plays to educate and assess pharmacy students

PARTICIPANT CONSENT FORM
(Mental Health Consumers and Carers)

I,..... [PRINT NAME], agree to take part in this research study.

In giving my consent I state that:

- I understand the purpose of the study, what I will be asked to do, and any risks/benefits involved.
- I have read the Participant Information Statement and have been able to discuss my involvement in the study with the researchers if I wished to do so.
- The researchers have answered any questions that I had about the study and I am happy with the answers.
- I understand that being in this study is completely voluntary and I do not have to take part. My decision whether to be in the study will not affect my relationship with the researchers or anyone else at the University of Sydney now or in the future.
- I understand that I can withdraw from the study at any time.
- I understand that I may have a carer or support person accompany me to the panel meeting if I wish, but they will not be reimbursed for their time.
- I understand that I may leave the panel discussion at any time if I do not wish to continue. I also understand that it will not be possible to withdraw my comments once the panel has started as it is a group discussion.

- I understand that personal information about me that is collected over the course of this project will be stored securely and will only be used for purposes that I have agreed to. I understand that information about me will only be told to others with my permission, except as required by law.

- I understand that the results of this study may be published, but these publications will not contain my name or any identifiable information about me.
  I consent to:

  - **Audio-recording** YES ☐ NO ☐

  - **Being notified about the opportunity to participate in future studies** YES ☐ NO ☐

I would like to receive feedback about the overall results of this study YES ☐ NO ☐

If you answered **YES**, please indicate your preferred email address:

Email: _____

.....

Signature

.....

PRINT name

.....

Date

CASE 1 = A person experiencing first-episode psychosis

DEMOGRAPHIC PROFILE

Gender:

Age:

OPENING LINE

“

INFORMATION FOR ROLE-PLAY

Presenting signs and symptoms:

Other relevant information eg. medical/social history:

Key phrases to include during role-play:

Possible role-play questions and answers

RUBRIC

Item	ACTION	FULL MARKS (2)	PARTIAL MARKS (1)	NO MARKS (0)
1	Approaches person appropriately			
2	Provides comfortable setting for person to talk			
3	Listens and communicates non-judgmentally			
4	Asks appropriate open-ended questions			
5	Conducts appropriate assessment			
6	Asks if the person is having suicidal thoughts			
7	Asks appropriate follow-up questions in relation to person's suicidal thoughts			
8	Gives reassurance and appropriate information			

9	**Displays empathy**			
10	**Takes appropriate action**			
11	**Encourages self-help**			
12	**Good non-verbal communication**			
TOTAL				

CASE 2 = A carer of someone living with schizophrenia

DEMOGRAPHIC PROFILE

Gender:

Age:

OPENING LINE

“

INFORMATION FOR ROLE-PLAY

Presenting signs and symptoms:

Other relevant information eg. medical/social history:

Key phrases to include during role-play:

Possible role-play questions and answers

RUBRIC

Item	ACTION	FULL MARKS (2)	PARTIAL MARKS (1)	NO MARKS (0)
1	Approaches person appropriately			
2	Provides comfortable setting for person to talk			
3	Listens and communicates non-judgmentally			
4	Asks appropriate open-ended questions			
5	Conducts appropriate assessment			
6	Asks if the person is having suicidal thoughts			
7	Asks appropriate follow-up questions in relation to person's suicidal thoughts			
8	Gives reassurance and appropriate information			

9	**Displays empathy**			
10	**Takes appropriate action**			
11	**Encourages self-help**			
12	**Good non-verbal communication**			
TOTAL				

CASE 3 = a person living with schizophrenia who is non-adherent to their antipsychotics and at risk of relapse

DEMOGRAPHIC PROFILE

Gender:

Age:

OPENING LINE

“

INFORMATION FOR ROLE-PLAY

Presenting signs and symptoms:

Other relevant information eg. medical/social history:

Key phrases to include during role-play:

Possible role-play questions and answers

RUBRIC

Item	ACTION	FULL MARKS (2)	PARTIAL MARKS (1)	NO MARKS (0)
1	Approaches person appropriately			
2	Provides comfortable setting for person to talk			
3	Listens and communicates non-judgmentally			
4	Asks appropriate open-ended questions			
5	Conducts appropriate assessment			
6	Asks if the person is having suicidal thoughts			
7	Asks appropriate follow-up questions in relation to person's suicidal thoughts			
8	Gives reassurance and appropriate information			

9	**Displays empathy**			
10	**Takes appropriate action**			
11	**Encourages self-help**			
12	**Good non-verbal communication**			
TOTAL				

School of Pharmacy
Faculty of Medicine and Health

ABN 15 211 513 464

Dr Sarira El-Den
Lecturer

Badham Room 501
Pharmacy and Bank Building (A15)
The University of Sydney
NSW 2006 AUSTRALIA
Telephone: +61 2 8627 6417
Email: sarira.el-den@sydney.edu.au
Web: http://www.sydney.edu.au/

Co-design and Content Validation of Simulated Schizophrenia Role-plays to Educate and Assess Pharmacy Students

PARTICIPANT INFORMATION STATEMENT
Phase 2 – Content Validation (Mental Health Consumers and Carers)

(1) What is this study about?

You are invited to take part in a research study to expand the mental health education of pharmacy students. Specifically, this study aims to develop and content validate educational material that relates to supporting people living with schizophrenia, and their carers.

You have been invited to participate in this study because you have been identified as an important stakeholder in relation to mental health and schizophrenia care and research. This Participant Information Statement tells you about the research study. Knowing what is involved will help you decide if you want to take part in the study. Please read this sheet carefully and ask questions about anything that you don't understand or want to know more about.

Participation in this research study is voluntary.

By giving consent to take part in this study you are telling us that you:
- ✓ Understand what you have read.
- ✓ Agree to take part in the research study as outlined below.
- ✓ Agree to the use of your personal information as described.

You will be given a copy of this Participant Information Statement to keep.

(2) Who is running the study?

The study is being carried out by the following researchers from The University of Sydney Pharmacy School (SPS):

- Dr Sarira El-Den, Lecturer
- Dr Claire O'Reilly, Senior Lecturer
- Dr Rebekah Moles, Associate Professor
- Mrs Tina Ung, Associate Lecturer and PhD Candidate

Tina Ung is conducting this study as the basis for the degree of Doctor of Philosophy at The University of Sydney. This will take place under the supervision of Dr Claire O'Reilly, A/Prof Rebekah Moles and Dr Sarira El-Den.

This study is funded by One Door Mental Health / Peter Meyer Fund.

(3) What will the study involve for me?

You are invited to be on the content validation panel for this project. Your participation in this project will involve completing an online survey to provide feedback on educational material, that has been co-designed by the researchers and mental health consumers and carers for pharmacy students, with a specific focus on caring for people living with schizophrenia and their carers. The educational material will involve three simulated role-play cases around:

a. a person experiencing first-episode psychosis,
b. a carer of someone living with schizophrenia, and
c. a person living with schizophrenia who is non-adherent to their antipsychotics and at risk of relapse.

You will then be invited to attend a group meeting with mental health professionals, consumers and carers, pharmacists and the research team to discuss the feedback received, make necessary changes and finalise the educational material.

The panel meeting will be audio-recorded with your consent. Audio-recording is for research purposes only, to ensure that we can transcribe the panel meeting discussion accurately and review the panel's responses while we are analysing the data, after the meeting has concluded. Your discussion input will be transcribed and all personal and identifying information will be de-identified in the transcription.

The audio-recording and the transcribed meeting will be stored securely, and your identity/information will be kept strictly confidential, except as required by law. Study findings may be published, but you will not be individually identifiable in these publications.

(4) How much of my time will the study take?

We anticipate that the feedback survey will take between 30 to 60 minutes to complete, and the panel meeting to take approximately 3 hours of your time. Total time commitment will be up to 4 hours.

The research team will schedule the time and date of the panel meeting to suit you and the other panel members.

(5) Who can take part in the study?

Stakeholders in mental health and schizophrenia care and research. You have been invited to participate due to your experience as a mental health consumer and/or carer.

(6) Do I have to be in the study? Can I withdraw from the study once I've started?

Being in this study is completely voluntary and you do not have to take part. Your decision whether to participate will not affect your current or future relationship with the researchers or anyone else at The University of Sydney.

Submitting your completed feedback survey is an indication of your consent to participate in the study. You can withdraw your responses if you change your mind about having them included in the study, up to the point that we have analysed and prepared the results for the content validation panel.

If you take part in the content validation panel, you are free to stop participating at any stage or to refuse to answer any of the questions. However, it will not be possible to withdraw your individual comments from our records once the panel meeting has started, as it is a group discussion and we will not be able to identify which comments are yours accurately.

If you decide to withdraw from the study, we will not collect any more information from you. Any information that we have already collected, however, will be kept in our study records and may be included in the study results.

If you would like to withdraw at any stage, you can do this by contacting Dr Sarira El-Den at sarira.el-den@sydney.edu.au or on 02 8627 6417.

(7) Are there any risks or costs associated with being in the study?

Aside from giving up your time, we do not expect that there will be any risks or costs associated with taking part in this study. However, if any topic raised in the panel meeting causes any distress, all members of the research team have mental health first aid training and will immediately put you in contact with your contact at One Door Mental Health, and if necessary, will help you connect with the appropriate health professional (e.g. your GP) or mental health service (e.g. Lifeline) to ensure adequate help and support is provided. You may also have a carer or support person accompany you to the panel meeting if you wish (no reimbursement provided for carer or support person; reimbursement will only be provided to the person participating in the study).

(8) Are there any benefits associated with being in the study?

You will be reimbursed for your time in participating in the study via One Door Mental Health who will invoice the University. You will need to both complete the feedback survey and attend the content validation panel meeting to receive reimbursement.

We also hope that the findings of this research will help to enhance mental health education for pharmacy students.

(9) What will happen to information about me that is collected during the study?

By providing your consent, you are agreeing to us collecting personal information about you for the purposes of this research study. Your information will only be used for the purposes outlined in this Participant Information Statement, unless you consent otherwise.

Your information will be stored securely, and your identity/information will be de-identified and kept strictly confidential, except as required by law. Study findings may be published, but you will not be individually identifiable in these publications.

(10) Can I tell other people about the study?

Yes, you are welcome to tell other people about the study.

(11) What if I require further information about the study or my involvement in it?

When you have read this information, Dr Sarira El-Den or Mrs Tina Ung will be available to discuss it with you further and answer any questions you may have. If you would like to know more or have any questions at any stage during the study, please feel free to contact Dr Sarira El-Den on sarira.el-den@sydney.edu.au or 02 8627 6417.

(12) Will I be told the results of the study?

You have a right to receive feedback about the overall results of this study. You can tell us that you wish to receive feedback by ticking the relevant box on the consent form and providing your email address. This feedback will be in the form of a publication, such as a journal article. You will receive this feedback after the study is finished.

(13) What if I have a complaint or any concerns about the study?

Research involving humans in Australia is reviewed by an independent group of people called a Human Research Ethics Committee (HREC). The ethical aspects of this study have been approved by the HREC of the University of Sydney (Protocol Number: **2020/776)**. As part of this process, we have agreed to carry out the study according to the *National Statement on Ethical Conduct in Human Research (2007).* This statement has been developed to protect people who agree to take part in research studies.

If you are concerned about the way this study is being conducted or you wish to make a complaint to someone independent from the study, please contact the university using the details outlined below. Please quote the study title and protocol number.

The Manager, Ethics Administration, University of Sydney:

- **Telephone:** +61 2 8627 8176
- **Email:** human.ethics@sydney.edu.au
- **Fax:** +61 2 8627 8177 (Facsimile)

This information sheet is for you to keep

School of Pharmacy
Faculty of Medicine and Health

ABN 15 211 513 464

Dr Sarira El-Den
Lecturer

Badham Room 501
Pharmacy and Bank Building (A15)
The University of Sydney
NSW 2006 AUSTRALIA
Telephone: +61 2 8627 6417
Email: sarira.el-den@sydney.edu.au
Web: http://www.sydney.edu.au/

Co-design and Content Validation of Simulated Schizophrenia Role-plays to Educate and Assess Pharmacy Students

PARTICIPANT INFORMATION STATEMENT
Phase 2 – Content Validation (Health Care Professionals)

(1) What is this study about?

You are invited to take part in a research study to expand the mental health education of pharmacy students. Specifically, this study aims to develop and content validate educational material that relates to supporting people living with schizophrenia, and their carers.

You have been invited to participate in this study because you have been identified as an important stakeholder in mental health and schizophrenia care and research. This Participant Information Statement tells you about the research study. Knowing what is involved will help you decide if you want to take part in the study. Please read this sheet carefully and ask questions about anything that you don't understand or want to know more about.

Participation in this research study is voluntary.

By giving consent to take part in this study you are telling us that you:
- ✓ Understand what you have read.
- ✓ Agree to take part in the research study as outlined below.
- ✓ Agree to the use of your personal information as described.

You will be given a copy of this Participant Information Statement to keep.

(2) Who is running the study?

The study is being carried out by the following researchers from The University of Sydney Pharmacy School:

- Dr Sarira El-Den, Lecturer
- Dr Claire O'Reilly, Senior Lecturer
- Dr Rebekah Moles, Associate Professor
- Mrs Tina Ung, Associate Lecturer and PhD Candidate

Tina Ung is conducting this study as the basis for the degree of Doctor of Philosophy at The University of Sydney. This will take place under the supervision of Dr Claire O'Reilly, A/Prof Rebekah Moles and Dr Sarira El-Den.

This study is funded by One Door Mental Health / Peter Meyer Fund.

(3) What will the study involve for me?

You are invited to be on the content validation panel for this project. Your participation in this project will involve completing an online survey to provide feedback on educational material, that has been co-designed by the researchers and mental health consumers and carers for pharmacy students, with a specific focus on caring for people living with schizophrenia and their carers. The educational material will involve three simulated role-play cases around:

a. a person experiencing first-episode psychosis,
b. a carer of someone living with schizophrenia, and
c. a person living with schizophrenia who is non-adherent to their antipsychotics and at risk of relapse.

You will then be invited to attend a group meeting with mental health professionals, consumers and carers, pharmacists and the research team to discuss the feedback received, make necessary changes and finalise the educational material.

The panel meeting will be audio-recorded with your consent. Audio-recording is for research purposes only, to ensure that we can transcribe the panel meeting discussion accurately and review the panel's responses while we are analysing the data, after the meeting has concluded. Your discussion input will be transcribed and all personal and identifying information will be de-identified in the transcription.

The audio-recording and the transcribed meeting will be stored securely, and your identity/information will be kept strictly confidential, except as required by law. Study findings may be published, but you will not be individually identifiable in these publications.

(4) How much of my time will the study take?

We anticipate that the feedback survey will take between 30 to 60 minutes to complete, and the panel meeting to take approximately 3 hours of your time. Total time commitment will be up to 4 hours.

The research team will schedule the time and date of the panel meeting, so to suit you and the other panel members.

(5) Who can take part in the study?

Stakeholders in mental health and schizophrenia care and research.

(6) Do I have to be in the study? Can I withdraw from the study once I've started?

Being in this study is completely voluntary and you do not have to take part. Your decision whether to participate will not affect your current or future relationship with the researchers or anyone else at The University of Sydney.

Submitting your completed feedback survey is an indication of your consent to participate in the study. You can withdraw your responses if you change your mind about having them included in the study, up to the point that we have analysed and prepared the results for the content validation panel.

If you take part in the content validation panel, you are free to stop participating at any stage or to refuse to answer any of the questions. However, it will not be possible to withdraw your individual comments from our records once the panel meeting has started, as it is a group discussion and we will not be able to identify which comments are yours accurately.

If you decide to withdraw from the study, we will not collect any more information from you. Any information that we have already collected, however, will be kept in our study records and may be included in the study results.

If you would like to withdraw at any stage, you can do this by contacting Dr Sarira El-Den at sarira.el-den@sydney.edu.au or on 02 8627 6417.

(7) Are there any risks or costs associated with being in the study?

Aside from giving up your time, we do not expect that there will be any risks or costs associated with taking part in this study. However, if any topic raised in the panel meeting causes any distress, all members of the research team have mental health first aid training and will immediately put you in contact with the appropriate health professional (e.g. your GP) or mental health service (e.g. Lifeline) to ensure adequate help and support is provided.

(8) Are there any benefits associated with being in the study?

You will be reimbursed for your time in participating in the study, in the form of a pre-paid debit card to the value of $250. You will need to both complete the feedback survey and attend the content validation panel meeting to receive reimbursement.

We also hope that the findings of this research will help to enhance mental health education for pharmacy students.

(9) What will happen to information about me that is collected during the study?

By providing your consent, you are agreeing to us collecting personal information about you for the purposes of this research study. Your information will only be used for the purposes outlined in this Participant Information Statement, unless you consent otherwise.

Your information will be stored securely, and your identity/information will be de-identified and kept strictly confidential, except as required by law. Study findings may be published, but you will not be individually identifiable in these publications.

(10) Can I tell other people about the study?

Yes, you are welcome to tell other people about the study.

(11) What if I require further information about the study or my involvement in it?

When you have read this information, Dr Sarira El-Den or Mrs Tina Ung will be available to discuss it with you further and answer any questions you may have. If you would like to know more or have any questions at any stage during the study, please feel free to contact Dr Sarira El-Den on sarira.el-den@sydney.edu.au or 02 8627 6417.

(12) Will I be told the results of the study?

You have a right to receive feedback about the overall results of this study. You can tell us that you wish to receive feedback by ticking the relevant box on the consent form and providing your email address. This feedback will be in the form of a publication, such as a journal article. You will receive this feedback after the study is finished.

(13) What if I have a complaint or any concerns about the study?

Research involving humans in Australia is reviewed by an independent group of people called a Human Research Ethics Committee (HREC). The ethical aspects of this study have been approved by the HREC of the University of Sydney (Protocol Number: **2020/776)**. As part of this process, we have agreed to carry out the study according to the National Statement on Ethical Conduct in Human Research (2007). This statement has been developed to protect people who agree to take part in research studies.

If you are concerned about the way this study is being conducted or you wish to make a complaint to someone independent from the study, please contact the university using the details outlined below. Please quote the study title and protocol number.

The Manager, Ethics Administration, University of Sydney:

- **Telephone:** +61 2 8627 8176
- **Email:** human.ethics@sydney.edu.au
- **Fax:** +61 2 8627 8177 (Facsimile)

This information sheet is for you to keep

THE UNIVERSITY OF SYDNEY

School of Pharmacy
Faculty of Medicine and Health

ABN 15 211 513 464

Dr Sarira El-Den
Lecturer

Badham Room 501
Pharmacy and Bank Building (A15)
The University of Sydney
NSW 2006 AUSTRALIA
Telephone: +61 2 8627 6417
Email: sarira.el-den@sydney.edu.au
Web: http://www.sydney.edu.au/

Co-design and content validation of simulated schizophrenia role-plays to educate and assess pharmacy students

PARTICIPANT CONSENT FORM
(Health Care Professionals)

I,..... [PRINT NAME], agree to take part in this research study.

In giving my consent I state that:

- I understand the purpose of the study, what I will be asked to do, and any risks/benefits involved.
- I have read the Participant Information Statement and have been able to discuss my involvement in the study with the researchers if I wished to do so.
- The researchers have answered any questions that I had about the study and I am happy with the answers.
- I understand that being in this study is completely voluntary and I do not have to take part. My decision whether to be in the study will not affect my relationship with the researchers or anyone else at the University of Sydney now or in the future.
- I understand that I can withdraw from the study at any time.
- I understand that I may leave the panel discussion at any time if I do not wish to continue. I also understand that it will not be possible to withdraw my comments once the panel has started as it is a group discussion.
- I understand that personal information about me that is collected over the course of this project will be stored securely and will only be used for purposes that I have agreed to. I understand that information about me will only be told to others with my permission, except as required by law.

- I understand that the results of this study may be published, but these publications will not contain my name or any identifiable information about me.
  I consent to:

  - **Audio-recording** YES ☐ NO ☐

  - **Being notified about the opportunity to participate in future studies**
    YES ☐ NO ☐

I would like to receive feedback about the overall results of this study YES ☐ NO ☐

If you answered **YES**, please indicate your preferred email address:

Email: _____

.....

Signature

.....

PRINT name

.....

Date

INTRODUCTION

Thank you for participating in our research study "Co-design and Content Validation of Simulated Schizophrenia Role-plays to Educate and Assess Pharmacy Students".

Please complete this survey to provide feedback on educational material focusing on caring for people living with schizophrenia and their carers. The educational material developed includes three simulated patient role-play cases. The three simulated patient role-play cases have been co-designed by the research team (pharmacists, mental health researchers and Mental Health First Aid instructors) and mental health consumers/carers.

The survey is in three parts, as we would like you to evaluate each of the three simulated role-play cases designed to assess pharmacy students' knowledge in caring for:

1. a person experiencing first-episode psychosis,
2. a carer of someone living with schizophrenia, and
3. a person living with schizophrenia who is non-adherent to their antipsychotics and at risk of relapse.

Following survey completion and submission, you will be invited to attend a group meeting with mental health professionals, consumers/carers, pharmacists and the research team on **Date/Time TBC (anticipated July 2021 at a time that suits panel members)** to discuss the feedback received, make necessary changes and finalise the educational material.

INSTRUCTIONS

For each of the three simulated role-play cases you will be presented with:

- The simulated patient's background and role-play information
- Possible role-play questions and answers
- Itemised marking rubric

For each section, please rate and provide feedback on the:

- Relevance (how relevant is this material to the overall aim of assessing pharmacy students in caring for people living with schizophrenia and/or their carers?)

Relevance Scale			
1 = not relevant	2 = unable to assess relevance without item revision	3 = relevant but needs minor alteration	4 = very relevant and succinct

- Clarity (how clear is the wording?)

Clarity scale			
1 = not clear	2 = unable to assess clarity without item revision	3 = clear but needs minor alteration	4 = very clear and succinct

- Essentiality (how necessary is this material to the overall aim of assessing pharmacy students in caring for people living with schizophrenia and/or their carers?)

Essentiality scale		
1 = not essential	2 = useful but not essential	3 = essential

Your scores and comments will be used to calculate the content validity index (CVI) for relevance and clarity, and the content validity ratio (CVR) for essentiality, to inform any necessary changes.

Please provide comments on your choice of rating, especially if you score an item less than its highest possible score (i.e. if you score an item as 1 or 2 out of 3 OR 1, 2 or 3 out of 4), as well as any suggestions to improve this item.

CASE 1: A PERSON EXPERIENCING FIRST-EPISODE PSYCHOSIS

Case 1 Simulated patient's background and role-play information

Your pharmacy assistant alerts you to a customer who has been standing and staring at the ear care products for the past 30 minutes. You decide to approach the customer.

Relevance Scale			
1 = not relevant	2 = unable to assess relevance without item revision	3 = relevant but needs minor alteration	4 = very relevant and succinct

Clarity scale			
1 = not clear	2 = unable to assess clarity without item revision	3 = clear but needs minor alteration	4 = very clear and succinct

Essentiality scale		
1 = not essential	2 = useful but not essential	3 = essential

Comments:

_____

Demographic profile

Gender: Male or Female

Age: 19-20 years old

Relevance Scale			
1 = not relevant	2 = unable to assess relevance without item revision	3 = relevant but needs minor alteration	4 = very relevant and succinct

Clarity scale			
1 = not clear	2 = unable to assess clarity without item revision	3 = clear but needs minor alteration	4 = very clear and succinct

Essentiality scale		
1 = not essential	2 = useful but not essential	3 = essential

Comments:

_____

Opening line

"Why are there so many ear plugs here?! I just need some that work!"

Relevance Scale			
1 = not relevant	2 = unable to assess relevance without item revision	3 = relevant but needs minor alteration	4 = very relevant and succinct

Clarity scale			
1 = not clear	2 = unable to assess clarity without item revision	3 = clear but needs minor alteration	4 = very clear and succinct

Essentiality scale		
1 = not essential	2 = useful but not essential	3 = essential

Comments:

_____

Information for role-play

Presenting signs and symptoms:

You are confused and frustrated at the range of ear plugs available. Changing facial expressions – sometimes flat, sometimes eyebrows twitching up and down. Clenching fists, shuffling feet. Talking and mumbling to self "*hey don't call me that*", lips moving but no sound.

Relevance Scale			
1 = not relevant	2 = unable to assess relevance without item revision	3 = relevant but needs minor alteration	4 = very relevant and succinct

Clarity scale			
1 = not clear	2 = unable to assess clarity without item revision	3 = clear but needs minor alteration	4 = very clear and succinct

Essentiality scale		
1 = not essential	2 = useful but not essential	3 = essential

Comments:

_____

Other relevant information e.g. medical/social history:

No known medical conditions or diagnosis of mental illness.

You started studying engineering last year, but 6 months ago you were kicked out of home because you over-stepped boundaries with your parents with regard to your smoking and mood swings – you have younger siblings at home and your parents don't want them to see you smoking. You are currently living alone in a granny flat and prefer living alone anyway because your parents were organising for the neighbours to yell at you over the fence.

To afford rent, you've deferred your university studies and are working at the local pub.

Sleeping troubles have worsened since leaving home – you self-medicate with marijuana (1 joint before bed) and beer. You smoke 1 pack of cigarettes daily, and drink at least 6 cups of coffee or energy drinks every day.

Relevance Scale			
1 = not relevant	2 = unable to assess relevance without item revision	3 = relevant but needs minor alteration	4 = very relevant and succinct

Clarity scale			
1 = not clear	2 = unable to assess clarity without item revision	3 = clear but needs minor alteration	4 = very clear and succinct

Essentiality scale		
1 = not essential	2 = useful but not essential	3 = essential

Comments:

_____

Key phrases to include during role-play:

"I'm not sleeping".

"I can't deal with this anymore".

"The voices are getting too much".

Relevance Scale			
1 = not relevant	2 = unable to assess relevance without item revision	3 = relevant but needs minor alteration	4 = very relevant and succinct

Clarity scale			
1 = not clear	2 = unable to assess clarity without item revision	3 = clear but needs minor alteration	4 = very clear and succinct

Essentiality scale		
1 = not essential	2 = useful but not essential	3 = essential

Comments:

_____

Case 1 Possible role-play questions that the student might ask and answers, if asked

Please note: *The following role-play questions are anticipated based on previous simulated patient experience in the classroom, as well as knowledge of students' prior learning, but may vary depending on how each student approaches the case. Please rate the* ***suggested answer*** *for each question with the aim to ensure that the role-playing actors can provide consistent answers, if asked.*

Relevance scale: 1 = not relevant; 2 = unable to assess relevance without item revision; 3 = relevant but needs minor alteration; 4 = very relevant and succinct

Clarity scale: 1 = not clear; 2 = unable to assess clarity without item revision; 3 = clear but needs minor alteration; 4 = very clear and succinct

Essentiality scale: 1 = not essential; 2 = useful but not essential; 3 = essential

Possible question student may ask	**Answer, if asked**	**Relevance**	**Clarity**	**Essentiality**	**Comments**
Why do you need ear plugs?	***I need them to keep out noise***	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
What sort of noises?	***Voices of persecution yelling out from the cars driving past, the trees at night, my TV, my pillowcase when I'm trying to sleep… e.g. "Come on, you idiot!"***	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
How long have you been hearing the voices for?	***About 8 months now***	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	

Who have you spoken to about these voices?		***I tried to tell my parents once, but they didn't believe me, called me "crazy" and said, "we don't have that in our family" and kicked me out of home. I've been too scared to tell anyone else since.***	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
Have you spoken with a GP about this?		***Why would I see a GP about people yelling at me?***	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
Have you ever been diagnosed with a mental illness?		***No***	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
Are you having thoughts of suicide?		***Yes. The voices are getting too much, and I need to escape. I can't deal with this anymore. Sometimes I think if I were dead, I would not hear them.***	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
Do you have a plan?		***No, but it is something I think of often.***	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
Have you experienced any significant life events or recent social changes?		***Yes, recently got kicked out of home and now living by myself. I've had to defer my engineering degree (2nd year) to work at the local pub so that I can pay my rent.***	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	

Do you smoke, or use alcohol, drugs or caffeine?		***Smoke 1 joint of pot at night as it's the only thing that drowns out the voices so I can sleep. If that doesn't work, I'll add a beer. I smoke 1 pack of cigarettes a day because it helps to calm me and I'm quite tired in the day so I drink at least 6 coffees or energy drinks too.***	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
Is there someone I can call to help you?		***No one, I haven't been in contact with anyone since I got kicked out of home, 6 months ago.***	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
Can I call your GP/Mental Health Crisis Line/Lifeline? I would like to get you an appointment today.		***How would they be able to help?*** **(You are hesitant but agree to professional help)**	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	

Case 1 Itemised Marking Rubric

Scoring guide:

- Actions shaded in GREY must be performed by the student to pass the case.
- The student must receive a score of at least 50% (i.e. 11/22) AND perform all actions shaded in GREY to pass the case.
- Phrases and actions that are underlined must be performed by the student to pass the item.
- *Phrases and actions* that are *italicised* are merely suggestions and examples, and do not need to be articulated by the student word-for-word.
- **Scoring for each item: 0 = no marks; 1 = partial mark; 2 = full marks**

Relevance Scale			
1 = not relevant	2 = unable to assess relevance without item revision	3 = relevant but needs minor alteration	4 = very relevant and succinct

Clarity scale			
1 = not clear	2 = unable to assess clarity without item revision	3 = clear but needs minor alteration	4 = very clear and succinct

Essentiality scale		
1 = not essential	2 = useful but not essential	3 = essential

Comments:

_____

Marking Rubric:

Relevance scale: 1 = not relevant; 2 = unable to assess relevance without item revision; 3 = relevant but needs minor alteration; 4 = very relevant and succinct

Clarity scale: 1 = not clear; 2 = unable to assess clarity without item revision; 3 = clear but needs minor alteration; 4 = very clear and succinct

Essentiality scale: 1 = not essential; 2 = useful but not essential; 3 = essential

Item	ACTION	Relevance	Clarity	Essentiality	Comments
1	**Approaches person appropriately** • *Introduces self* • *Greets consumer*	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
2	**Provides comfortable setting for person to talk** • *Negotiates privacy (e.g. asks if the consumer wishes to speak in a private counselling area)* • *Ensures the consumer is comfortable*	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	

3	**Listens and communicates non-judgementally** • *Does not blame the consumer* • *Does not try to reason with the consumer as to what is real and what is not* • *Does not use words like "crazy", "stupid", "silly"* • *Demonstrates active listening by nodding, using responsive words (e.g. "I see", "I understand")* • *Summarises key points to ensure understanding*	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
4	**Asks appropriate open-ended questions** • *"How can I help?"* • *"How long have you been experiencing this?"* • *"Who have you spoken to about this?"* • *"How are you coping?"*	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
5	**Conducts appropriate crisis assessment** • *Recognises signs and symptoms of possible panic attack, manic episode, acute and severe psychotic state, non-suicidal self-injury, traumatic event, severe effects from alcohol or drug use, or aggressive behaviours* • *Assesses urgency of current situation*	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
6	**Asks if the consumer is having suicidal thoughts** • *Asks directly (e.g. "Are you thinking of killing yourself/ending your life/suicide?").* If the student asks using indirect language, only, (e.g. *"harming/hurting yourself"*), then only give partial marks (1). *Student MUST assess for suicide risk to pass the case.	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
*Do you agree that item 6 should be a must-pass item i.e. if a student does not perform this action then they will fail this case? Yes ☐ No ☐ Comment:					
7	**Asks appropriate follow-up questions in relation to person's suicidal thoughts** 1. *"Do you have a plan? (e.g. how/when will you suicide?)"* 2. *"Have you attempted suicide before?"* 3. *"Are you using alcohol/drugs?"* Note: Student MUST enquire about a "plan", otherwise "0" marks for this item.	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	

	If the student asks about the plan, only, give partial mark (1). If the student asks about the plan, and at least one other question, give full marks (2).				
8	**Gives reassurance and appropriate information** • *They care and want to help (e.g. "Is there anything I can do to help?")* • *Provides factual information (e.g."Thoughts of suicide do not have to be acted on and are often associated with treatable mental illness", "Mental illness is common and there is effective psychological/pharmacological treatment available")* • *Explains what the next point of care will entail so the consumer is aware and reassured*	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
9	**Displays empathy** • *Uses empathetic language (e.g. "I can see that this is a difficult time for you")* • *Does not use sympathetic language (e.g. "I feel sorry for you")* • *Acknowledges the consumer's hardship* • *Relates to consumer's experiences (e.g. "I remember feeling stressed during university too")* • *Demonstrates concern for the consumer and continual willingness to help*	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
10	**Takes appropriate action** 1. *<u>Does not leave the consumer alone</u> (e.g. connect with family member/friend to pick up, calls Mental Health Crisis Team/ambulance to pick up)* 2. *<u>Connects the consumer with appropriate professional help</u> (e.g. Mental Health Crisis Team/Ambulance, Lifeline/Suicide Call Back Service or immediately see the doctor or Community Mental Health Service for assessment)* *Student MUST perform BOTH of these actions to pass the case and receive full marks (2) for this item. Additional examples of follow-up actions • *Takes phone number to call for follow up*	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	

	• *Provides pharmacy number for consumer to call back*				
*Do you agree that the student must perform both of the actions in item 10 to pass this case? Yes ☐ No ☐ Comment:					
11	**Good non-verbal communication** • *Open and relaxed body posture* • *Appropriate eye contact* • *Smiles appropriately* • *Non-judgemental facial expressions*	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	

Please note: The rubric item **"Encourages self-help"** (which includes: *Lifestyle recommendations (e.g. exercise, eating well, sleep hygiene); Relevant support networks (e.g. Beyond Blue, Black Dog Institute); Encourages discussing with family member, partner or friend)* has been purposely removed from this marking rubric based on the case presentation whereby the simulated patient is experiencing an acute psychotic episode with hallucinations.

Please indicate below if you agree or disagree with its removal and provide comments, if necessary:

Agree	Disagree	Comments:

Please indicate if you have any other comments or suggestions for this case:

_____

CASE 2: A CARER OF SOMEONE LIVING WITH SCHIZOPHRENIA

Case 2 Simulated patient's background and role-play information

A customer approaches the dispensary counter, whom you recognise as someone who purchased a sleeping tablet, Restavit (doxylamine), from you last week.

Relevance Scale			
1 = not relevant	2 = unable to assess relevance without item revision	3 = relevant but needs minor alteration	4 = very relevant and succinct

Clarity scale			
1 = not clear	2 = unable to assess clarity without item revision	3 = clear but needs minor alteration	4 = very clear and succinct

Essentiality scale		
1 = not essential	2 = useful but not essential	3 = essential

Comments:

_____

Demographic profile

Gender: Female

Age: 30-40 years old

Relevance Scale			
1 = not relevant	2 = unable to assess relevance without item revision	3 = relevant but needs minor alteration	4 = very relevant and succinct

Clarity scale			
1 = not clear	2 = unable to assess clarity without item revision	3 = clear but needs minor alteration	4 = very clear and succinct

Essentiality scale		
1 = not essential	2 = useful but not essential	3 = essential

Comments:

_____

Opening line

"Could I please have this repeat for Seroquel filled for my brother, and a packet of No-Doz (caffeine + nicotinic acid)?"

Relevance Scale			
1 = not relevant	2 = unable to assess relevance without item revision	3 = relevant but needs minor alteration	4 = very relevant and succinct

Clarity scale			
1 = not clear	2 = unable to assess clarity without item revision	3 = clear but needs minor alteration	4 = very clear and succinct

Essentiality scale		
1 = not essential	2 = useful but not essential	3 = essential

Comments:

_____

Information for role-play

Presenting signs and symptoms:

Overwhelmed, tired, exhausted, worn out, stressed.

Relevance Scale			
1 = not relevant	2 = unable to assess relevance without item revision	3 = relevant but needs minor alteration	4 = very relevant and succinct

Clarity scale			
1 = not clear	2 = unable to assess clarity without item revision	3 = clear but needs minor alteration	4 = very clear and succinct

Essentiality scale		
1 = not essential	2 = useful but not essential	3 = essential

Comments:

_____

Other relevant information e.g. medical/social history:

Your brother is 25 years old and his schizophrenia is well-controlled, however he cannot find work and is home most of the time sleeping. He cannot drive as his medication makes him drowsy.

Your parents used to care for him but are now in an aged care facility (since Easter) so you have moved back into the family home to be your brother's sole carer.

You get migraines every 2 months (from stress, poor sleep).

You work as a nurse, mostly on night shifts because it pays better. You use Restavit to help sleep off most night shifts, but sometimes you are busy during the day after a night shift with your parents or brother, running errands, buying groceries and cooking, driving your brother and parents to all of their appointments, maintaining the family home and garden… so you need No-Doz to keep you awake.

You were seeing someone previously and wanted to start a family, but your relationship fizzled as you "couldn't find the time for him".

Relevance Scale			
1 = not relevant	2 = unable to assess relevance without item revision	3 = relevant but needs minor alteration	4 = very relevant and succinct

Clarity scale			
1 = not clear	2 = unable to assess clarity without item revision	3 = clear but needs minor alteration	4 = very clear and succinct

Essentiality scale		
1 = not essential	2 = useful but not essential	3 = essential

Comments:

_____

Key phrases to include during role-play:

"I'm feeling really burnt out".

"I'm not sure I can keep this up".

Relevance Scale			
1 = not relevant	2 = unable to assess relevance without item revision	3 = relevant but needs minor alteration	4 = very relevant and succinct

Clarity scale			
1 = not clear	2 = unable to assess clarity without item revision	3 = clear but needs minor alteration	4 = very clear and succinct

Essentiality scale		
1 = not essential	2 = useful but not essential	3 = essential

Comments:

_____

Case 2 Possible role-play questions that the student might ask and answers, if asked

Please note: *The following role-play questions are anticipated based on previous simulated patient experience in the classroom, as well as knowledge of students' prior learning, but may vary depending on how each student approaches the case. Please rate the* ***suggested answer*** *for each question with the aim to ensure that the role-playing actors can provide consistent answers, if asked.*

Relevance scale: 1 = not relevant; 2 = unable to assess relevance without item revision; 3 = relevant but needs minor alteration; 4 = very relevant and succinct

Clarity scale: 1 = not clear; 2 = unable to assess clarity without item revision; 3 = clear but needs minor alteration; 4 = very clear and succinct

Essentiality scale: 1 = not essential; 2 = useful but not essential; 3 = essential

Possible question student may ask	**Answer, if asked**	**Relevance**	**Clarity**	**Essentiality**	**Comments**
How is your brother going?	***Tony is doing great, his schizophrenia is well-managed but he hasn't been able to find work.***	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
Who is the No-Doz for?	***It's for me, I've got to stay awake today – got lots to do.***	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
What do you have to "do"?	***After this I need to do my weekly grocery shop, drive my parents and brother to their appointments, then go back home to do the housework and prepare dinner before my night shift tonight.***	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	

How is your sleep going?		***I use No-Doz to keep me awake for my carer responsibilities but I alternate with Restavit when I need to sleep off a night shift.***	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
How are you coping?		***I'm exhausted. I'm an experienced nurse so I thought I could take on the carer responsibilities of my brother and my parents, but I'm not sure I can keep this up anymore.***	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
Have you spoken to anyone about this?		***Not really, I've just been doing what's necessary to keep my brother and parents well.***	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
Are you having thoughts of suicide?		***Oh no, I'm just feeling really burnt out and I need something to change.***	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
How do you socialise / what do you do for fun?		***I used to go out on Friday nights for dinner and drinks with workmates, and Sunday morning jogs but I've had to give them up so I can care for my brother or sleep off a night shift.***	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
Are you a registered carer, or are you in touch with any support groups or support workers?		***No, my parents were registered carers for my brother but I thought with my nursing experience there was no need for that.***	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
Can I call your GP to make an appointment for you today? / Can I provide you with some information about carer support?		***How would they be able to help?*** **(You are hesitant but agree to professional help)**	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	

Case 2 Itemised Marking Rubric

Scoring guide:

- Actions shaded in GREY must be performed by the student to pass the case.
- The student must receive a score of at least 50% (10/20) AND perform all actions shaded in GREY to pass the case.
- Phrases and actions that are underlined must be performed by the student to pass the item.
- *Phrases and actions* that are *italicised* are merely suggestions and examples, and do not need to be articulated by the student word-for-word.
- **Scoring for each item: 0 = no marks; 1 = partial mark; 2 = full marks**

Relevance Scale			
1 = not relevant	2 = unable to assess relevance without item revision	3 = relevant but needs minor alteration	4 = very relevant and succinct

Clarity scale			
1 = not clear	2 = unable to assess clarity without item revision	3 = clear but needs minor alteration	4 = very clear and succinct

Essentiality scale		
1 = not essential	2 = useful but not essential	3 = essential

Comments:

_____

Marking Rubric

Relevance scale: 1 = not relevant; 2 = unable to assess relevance without item revision; 3 = relevant but needs minor alteration; 4 = very relevant and succinct

Clarity scale: 1 = not clear; 2 = unable to assess clarity without item revision; 3 = clear but needs minor alteration; 4 = very clear and succinct

Essentiality scale: 1 = not essential; 2 = useful but not essential; 3 = essential

Item	ACTION	Relevance	Clarity	Essentiality	Comments
1	**Approaches person appropriately** • *Introduces self* • *Greets consumer*	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
2	**Provides comfortable setting for person to talk** • *Negotiates privacy (e.g. asks if the consumer wishes to speak in a private counselling area)*	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	

	• *Ensures the consumer is comfortable*				
3	**Listens and communicates non-judgementally** • *Does not blame the consumer* • *Demonstrates active listening by nodding, using responsive words (e.g. "I see", "I understand")* • *Summarises key points to ensure understanding*	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
4	**Asks appropriate open-ended questions** • *"How can I help?"* • *"How long have you been experiencing this?"* • *"Who have you spoken to about this?"* • *"How are you coping?"*	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
5	**Asks if the person is having suicidal thoughts** • Asks directly (*e.g. "Are you thinking of killing yourself/ending your life/suicide?").* If the student asks using indirect language, only, (e.g. "*harming/hurting yourself*"), then only give partial marks (1). *Student MUST assess for suicide risk to pass the case.	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
*Do you agree that item 5 should be a must-pass item i.e. if a student does not perform this action then they will fail this case? Yes ☐ No ☐ Comment:					
6	**Gives reassurance and appropriate information** • *They care and want to help (e.g. "Is there anything I can do to help?")* • *Provides information about carer support services and payments and support workers available (e.g. "You don't have to do this all alone", "Have you considered social/group housing for your brother?")*	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
7	**Displays empathy** • *Uses empathetic language (e.g. "I can see that this is a difficult time for you")* • *Does not use sympathetic language (e.g. "I feel sorry for you")*	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	

	• *Acknowledges the consumer's hardship* • *Demonstrates concern for the consumer and continual willingness to help*				
8	**Takes appropriate action** • *Refers consumer to GP* • *Explains risks associated with medication misuse (e.g. alternating between No-Doz and Restavit)* • *Assists consumer to navigate and engage with available support services (e.g. helps consumer to lodge a request through Services Australia)* • *Offers a range of professional services for mental health (e.g. psychologist, psychiatrist)* • *Takes phone number to call for follow up* • *Provides pharmacy number for consumer to call back* *Student MUST perform AT LEAST two or more of these actions to receive full marks (2) for this item.	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
*Do you agree that the student must perform AT LEAST two or more of the actions in item 8 to receive full marks for this item? Yes ☐ No ☐ Comment:					
9	**Encourages self-help** • *Lifestyle recommendations (e.g. exercise, eating well, sleep hygiene)* • *Relevant support networks (e.g. through Carers Australia, One Door Mental Health, Beyond Blue, Black Dog Institute)* • *Encourages discussing with family member or friend*	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
10	**Good non-verbal communication** • *Open and relaxed body posture* • *Appropriate eye contact* • *Smiles appropriately* • *Non-judgemental facial expressions*	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	

Please note: The rubric item **"Conducts appropriate crisis assessment"** (which includes: *Recognises signs and symptoms of possible panic attack, manic episode, acute and severe psychotic state, non-suicidal self-injury, traumatic event, severe effects from alcohol or drug use, or aggressive behaviours; Assesses urgency of current situation)* has been purposely removed from this marking rubric based on the case presentation whereby the simulated patient's warning signs are assessed by the item entitled **"Asks if the person is having suicidal thoughts".**

Please indicate below if you agree or disagree with its removal and provide comments, if necessary:

Agree	Disagree	Comments:

The rubric item **"Asks appropriate follow-up questions in relation to person's suicidal thoughts"** (which includes: *"Do you have a plan? (e.g. how/when will you suicide?)"; "Have you attempted suicide before?"; "Are you using alcohol/drugs?")* has been purposely removed from this marking rubric based on the case presentation whereby the simulated patient does not have suicidal thoughts.

Please indicate below if you agree or disagree with its removal and provide comments, if necessary:

Agree	Disagree	Comments:

Please indicate if you have any other comments or suggestions for this case:

_____

CASE 3: A PERSON LIVING WITH SCHIZOPHRENIA WHO IS NON-ADHERENT TO THEIR ANTIPSYCHOTICS AND AT RISK OF RELAPSE

Case 3 Simulated patient's background and role-play information

Mark is a regular customer of your pharmacy, who collects weekly Webster packs from you.

Relevance Scale			
1 = not relevant	2 = unable to assess relevance without item revision	3 = relevant but needs minor alteration	4 = very relevant and succinct

Clarity scale			
1 = not clear	2 = unable to assess clarity without item revision	3 = clear but needs minor alteration	4 = very clear and succinct

Essentiality scale		
1 = not essential	2 = useful but not essential	3 = essential

Comments:

_____

Demographic profile

Gender: Male

Age: 40's

Relevance Scale			
1 = not relevant	2 = unable to assess relevance without item revision	3 = relevant but needs minor alteration	4 = very relevant and succinct

Clarity scale			
1 = not clear	2 = unable to assess clarity without item revision	3 = clear but needs minor alteration	4 = very clear and succinct

Essentiality scale		
1 = not essential	2 = useful but not essential	3 = essential

Comments:

_____

Opening line

[Simulated patient brings in Webster pack folder with the Wednesday, Friday and Saturday night tablet doses of the antipsychotic medicine, Zyprexa (olanzapine)®, untouched]

"Hello, I'm here to collect my next Webster pack please."

Relevance Scale			
1 = not relevant	2 = unable to assess relevance without item revision	3 = relevant but needs minor alteration	4 = very relevant and succinct

Clarity scale			
1 = not clear	2 = unable to assess clarity without item revision	3 = clear but needs minor alteration	4 = very clear and succinct

Essentiality scale		
1 = not essential	2 = useful but not essential	3 = essential

Comments:

_____

Information for role-play

Presenting signs and symptoms:

Appears distracted, avoiding eye contact.

Relevance Scale			
1 = not relevant	2 = unable to assess relevance without item revision	3 = relevant but needs minor alteration	4 = very relevant and succinct

Clarity scale			
1 = not clear	2 = unable to assess clarity without item revision	3 = clear but needs minor alteration	4 = very clear and succinct

Essentiality scale		
1 = not essential	2 = useful but not essential	3 = essential

Comments:

_____

Other relevant information e.g. medical/social history:

You have been taking Zyprexa (olanzapine) 10 mg at night for 15 years. Your Webster pack also contains morning doses of: Cipramil (citalopram) 20 mg, Diabex (metformin) XR 1000 mg, Coversyl (perindopril) 10 mg, Crestor (rosuvastatin) 20 mg.

You are not currently working but used to be a laborer when you were first diagnosed with schizophrenia. Since taking Zyprexa you have gained a lot of weight and are now too heavy to operate a forklift, but you would like to resume this work to use your muscles again. Because you know that Zyprexa has caused your weight gain, you have been weaning yourself off it for the past few weeks, especially when you know you need to wake up early the next day for your wife's antenatal classes. Your wife is 28 weeks pregnant with your first child, and you would like to be in better shape and less drowsy when the baby arrives. You are also very curious to know what it is like to be 'normal', without taking the Zyprexa.

Relevance Scale			
1 = not relevant	2 = unable to assess relevance without item revision	3 = relevant but needs minor alteration	4 = very relevant and succinct

Clarity scale			
1 = not clear	2 = unable to assess clarity without item revision	3 = clear but needs minor alteration	4 = very clear and succinct

Essentiality scale		
1 = not essential	2 = useful but not essential	3 = essential

Comments:

_____

Key phrases to include during role-play:

"I want to know what it feels like to be 'normal'".

"I just want to be myself and in better shape when the baby arrives".

Relevance Scale			
1 = not relevant	2 = unable to assess relevance without item revision	3 = relevant but needs minor alteration	4 = very relevant and succinct

Clarity scale			
1 = not clear	2 = unable to assess clarity without item revision	3 = clear but needs minor alteration	4 = very clear and succinct

Essentiality scale		
1 = not essential	2 = useful but not essential	3 = essential

Comments:

_____

Case 3 Possible role-play questions that the student might ask and answers, if asked

Please note: *The following role-play questions are anticipated based on previous simulated patient experience in the classroom, as well as knowledge of students' prior learning, but may vary depending on how each student approaches the case. Please rate the* ***suggested answer*** *for each question with the aim to ensure that the role-playing actors can provide consistent answers, if asked.*

Relevance scale: 1 = not relevant; 2 = unable to assess relevance without item revision; 3 = relevant but needs minor alteration; 4 = very relevant and succinct

Clarity scale: 1 = not clear; 2 = unable to assess clarity without item revision; 3 = clear but needs minor alteration; 4 = very clear and succinct

Essentiality scale: 1 = not essential; 2 = useful but not essential; 3 = essential

Possible question student may ask	**Answer, if asked**	**Relevance**	**Clarity**	**Essentiality**	**Comments**
How long have you been taking Zyprexa for?	***For as long as I've had schizophrenia, 15 years.***	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
What was it like before Zyprexa?	***I was hearing angry voices in my head and had a lot of nightmares.***	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
Why are you skipping your doses of Zyprexa?	***I've been on Zyprexa for so long now and I know it's made me put on a lot of weight. I can't work anymore because of my size so I've been weaning myself off the Zyprexa so I can lose the weight and go back to work to earn more***	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	

		money for my growing family. I also skip the Zyprexa when I know I need to wake up early the next day. I'd like to be in better shape and less drowsy when the baby arrives too and I'm also really curious about how it might feel to be 'normal' again, without my Zyprexa.				
How long have you been skipping your Zyprexa for?		***For the past few weeks. I am now taking it on alternate days. Sometimes I skip it two days in a row if I need to wake up early the next day.***	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
Have you spoken to anyone about this?		***No, I think I know what I'm doing and I feel fine.***	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
How are you coping?		***I'm just doing what I have to do before my wife goes on maternity leave. My wife is feeling a bit stressed because we know that we'll be under more financial pressure when the baby arrives, so I'm trying to get back into work now to prepare for that.***	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
How often do you see your GP/psychiatrist?		***I see the GPs at the local medical centre once every few months just when I need new scripts. I see whichever doctor is on duty at the time. I see my psychiatrist twice a year.***	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
What is your relationship like with your GP/psychiatrist?		***They're alright. I just see them whenever I need to.***	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	

Have you told your GP/psychiatrist that you have been skipping doses?		***I haven't seen either of them in the past few weeks since I started, so I haven't had a chance to tell them.***	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
Can I call your GP/psychiatrist to make an appointment for you?		***How would they be able to help?* (You are hesitant but agree to professional help)**	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	

Case 3 Itemised Marking Rubric

Scoring guide:

- Actions shaded in GREY must be performed by the student to pass the case.
- The student must receive a score of at least 50% (9/18) AND perform all actions shaded in GREY to pass the case.
- Phrases and actions that are underlined must be performed by the student to pass the item.
- *Phrases and actions* that are *italicised* are merely suggestions and examples, and do not need to be articulated by the student word-for-word.
- **Scoring for each item: 0 = no marks; 1 = partial mark; 2 = full marks**

Relevance Scale			
1 = not relevant	2 = unable to assess relevance without item revision	3 = relevant but needs minor alteration	4 = very relevant and succinct

Clarity scale			
1 = not clear	2 = unable to assess clarity without item revision	3 = clear but needs minor alteration	4 = very clear and succinct

Essentiality scale		
1 = not essential	2 = useful but not essential	3 = essential

Comments:

_____

Marking Rubric

Relevance scale: 1 = not relevant; 2 = unable to assess relevance without item revision; 3 = relevant but needs minor alteration; 4 = very relevant and succinct

Clarity scale: 1 = not clear; 2 = unable to assess clarity without item revision; 3 = clear but needs minor alteration; 4 = very clear and succinct

Essentiality scale: 1 = not essential; 2 = useful but not essential; 3 = essential

Item	ACTION	Relevance	Clarity	Essentiality	Comments
1	**Approaches person appropriately** • *Introduces self* • *Greets consumer*	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
2	**Provides comfortable setting for person to talk** • *Negotiates privacy (e.g. asks if the consumer wishes to speak in a private counselling area)* • *Ensures the consumer is comfortable*	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
3	**Listens and communicates non-judgementally** • *Asks about situation sensitively (e.g. "I notice that you haven't been taking your Zyprexa every night")* • *Does not blame the consumer* • *Does not use words like "crazy", "stupid", "silly"* • *Demonstrates active listening by nodding, using responsive words (e.g. "I see", "I understand")* • *Summarises key points to ensure understanding*	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
4	**Asks appropriate open-ended questions** • *"How can I help?"* • *"How long have you been experiencing this?"* • *"Who have you spoken to about this?"* • *"How are you coping?"*	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
5	**Gives reassurance and appropriate information** • *They care and want to help (e.g. "Is there anything I can do to help?")* • *Provides factual information (e.g. "It is important to continue taking antipsychotic medicine to prevent relapse", "There may be alternative treatment options that are effective in managing schizophrenia but with fewer side effects")*	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
6	**Displays empathy** • *Uses empathetic language (e.g. "I can see that this is a difficult time for you")* • *Does not use sympathetic language (e.g. "I feel sorry for you")* • *Acknowledges the consumer's hardship* • *Demonstrates concern for the consumer and continual willingness to help*	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	

7	**Takes appropriate action** • *Refers/encourages consumer to see GP or psychiatrist for antipsychotic medication management* • *Offers a range of professional services for mental health (e.g. psychologist, psychiatrist)* • *Takes phone number to call for follow up* • *Provides pharmacy number for consumer to call back* *Student MUST refer/encourage the consumer to see GP or psychiatrist for antipsychotic medication management plan to pass the case.	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
*Do you agree that the student must refer/encourage the consumer to see GP or psychiatrist in item 7 to pass this case? Yes ☐ No ☐ Comment:					
8	**Encourages self-help** • *Lifestyle recommendations (e.g. exercise, eating well)* • *Relevant support groups* • *Encourages discussing with family member/friend/partner*	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	
9	**Good non-verbal communication** • *Open and relaxed body posture* • *Appropriate eye contact* • *Smiles appropriately* • *Non-judgemental facial expressions*	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐ 4 ☐	1 ☐ 2 ☐ 3 ☐	

Please note: The rubric item **"Conducts appropriate crisis assessment"** (which includes: *Recognises signs and symptoms of possible panic attack, manic episode, acute and severe psychotic state, non-suicidal self-injury, traumatic event, severe effects from alcohol or drug use, or aggressive behaviours; Assesses urgency of current situation)* has been purposely removed from this marking rubric based on the case presentation whereby the simulated patient is not displaying warning signs of a crisis situation.

Please indicate below if you agree or disagree with its removal and provide comments, if necessary:

Agree	Disagree	Comments:

The items **"Asks if the person is having suicidal thoughts"** (which includes: *Asks directly (e.g. "Are you thinking of killing yourself/ending your life/suicide?")* and **"Asks appropriate follow-up questions in relation to person's suicidal thoughts"** (which includes: *"Do you have a plan? (e.g. how/when will you suicide?)"; "Have you attempted suicide before?"; "Are you using alcohol/drugs?")* have been purposely removed from this marking rubric based on the case presentation whereby the simulated patient does not display signs of nor have any suicidal thoughts.

Please indicate below if you agree or disagree with their removal and provide comments, if necessary:

Agree	Disagree	Comments:

Please indicate if you have any other comments or suggestions for this case:

_____

END

Thank you for completing the survey. We look forward to meeting with you on **Date/Time TBC** to discuss the feedback received, make necessary changes and finalise the educational material.

APPENDIX IX –

SCENARIO 1 FOR STUDENT AND PHARMACIST EVALUATION

CASE 1: A PERSON EXPERIENCING FIRST-EPISODE PSYCHOSIS

CASE 1 SIMULATED PATIENT'S BACKGROUND AND ROLE-PLAY INFORMATION

You notice a customer in the pharmacy who has been standing and staring at the ear care products for a while. You decide to approach the customer.

DEMOGRAPHIC PROFILE

Gender: Any

Age: 19-25 years old

Physical attributes: Messy hair and clothes

OPENING LINE

"Why are there so many ear plugs here?! I just need some that work!"

INFORMATION FOR ROLE-PLAY

Presenting signs and symptoms:

You are confused and frustrated at the range of ear plugs available. Facial expressions change often – sometimes flat, sometimes eyebrows twitching up and down. You clench your fists and shuffle your feet. Throughout the conversation you talk and mumble to yourself, "*hey don't call me that*", other times your lips move with no sound.

Other relevant information e.g. medical/social history:

No known medical conditions or diagnosis of mental illness.

You started studying engineering last year and you were enjoying it, but 6 months ago you were kicked out of home because you over-stepped boundaries with your parents with regard to your cigarette and marijuana smoking and mood swings – you have younger siblings at home (aged 15 and 10) and your parents don't want them to see you smoking. You are currently living alone in a granny flat and prefer living alone anyway because you believe that your parents were organising for the neighbours to yell at you over the fence.

To afford rent, you've deferred your university studies and are working at the local pub.

Sleeping troubles have worsened since leaving home – you self-medicate with marijuana (1 joint before bed) and beer (1-2 bottles) on most nights of the week. You smoke 1 pack of cigarettes daily,

and drink at least 6 cups of coffee every day to stay awake, otherwise you find it very difficult to concentrate at work.

You do not take any other medications or use any other illicit drugs such as ice or meth.

Key phrases to include during role-play:

"I'm not sleeping".

"I can't deal with the voices anymore".

"My neighbours won't stop yelling at me over the fence".

CASE 1 POSSIBLE ROLE-PLAY QUESTIONS THAT THE STUDENT MIGHT ASK AND ANSWERS, IF ASKED

Possible question student may ask	**Answer, if asked**
Why do you need ear plugs?	I need them to keep the voices out
What sort of voices?	My neighbours always yell at me over the fence, and people scream at me from cars, even from my TV. They say things like "Come on, you idiot!"
How long have you been hearing the voices for?	About 8 months now
Who have you spoken to about these voices?	I tried to tell my parents once, but they didn't believe me, called me "crazy" and said, "we don't have that in our family" and kicked me out of home. I've been too scared to tell anyone else since.
Have you spoken with a GP or mental health professional about this?	No. Why would I tell a doctor about people yelling at me? They would probably call me crazy too.
Have you ever been diagnosed with a mental illness?	No
Are you having thoughts of suicide?	Yes. The voices are getting too much, and I need to escape. I can't deal with the voices anymore. Sometimes I think if I were dead, I would not hear them.
Do you have a plan?	No, I don't have a plan at the moment but I do think of suicide often.
Have you experienced any significant life events or recent social changes?	Yes, I recently left home and I am living by myself now. I've had to defer uni to work at the local pub so that I can pay my rent.
Do you smoke, or use alcohol, drugs or caffeine?	I smoke 1 joint of pot at night as it's the only thing that drowns out the voices so I can sleep. If that doesn't work, I'll add a beer or two. I smoke 1 pack of cigarettes a day because it helps to calm me and I'm quite tired in the day so I drink at least 6 coffees too.

Is there someone I can call to help you, such as a friend or family member?	There is no one, I haven't been in contact with anyone since I left home, 6 months ago.
Can I call your GP/Mental Health Crisis Line/Lifeline? I would like to get you an appointment today.	Err… I don't know… How would they be able to help? *(You are hesitant but agree to professional help)*

CASE 1 ITEMISED MARKING RUBRIC

Scoring guide:

- Actions shaded in GREY must be performed by the student to pass the case.
- The student must receive a score of at least 50% (i.e. 11/22) AND perform all actions shaded in GREY to pass the case.
- Phrases and actions that are underlined must be performed by the student to pass the item.
- *Phrases and actions* that are *italicised* are merely suggestions and examples, and do not need to be articulated by the student word-for-word.
- **Scoring for each item: 0 = no marks; 1 = partial mark; 2 = full marks**

Marking Rubric:

Item	ACTION	FULL MARKS (2)	PARTIAL MARKS (1)	NO MARKS (0)
1	**Approaches person appropriately** • *Introduces self* • *Greets consumer*			
2	**Provides comfortable setting for person to talk** • *Negotiates privacy (e.g. asks if the consumer wishes to speak in a private counselling area where no one else can hear the conversation)* • *Ensures the consumer is comfortable (e.g. offers the consumer a seat +/- water to drink)*			
3	**Listens and communicates non-judgementally** • *Does not blame the consumer* • *Does not try to reason with the consumer as to what is real and what is not* • *Does not use stigmatising or dismissive language like "crazy", "stupid", "silly"* • *Demonstrates active listening by nodding, using responsive words (e.g. "I see", "I understand")* • *Summarises key points to ensure understanding*			
4	**Asks appropriate open-ended questions to assess situation** • *"How can I help?"* • *"How long have you been experiencing this?"* • *"Who have you spoken to about this?"* • *"How are you coping/feeling while hearing these voices?"*			

5	**Conducts appropriate crisis assessment** • *Recognises signs and symptoms of acute and severe psychotic state, and investigates acute drug intoxication (e.g. "Are you under the influence of any drugs or alcohol right now?")* • *Assesses urgency of current situation*			
6	**<u>Asks if the consumer is having suicidal thoughts</u>** • *e.g. "Are you thinking of killing yourself/ending your life/suicide?"* • Asks sensitively *(e.g. "It is not unusual for someone to become so distressed that they think about suicide, has that happened for you?").* Note: To receive full marks (2) for this item, the student must ask about suicide directly AND independently from self-harm. If the student asks about suicide using indirect language, only, (e.g. *"harming/hurting yourself"*), then only give partial marks (1). If the student asks about suicide and self-harm together but does not ask about suicide separately, give partial marks (1). *Student MUST achieve at least a partial mark (1) on this item to pass the case.			
7	**Asks appropriate follow-up questions in relation to person's suicidal thoughts** 1. <u>Enquires about a suicide plan</u> *(e.g. "Do you have a plan?", "How/when will you suicide?")* 2. Asks other appropriate follow-up questions *(e.g. "Have you attempted suicide before?", "Are you using alcohol/drugs?")* Note: Student MUST enquire about a "plan", otherwise "0" marks for this item. If the student asks about the plan, only, give partial mark (1). If the student asks about the plan, and at least one other question, give full marks (2).			
8	**Gives reassurance and appropriate information** • *They care and want to help (e.g. "Is there anything I can do to help?")* • *Provides factual information (e.g. "Thoughts of suicide do not have to be acted on and are often associated with treatable mental illness", "Mental illness is common and there is effective psychological/ pharmacological treatment available")* • *Explains what the next point of care (e.g. GP, ambulance) will entail (e.g. mental health assessment) so the consumer is aware and reassured*			

9	**Displays empathy** • *Uses empathetic language (e.g. "I can see that this is a difficult time for you")* • *Does not use sympathetic language (e.g. "I feel sorry for you")* • *Acknowledges the consumer's hardship* • *Demonstrates concern for the consumer and continual willingness to help*			
10	**Demonstrates recognition of potential mental health problem and takes appropriate action** 1. Ensures the consumer's safety by not leaving the consumer alone *(e.g. connect with family member/friend to pick up, calls Mental Health Crisis Team/ambulance to pick up*) 2. Connects the consumer with appropriate professional help (*e.g. Mental Health Crisis Team/Ambulance, Lifeline/Suicide Call Back Service or immediately see the doctor or Community Mental Health Service for assessment*) *Student MUST perform BOTH of these actions to pass the case. Additional examples of follow-up actions • *Takes phone number to call for follow up* • *Provides pharmacy number for consumer to call back*			
11	**Good non-verbal communication** • *Open and relaxed body posture* • *Appropriate eye contact* • *Non-judgemental facial expressions*			

APPENDIX X –

SCENARIO 2 FOR STUDENT EVALUATION

CASE 2: A CARER OF SOMEONE LIVING WITH SCHIZOPHRENIA

CASE 2 SIMULATED PATIENT'S BACKGROUND AND ROLE-PLAY INFORMATION

A very tired-looking customer approaches the dispensary counter and hands you a repeat prescription. You recognise this person as someone who purchased a sleeping tablet, Restavit (doxylamine), from you last week.

DEMOGRAPHIC PROFILE

Gender: Any

Age: 30's-50's

Physical attributes: No makeup, wearing scrubs, looks tired

OPENING LINE

"Could I please have this repeat for Seroquel filled for my brother, and a packet of No-Doz (caffeine + nicotinic acid)?"

INFORMATION FOR ROLE-PLAY

Presenting signs and symptoms:

Overwhelmed, tired, exhausted, worn out, stressed. Yawning, trying to keep eyes open to stay awake.

Other relevant information e.g. medical/social history:

Your brother is 25 years old and his schizophrenia is well-controlled, however he cannot find work and is home most of the time sleeping. He cannot drive as his medication makes him drowsy.

Your parents used to care for him but are now in an aged care facility (since 6 months ago) so you have moved back into the family home to be your brother's sole carer.

You get migraines every 2 months (from stress, poor sleep). You have no other medical conditions or allergies.

You work as a nurse, mostly on night shifts because it pays better. You use Restavit to help sleep off most night shifts, but sometimes you are busy during the day after a night shift with your parents or brother, running errands, buying groceries and cooking, driving your brother and parents to all of their appointments, maintaining the family home and garden… so you need No-Doz to keep you awake. Besides these and the occasional Panadol or Nurofen for your migraines, you do not take any other regular medicines.

You were seeing someone previously and wanted to start a family, but your relationship fizzled as you "couldn't find the time for them".

Key phrases to include during role-play:

"I'm feeling really burnt out".

"I am tired. I am worn out".

"I'm not sure I can keep this up".

CASE 2 POSSIBLE ROLE-PLAY QUESTIONS THAT THE STUDENT MIGHT ASK AND ANSWERS, IF ASKED

Possible question student may ask	**Answer, if asked**
How is your brother going?	Tony is doing great, his schizophrenia is well-managed but he hasn't been able to find work and his meds make him so sleepy.
Who is the No-Doz for?	It's for me. I'm not sleeping well and I've got to stay awake today. I've got lots to do.
What do you have to "do"?	After this I need to do my weekly grocery shop, drive my parents and brother to their appointments, then go back home to do the housework and prepare dinner for my brother before I head out for my night shift tonight.
How is your sleep going?	I use No-Doz to keep me awake to care for my family, but I alternate with Restavit when I need to sleep off a night shift.
How are you coping?	I'm exhausted. I'm an experienced nurse so I thought I could take on the carer responsibilities of my brother and my parents, but I'm not sure I can keep this up anymore.
Have you spoken to anyone about this?	Not really, I've just been doing what's necessary to keep my brother and parents well.
Are you having thoughts of suicide?	Oh no, I'm just feeling really burnt out and I need something to change. I need a holiday or something, some time out for myself.
How do you socialise / what do you do for fun?	I used to go out on Friday nights for dinner and drinks with workmates, and Sunday morning jogs but I've had to give them up so I can care for my brother or sleep off a night shift.
Are you a registered carer, or are you in touch with any support groups or support workers?	No, my parents were registered carers for my brother but I thought with my nursing experience there was no need for that.
Can I call your GP to make an appointment for you today? / Can I provide you with some information about carer support?	Err… I don't know… How would they be able to help? *(You are hesitant but agree to professional help)*

CASE 2 ITEMISED MARKING RUBRIC

Scoring guide:

- Actions shaded in GREY must be performed by the student to pass the case.
- The student must receive a score of at least 50% (10/20) AND perform all actions shaded in GREY to pass the case.
- Phrases and actions that are underlined must be performed by the student to pass the item.
- *Phrases and actions* that are *italicised* are merely suggestions and examples, and do not need to be articulated by the student word-for-word.
- **Scoring guide for the students for each item: 0 = no marks; 1 = partial mark; 2 = full marks**

Marking Rubric

Item	ACTION	FULL MARKS (2)	PARTIAL MARKS (1)	NO MARKS (0)
1	**Approaches person appropriately** • *Introduces self* • *Greets consumer*			
2	**Provides comfortable setting for person to talk** • *Negotiates privacy (e.g. asks if the consumer wishes to speak in a private counselling area where no one else can hear the conversation)* • *Ensures the consumer is comfortable (e.g. offers the consumer a seat +/- water to drink)*			
3	**Listens and communicates non-judgementally** • *Does not blame the consumer* • *Does not use stigmatising or dismissive language like "druggie" or "addict"* • *Demonstrates active listening by nodding, using responsive words (e.g. "I see", "I understand")* • *Summarises key points to ensure understanding*			
4	**Asks appropriate open-ended questions to assess situation** • *"How can I help?"* • *"How long have you been experiencing this?"* • *"Who have you spoken to about this?"* • *"How are you coping/feeling while being the only carer for your family?"*			
5	**Asks if the person is having suicidal thoughts** • *e.g. "Are you thinking of killing yourself/ending your life/suicide?"* • Asks sensitively *(e.g. "It is not unusual for carers to be so stressed that they think about suicide, has that happened for you?").*			

	Note: To receive full marks (2) for this item, the student must ask about suicide directly AND independently from self-harm. If the student asks about suicide using indirect language, only, (e.g. *"harming/hurting yourself"*), then only give partial marks (1). If the student asks about suicide and self-harm together but does not ask about suicide separately, give partial marks (1). *Student MUST achieve at least a partial mark (1) on this item to pass the case.			
6	**Gives reassurance and appropriate information** • *They care and want to help (e.g. "Is there anything I can do to help?")* • *Provides information about carer support services and payments and support workers available (e.g. "You don't have to do this all alone", "Have you considered social/group housing for your brother?", "There are services available to help you and your brother such as employment support services and the NDIS")*			
7	**Displays empathy** • *Uses empathetic language (e.g. "I can see that this is a difficult time for you")* • *Does not use sympathetic language (e.g. "I feel sorry for you")* • *Acknowledges the consumer's hardship* • *Demonstrates concern for the consumer and continual willingness to help*			
8	**Demonstrates recognition of potential mental health problem and takes appropriate action** • <u>Refers consumer to GP</u> • *Explains risks associated with medication misuse (e.g. alternating between No-Doz and Restavit)* • *Assists consumer to navigate and engage with available support services (e.g. helps consumer to lodge a request through Services Australia)* • *Offers a range of professional services for mental health (e.g. psychologist, psychiatrist)* • *Takes phone number to call for follow up* • *Provides pharmacy number for consumer to call back and lets them know that they are welcome to come back if needed* Note: Student MUST refer consumer to GP, otherwise "0" marks for this item. If the student refers to GP, only, and no other actions, give partial mark (1).			

	If the student refers to GP, and at least one other action, give full marks (2).			
9	**Encourages self-help** • *Lifestyle recommendations (e.g. regular exercise, eating well, sleep hygiene, avoiding alcohol)* • *Relevant support networks (e.g. through Carers Australia, One Door Mental Health, Beyond Blue, Black Dog Institute)* • *Encourages discussing with family member or friend*			
10	**Good non-verbal communication** • *Open and relaxed body posture* • *Appropriate eye contact* • *Smiles appropriately* • *Non-judgemental facial expressions*			

APPENDIX XI –

SCENARIO 3 FOR STUDENT AND PHARMACIST EVALUATION

CASE 3: A PERSON LIVING WITH SCHIZOPHRENIA WHO IS NON-ADHERENT TO THEIR ANTIPSYCHOTICS AND AT RISK OF RELAPSE

CASE 3 SIMULATED PATIENT'S BACKGROUND AND ROLE-PLAY INFORMATION

Alex is a regular customer of your pharmacy, who collects weekly Webster packs from you.

DEMOGRAPHIC PROFILE

Gender: Any

Age: 40's

Physical attributes: Overweight, wearing trackpants

OPENING LINE

[Simulated patient brings in Webster pack folder with the Wednesday, Friday and Saturday night tablet doses of the antipsychotic medicine, Zyprexa (olanzapine), untouched]

"Hello, I'm here to collect my next Webster pack please."

INFORMATION FOR ROLE-PLAY

Presenting signs and symptoms:

You appear distracted, gazing off to the side and avoiding eye contact with the pharmacist.

Because of your weight gain, you feel most comfortable wearing tracksuits.

Other relevant information e.g. medical/social history:

You have been taking Zyprexa (olanzapine) 10 mg at night for 15 years. Your Webster pack also contains morning doses of: Cipramil (citalopram) 20 mg, Diabex (metformin) XR 1000 mg, Coversyl (perindopril) 10 mg, Crestor (rosuvastatin) 20 mg.

You are not currently working but used to be a laborer when you were first diagnosed with schizophrenia. Since taking Zyprexa you have gained a lot of weight and are now too heavy to operate a forklift, but you would like to resume this work to use your muscles again. Because you know that Zyprexa has caused your weight gain, you have been weaning yourself off it for the past few weeks, especially when you know you need to wake up early the next day for your wife's antenatal classes. Your wife is 28 weeks pregnant with your first child, and you would like to be in better shape and less drowsy when the baby arrives. You are also very curious to know what it is like to be 'normal', without taking the Zyprexa.

Key phrases to include during role-play:

"I want to know what it feels like to be 'normal'".

"I want to lose weight so that I can go back to work".

"I just want to be myself and in better shape when the baby arrives".

CASE 3 POSSIBLE ROLE-PLAY QUESTIONS THAT THE STUDENT MIGHT ASK AND ANSWERS, IF ASKED

Possible question student may ask	Answer, if asked
How long have you been taking Zyprexa for?	For as long as I've had schizophrenia, 15 years.
When was your last medication review?	What's that? I've never had one.
What was it like before Zyprexa?	I was hearing angry voices in my head and had a lot of nightmares.
Why are you skipping your doses of Zyprexa?	I've been on Zyprexa for so long now and I know it's made me put on a lot of weight. I can't work anymore because of my size so I've been weaning myself off the Zyprexa so I can lose the weight and go back to work to earn more money for my growing family – my wife is currently 28 weeks pregnant. I also skip the Zyprexa when I know I need to wake up early the next day. I'd like to be in better shape and less drowsy when the baby arrives too and I'm also really curious about how it might feel to be 'normal' again, without my Zyprexa.
How long have you been skipping your Zyprexa for?	For the past few weeks. I am now taking it on alternate days. Sometimes I skip it two days in a row if I need to wake up early the next day.
Have you spoken to anyone about this?	No, I know what I'm doing and I feel fine.
How are you coping? / How are you feeling while you're not taking your Zyprexa every day?	I am coping okay. I'm just doing what I have to do before my wife goes on maternity leave. My wife is feeling a bit stressed because we know that we'll be under more financial pressure when the baby arrives, so I'm trying to get back into work now to prepare for that. I feel fine not taking the Zyprexa every day.
How often do you see your GP/psychiatrist?	I see the GPs at the local medical centre once every few months just when I need new scripts. I see whichever doctor is on duty at the time. I see my psychiatrist twice a year.
What is your relationship like with your GP/psychiatrist?	They're alright. I just see them whenever I need to.
Have you told your GP/psychiatrist that you have been skipping doses?	I haven't seen either of them in the past few weeks since I started, so I haven't had a chance to tell them.
Can I call your GP/psychiatrist to make an appointment for you?	Err… I don't know… How would they be able to help? *(You are hesitant but agree to professional help)*

CASE 3 ITEMISED MARKING RUBRIC

Scoring guide:

- Actions shaded in GREY must be performed by the student to pass the case.
- The student must receive a score of at least 50% (9/18) AND perform all actions shaded in GREY to pass the case.
- Phrases and actions that are underlined must be performed by the student to pass the item.
- *Phrases and actions* that are *italicised* are merely suggestions and examples, and do not need to be articulated by the student word-for-word.
- **Scoring guide for the students for each item: 0 = no marks; 1 = partial mark; 2 = full marks**

Marking Rubric

Item	ACTION	FULL MARKS (2)	PARTIAL MARKS (1)	NO MARKS (0)
1	**Approaches person appropriately** • *Introduces self* • *Greets consumer*			
2	**Provides comfortable setting for person to talk** • *Negotiates privacy (e.g. asks if the consumer wishes to speak in a private counselling area where no one else can hear the conversation)* • *Ensures the consumer is comfortable (e.g. offers the consumer a seat +/- water to drink)*			
3	**Listens and communicates non-judgementally** • *Asks about situation sensitively (e.g. "I notice that you haven't been taking your Zyprexa every night")* • *Uses recovery-oriented language that respects patient autonomy and avoids paternalistic approach (e.g. "I understand that you want to feel 'normal' and it's great that you're feeling fine at the moment, however it is important that you take your medicines every day…")* • *Does not blame the consumer* • *Does not use stigmatising or dismissive language like "crazy", "stupid", "silly"* • *Demonstrates active listening by nodding, using responsive words (e.g. "I see", "I understand")* • *Summarises key points to ensure understanding*			
4	**Asks appropriate open-ended questions to assess situation** • Investigates mental state and for signs or symptoms of relapse *(e.g. "How are you feeling while not taking your tablets every day?")* • *"How can I help?"* • *"How long have you been experiencing this?"* • *"Who have you spoken to about this?"* • *"How are you coping?"*			

5	**Gives reassurance and appropriate information** • *They care and want to help (e.g. "Is there anything I can do to help?")* • *Provides factual information about medication compliance (e.g. "It is important to continue taking antipsychotic medicine to prevent relapse", "There may be alternative treatment options that are effective in managing schizophrenia but with fewer side effects")*			
6	**Displays empathy** • *Uses empathetic language (e.g. "I can see that this is a difficult time for you")* • *Does not use sympathetic language (e.g. "I feel sorry for you")* • *Acknowledges the consumer's hardship* • *Demonstrates concern for the consumer and continual willingness to help*			
7	**Demonstrates recognition of potential mental health problem and takes appropriate action** • Refers/encourages consumer to see prescriber *(e.g. GP or psychiatrist)* for antipsychotic medication management • *Refers/encourages consumer to see dietician about weight management* • *Encourages consumer to connect with case manager to access support services and programs* • *Takes phone number to call for follow up* • *Provides pharmacy number for consumer to call back* *Student MUST refer/encourage the consumer to see prescriber (GP or psychiatrist) for antipsychotic medication management plan to pass the case. If the student refers to prescriber, only, and no other actions, give partial mark (1). If the student refers to prescriber, and at least one other action, give full marks (2).			
8	**Encourages self-help** • *Lifestyle recommendations (e.g. exercise, eating well)* • *Relevant support groups* • *Encourages discussing with family member/friend/partner*			
9	**Good non-verbal communication** • *Open and relaxed body posture* • *Appropriate eye contact* • *Smiles appropriately* • *Non-judgemental facial expressions*			

APPENDIX XII –

ETHICS APPROVED DOCUMENTS FOR PROJECT NO. 2015/626 (PILOT-TESTING)

Appendix XII includes the following ethics approved documents for Project No. 2015/626:

- Participant Information Statement for pilot-testing role-plays
- Participant Consent Form for pilot-testing role-plays
- Participant Information Statement for pilot-testing focus group
- Participant Consent Form for pilot-testing focus group
- Focus group guide for pilot-testing

THE UNIVERSITY OF SYDNEY

School of Pharmacy

ABN 15 211 513 464

A/Prof Rebekah Moles
Associate Professor in Pharmacy

Room N517
Pharmacy and Bank Building A15
The University of Sydney
NSW 2006 AUSTRALIA
Telephone: +61 2 9351 5968
Facsimile: +61 2 9351 4391
Email: Rebekah.moles@sydney.edu.au
Web: http://www.sydney.edu.au/

Evaluation of Professional Practice - Is Simulation in pharmacy practice an appropriate way to learn?

PARTICIPANT INFORMATION STATEMENT (Pharmacy Student – Stage 1)

(1) What is the study about?

You are invited to participate in a study that aims to formally evaluate the unit of study titled Professional Practice, in the Bachelor of Pharmacy (PHAR 4821) or Master of Pharmacy (PHAR5927).

(2) Who is carrying out the study?

The study is being conducted by Associate Professor Rebekah Moles from The University of Sydney Pharmacy School. Other School members and their students as well as, international colleagues from Washington State University, are also assisting in data analysis. These include:

Dr Sarira El-Den (USYD)
Associate Professor Timothy Chen (USYD)
Dr Carl Schneider (USYD)
Dr Bandana Saini (USYD)
Dr Claire O'Reilly (USYD)
Mr William Nguyen (USYD)
Dr Jennifer Robinson (WSU)
Dr Damianne Brand (WSU)
Dr Anne Park Kim (WSU)

(3) What does the study involve?

As a student enrolled in PHAR4821/PHAR5927 you will need to participate in competency-based assessments across the semester. In each of these scenarios, your encounter with a simulated patient or health professional will be recorded and scored for assessment purposes. In order for a more in-depth evaluation of your scores within and between cases, if you consent to participate in this study your deidentified data will be used for further in-depth analysis.

(4) How much time will the study take?

The study will be conducted over second semester during your already scheduled tutorial sessions. There is no additional time commitment from you.

There may also be the opportunity to participate in a Focus Group at the end of semester; however there is a Separate Information Statement and consent for this phase.

(5) Can I withdraw from the study?

Being in this study is completely voluntary - you are not under any obligation to consent and - if you do consent - you can withdraw at any time without affecting your relationship with The University of Sydney.

If you withdraw from the study part-way through the project, your individual data may not be able to be withdrawn as it will be non-identifiable.

(6) Will anyone else know the results?

All aspects of the study, including results, will be strictly confidential and only the researchers will have access to your recordings and marks which will be de-identified

Reports from the study may be submitted for publication, but individual participants will not be identifiable in such a report.

(7) Will the study benefit me?

This study will not directly benefit you, however it may assist in course refinements overtime, improving the way future pharmacists are trained.

(8) Can I tell other people about the study?

You may talk to others about the study in general as you please.

(9) What if I require further information about the study or my involvement in it?

When you have read this information, Rebekah is happy to discuss it with you further and answer any questions you may have. If you would like to know more at any stage, please feel free to contact Rebekah Moles on +61293515968.

(10) What if I have a complaint or any concerns?

Any person with concerns or complaints about the conduct of a research study can contact The Manager, Human Ethics Administration, University of Sydney on +61 2 8627 8176 (Telephone); +61 2 8627 8177 (Facsimile) or ro.humanethics@sydney.edu.au (Email).

This information sheet is for you to keep

School of Pharmacy
Rm N517,
Pharmacy and Bank Building A15
The University of Sydney NSW 2006 Australia
T +61 2 9315 5968
F +61 2 9351 4391
E rebekah.moles@sydney.edu.au

Dr Rebekah Moles
Associate Professor in Pharmacy

PARTICIPANT CONSENT FORM (Stage 1)

Evaluation of Professional Practice - Is Simulation in pharmacy practice an appropriate way to learn?

I, ...…..... , give consent to participate in the research project "Evaluation of Professional Practice - Is Simulation in pharmacy practice an appropriate way to learn?."

This project is being conducted by A/Prof Rebekah Moles from The University of Sydney Pharmacy School and colleagues.

I understand that my data (audio-recordings and scores) for each simulated scenario in Professional Practice will be further analysed for the purpose of in-depth evaluation and publication.

In giving my consent I acknowledge that:

1. The procedures required for the project and the time involved have been explained to me, and any questions I have about the project have been answered to my satisfaction.
2. I have read the Participant Information Statement and have been given the opportunity to discuss the information and my involvement in the project with the researcher/s.
3. I understand that being in this study is completely voluntary – I am not under any obligation to consent.
4. I understand that I can withdraw from the study at any time, without affecting my relationship with the researcher(s) now or in the future.
5. I understand that my involvement is strictly confidential. I understand that any research data gathered from the results of the study may be published however no information about me will be used in any way that is identifiable.
6. I understand that I can stop my participation if I do not wish to continue; however it will not be possible to exclude individual data to that point as it is non-identifiable.
7. I consent to:
   - Audio-recording YES ☐ NO ☐
   - Use of scenario scores YES ☐ NO ☐

Signed: .....

Name: .....

Date: .....

THE UNIVERSITY OF SYDNEY

School of Pharmacy

ABN 15 211 513 464

A/Prof Rebekah Moles
Associate Professor in Pharmacy

Room N517
Pharmacy and Bank Building A15
The University of Sydney
NSW 2006 AUSTRALIA
Telephone: +61 2 9351 5968
Facsimile: +61 2 9351 4391
Email: Rebekah.moles@sydney.edu.au
Web: http://www.sydney.edu.au/

Evaluation of Professional Practice - Is Simulation in pharmacy practice an appropriate way to learn?

PARTICIPANT INFORMATION STATEMENT (Pharmacy Student – Stage 2 FOCUS GROUP)

(1) What is the study about?

You are invited to participate in a study that aims to formally evaluate the unit of study titled Professional Practice, in the Bachelor of Pharmacy (PHAR 4821) or Master of Pharmacy (PHAR5927).

(2) Who is carrying out the study?

The study is being conducted by A/Prof Rebekah Moles from The University of Sydney Pharmacy School. Other School members and their students, as well as, international colleagues from Washington State University, are also assisting in data analysis. These include:

Dr Sarira El-Den (USYD)
Associate Professor Timothy Chen (USYD)
Dr Carl Schneider (USYD)
Dr Bandana Saini (USYD)
Dr Claire O'Reilly (USYD)
Mr William Nguyen (USYD)
Dr Jennifer Robinson (WSU)
Dr Damianne Brand (WSU)
Dr Anne Park Kim (WSU)

(3) What does the study involve?

Focus groups and/or interviews will occur with approximately 8-10 participants per group. The sessions will be audio-recorded and transcribed for future analysis.

(4) How much time will the study take?

Focus groups are anticipated to go for 35- 45 minutes.

(5) Can I withdraw from the study?

Being in this study is completely voluntary - you are not under any obligation to consent and - if you do consent - you can withdraw at any time without affecting your relationship with The University of Sydney.

You may stop your participation in the focus group at any time if I do not wish to continue; however as it is a group discussion it will not be possible to exclude individual data to that point.

(6) Will anyone else know the results?

All aspects of the study, including results, will be strictly confidential and only the researchers will have access to information on participants

A report of the study may be submitted for publication, but individual participants will not be identifiable in such a report.

(7) Will the study benefit me?

We cannot and do not guarantee that you will receive any benefits from this study.
It may assist in course refinements overtime, improving the way future pharmacists are trained.

(8) Can I tell other people about the study?

You may talk to others about the study in general as you please.

(9) What if I require further information about the study or my involvement in it?

When you have read this information, Rebekah is happy to discuss it with you further and answer any questions you may have. If you would like to know more at any stage, please feel free to contact Rebekah Moles on +61293515968.

(10) What if I have a complaint or any concerns?

Any person with concerns or complaints about the conduct of a research study can contact The Manager, Human Ethics Administration, University of Sydney on +61 2 8627 8176 (Telephone); +61 2 8627 8177 (Facsimile) or ro.humanethics@sydney.edu.au (Email).

This information sheet is for you to keep

THE UNIVERSITY OF SYDNEY

Faculty of Pharmacy
Rm N517,
Pharmacy and Bank Building A15
The University of Sydney NSW 2006 Australia
T +61 2 9315 5968
F +61 2 9351 4391
E rebekah.moles@sydney.edu.au

A/Prof Rebekah Moles
Pharmacy

PARTICIPANT CONSENT FORM (Focus group/Interview)

Evaluation of Professional Practice - Is Simulation in pharmacy practice an appropriate way to learn?

I, ...…..... , give consent to participate in the research project "Evaluation of Professional Practice - Is Simulation in pharmacy practice an appropriate way to learn?."

This project is being conducted by Dr Rebekah Moles and colleagues at The Faculty of Pharmacy, University of Sydney. I understand that I will be asked questions regarding my perceptions of the benefits of the simulated learning experienced in – Professional Practice

In giving my consent I acknowledge that:

1. The procedures required for the project and the time involved have been explained to me, and any questions I have about the project have been answered to my satisfaction.
2. I have read the Participant Information Statement and have been given the opportunity to discuss the information and my involvement in the project with the researcher/s.
3. I understand that being in this study is completely voluntary – I am not under any obligation to consent.
4. I understand that I can withdraw from the study at any time, without affecting my relationship with the researcher(s) now or in the future.
5. I understand that my involvement is strictly confidential. I understand that any research data gathered from the results of the study may be published however no information about me will be used in any way that is identifiable.
6. I understand that I can stop my participation if I do not wish to continue; however it will not be possible to exclude my individual data as it is part of a group discussion.
7. I consent to:
   - Audio-recording YES ☐ NO ☐

Signed: .....

Name: .....

Contact Phone Number: .....

Date: .....

Student Focus Group Guide

Aim: To evaluate the Professional Practice unit of study

SCRIPT: "Thank you for volunteering to take part in a focus group on your experience in professional practice in semester 2. We anticipate the discussion to take approximately 30 minutes. I would like to remind you that the focus group is being audio recorded."

QUESTIONS TO ASK

a. How do you feel about the Professional Practice unit?
    i. What do you think about the simulated cases? (MHFA in particular?)
    ii. What do you think about the feedback process?

b. What do you think about using these techniques as a learning tool?
    i. Compared to other ways you have been taught in past units?
    ii. Do you think it was more or less effective?

c. In your opinion, how do you think this programme compares to units you have participated in that have involved more group assessment?
    i. What are the differences for you as a pharmacy student?
    ii. Do you have a preference? Why?

d. Describe how you perceive that the professional practice unit has prepared you for your working role as a pharmacist? (Prompt: How confident and competent do you feel?)

e. What concerns do you have about this programme?

f. How could we improve this type of programme?

Mental health questions:

- In this UoS we introduced mental health crisis related scenarios, following your MHFA training. In general, how did you feel about these scenarios?
- Did these scenarios help improve your confidence? How?
- These scenarios were enacted by a person with lived experience of mental illness? What did you think of this? Did it help it seem more authentic and how?
- Did the real life feedback from the educator help? How?
- How could we further improve your mental health confidence?
- Could we improve this part of the UoS? How?

APPENDIX XIII –

ETHICS APPROVED DOCUMENTS FOR PROJECT NO. 2021/507 (STUDENT EVALUATION)

Appendix XIII includes the following ethics approved documents for Project No. 2021/507:

- Participant Information Statement for student evaluation
- Participant Consent Form for student evaluation
- Advertisement flyer for actors
- Survey for student evaluation
- Focus group guide for student evaluation

Participant Information Statement

THE UNIVERSITY OF SYDNEY

Research Study: Evaluation of simulated patient role-plays of mental health problems and crises in health curricula

Dr Sarira El-Den (Responsible Researcher)
Sydney Pharmacy School
Phone: +61 2 8627 6417 | Email: sarira.el-den@sydney.edu.au
Mrs Tina Ung (PhD student) | Email: tina.xu@sydney.edu.au

---

1. What is this study about?

We are conducting a research study to evaluate the impact of simulated patient role-plays of mental health problems and crises among healthcare students who have completed Mental Health First Aid (MHFA) training. Specifically, we will be exploring pharmacy students' ability to provide MHFA across a range of mental health scenarios, as well as the impact of MHFA training and role-play assessments on healthcare students' confidence in caring for and attitudes towards people living with mental illness. Taking part in this study is voluntary.

Please read this sheet carefully and ask questions about anything that you don't understand or want to know more about.

2. Who is running the study?

The study is being carried out by the following researchers from Sydney Pharmacy School:

- Dr Sarira El-Den, Lecturer
- Dr Claire O'Reilly, Senior Lecturer
- A/Prof Rebekah Moles, Associate Professor
- Dr Carl Schneider, Senior Lecturer
- Mrs Tina Ung, Associate Lecturer and PhD Candidate

Tina Ung is conducting this study as the basis for the degree of Doctor of Philosophy at The University of Sydney.

This study is being funded by One Door Mental Health / Peter Meyer Fund.

3. Who can take part in the study?

We are seeking students enrolled in the final year of the Pharmacy degree (BPharm, BPharmMgmt or MPharm). You have been invited to take part in this study because you are enrolled in your final year of the Pharmacy degree (BPharm, BPharmMgmt or

MPharm), and Mental Health First Aid (MHFA) training is a compulsory component of the curriculum.

4. What will the study involve for me?

If you decide to take part in this study, you will be involved in one or more of the following parts of the study after completing Mental Health First Aid training:

Part A: Participation in an audio-recorded simulated patient role-play

If you volunteer to be a participating student, you will be randomly allocated to participate in a role-play assessment with a simulated patient. You will be observed by the remaining students in your class, as well as your tutor and a mental health consumer educator. Your performance will be scored by yourself (self-assessment), your tutor, the consumer educator and the actor. The mental health consumer educator and tutor will then facilitate immediate performance feedback discussion with the class to debrief the role-play.

Each of the role-plays and debrief discussions will take approximately 30 minutes to complete, therefore total time commitment for these is approximately 90 minutes.

Part B: Contribution to audio-recorded debrief discussions

All students will be required to participate in the debrief discussions, which will be audio-recorded. The recorded debriefs will be de-identified prior to analysis and publication. If you do not wish for your contribution to the debrief discussions to be recorded, you will have the opportunity to opt out.

Part C: Completion of short surveys

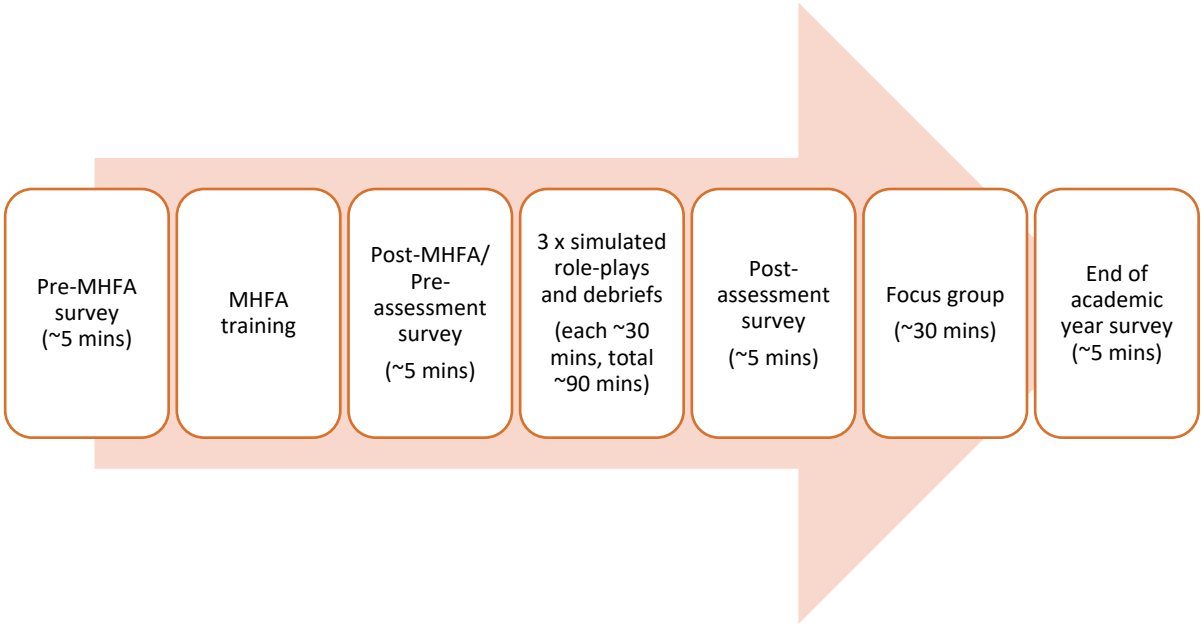
You will be asked to complete some short surveys regarding your self-perceived confidence in caring for and attitudes towards people living with mental illness, at different time points. For those who have not yet commenced MHFA training you may be asked to complete this survey prior to and immediately after MHFA training. You may also be asked to complete a survey prior to and after participating in or observing the simulated patient role-plays. In addition you may be asked to complete a survey at the end of the academic year. You will only be asked to complete the surveys up to a total of four times throughout the year, depending on the timetabling of the degree program that you are enrolled in. The surveys will be delivered online, and will take approximately 3-5 minutes to complete each time.

Part D: Participation in a student focus group

After the role-play assessments and debrief discussions have been conducted, you will be invited to participate in a student focus group to provide feedback on the assessment process. The focus group will take approximately 30 minutes. It is voluntary to take part in the focus group and refreshments will be provided.

The simulated patient role-plays, debrief discussions and focus groups will all be audio-recorded, and conducted on-campus at The University of Sydney.

The figure below illustrates the potential timeline of your involvement in the study. Your point of entry into the study will depend upon the degree that you are enrolled in (BPharm, BPharmMgmt or MPharm).



5. Can I withdraw once I've started?

Being in this study is completely voluntary and you do not have to take part.

Your decision will not affect your current or future relationship with the researchers or anyone else at The University of Sydney.

If you decide to take part in the study and then change your mind you can withdraw by contacting Dr Sarira El-Den at sarira.el-den@sydney.edu.au or on 02 8627 6417.

By submitting your surveys, you consent to take part in the study. You can withdraw any time before you submit however once your responses are submitted, they cannot be withdrawn. This is because they are anonymous, and we will not be able to tell which one is yours.

If you decide to participate in the simulated patient role-plays, you can withdraw at any time before audio-recording commences.

If you take part in a focus group, you are free to stop at any stage or to refuse to answer any of the questions. However, since it is a group discussion, it will not be possible to withdraw your individual comments from our records once the group has started.

If you decide to withdraw, we will not collect any more information from you. Any information that we have already collected will be kept in our study records and may be included in the study results as it will be de-identified.

6. Are there any risks or costs?

Aside from giving up your time, we do not expect that there will be any risks or costs associated with taking part in this study. If you feel distressed while participating in the study, a member of the research team will refer you to the University's Counselling And Psychological Service (CAPS). Mrs Tina Ung is also an accredited MHFAider and Dr Sarira El-Den is a certified MHFA Master Instructor. They will be able to help you, if needed.

7. Are there any benefits?

If you volunteer to participate in a **simulated patient role-play (Part A)**, you will be awarded ten 'leadership points' as part of the Faculty of Medicine and Health Leadership Program. You may also be eligible to receive academic merit for the First Aid competency assessment task, if applicable to your unit of study.

Students who volunteer to participate in a **focus group (Part D)** will enter a prize draw to win one of six $50 pre-paid gift cards. Refreshments will also be provided at the focus group.

Please note that you must complete the part that you volunteer for to be eligible for its incentive.

8. What will happen to information that is collected?

By providing your consent, you are agreeing to us collecting information about you for the purposes of this study.

Any information you provide us will be stored securely and we will only disclose it with your permission, unless we are required by law to release information. We are planning for the study findings to be published.

You will not be individually identifiable in these publications.

9. Will I be told the results of the study?

You have a right to receive feedback about the overall results of this study. You can request this by emailing Dr Sarira El-Den (sarira.el-den@sydney.edu.au) or Mrs Tina Ung (tina.xu@sydney.edu.au). This feedback will be in the form of a brief lay summary and may be later available as a published journal article. You will receive this feedback after the study is finished.

If you participate in a simulated patient role-play, you will receive immediate personalised feedback during the associated debrief, facilitated by the mental health consumer educator and tutor.

10. What if I would like further information?

When you have read this information, the following researchers will be available to discuss it with you further and answer any questions you may have:

- Dr Sarira El-Den on sarira.el-den@sydney.edu.au or 02 8627 6417
- Mrs Tina Ung on tina.xu@sydney.edu.au or 02 9351 7586

11. What if I have a complaint or any concerns?

The ethical aspects of this study have been approved by the Human Research Ethics Committee (HREC) of The University of Sydney [HREC Approval No. 2021/507] according to the *National Statement on Ethical Conduct in Human Research (2007).*

If you are concerned about the way this study is being conducted or you wish to make a complaint to someone independent from the study, please contact the University:

Human Ethics Manager
human.ethics@sydney.edu.au
+61 2 8627 8176

This information sheet is for you to keep

Participant Consent Form

THE UNIVERSITY OF SYDNEY

Research Study: Evaluation of simulated patient role-plays of mental health problems and crises in health curricula

Dr Sarira El-Den (Responsible Researcher)
Sydney Pharmacy School
Phone: +61 2 8627 6417 | Email: sarira.el-den@sydney.edu.au
Mrs Tina Ung (PhD student) | Email: tina.xu@sydney.edu.au

Participant Name _____

I agree to take part in this research study. In giving my consent, I confirm that that:

- The details of my involvement have been explained to me, and I have been provided with a written Participant Information Statement to keep.

- I understand the purpose of the study is to evaluate the impact of Mental Health First Aid (MHFA) training on students' performance in simulated patient role-plays, as well as exploring healthcare students' confidence in caring for and attitudes towards people living with mental illness.

- I acknowledge that the risks and benefits of participating in this study have been explained to me to my satisfaction.

- I understand that there are four parts to this study and I can be involved in one or more of the following:

    A. Participation in an audio-recorded simulated patient role-play
    B. Contribution to audio-recorded debrief discussions
    C. Completion of short surveys about my confidence in caring for and attitudes towards people living with mental illness
    D. Participation in a student focus group to provide feedback on the role-plays.

- I understand that my participation in the role-plays, debrief discussions and focus group will be audio recorded for research purposes.

- I understand that being in this study is completely voluntary, however attendance at the simulated patient role-plays and debrief discussions is compulsory as it is part of the pharmacy curriculum.

- I am assured that my decision to participate will not have any impact on my relationship with the research team or the University of Sydney.

- I understand that I am free to withdraw from this study at any time and that any information already collected from me will be kept in study records and may be included in the study results as it will be de-identified.

- I have been informed that the confidentiality of the information I provide will be protected and will only be used for purposes that I have agreed to. I understand that information about me will only be told to others with my permission, except as required by law.

- I understand that the results of this study may be published, and that publications will not contain my name or any identifiable information about me.

- I understand that I may email the research team to request feedback about the overall results of this study.

- I confirm the following:

I consent to participating in a simulated patient role-play	Yes ☐	No ☐
I consent to participating in a focus group	Yes ☐	No ☐
I consent to audio recordings	Yes ☐	No ☐

- I understand that after I sign and return this consent form it will be retained by the researcher, and that I may request a copy at any time.

Participant Name _____

Signature _____

Date _____

ACTORS NEEDED

We are looking for people with acting experience to play a PAID role as simulated patients enacting mental health cases with pharmacy students within Sydney Pharmacy School at The University of Sydney.

We are looking for 9 actors to play:

Someone aged 19-25 years

Someone aged 30-60 years

Someone aged in their 40's and of a heavier build

Please scan the QR code to register your interest or contact us to find out more about this opportunity.

SCAN ME

THE UNIVERSITY OF SYDNEY

Tina Ung

School of Pharmacy

Faculty of Medicine and Health

T: (02) 9351 7586

E: tina.xu@sydney.edu.au

SURVEY: Healthcare students' confidence in caring for and attitudes towards people living with mental illness

What are the last THREE digits of your mobile number? ☐☐☐

What day of the month you were born? ☐☐

Note that your responses are confidential and the identifier is for research purposes only.

SECTION A: DEMOGRAPHICS

Please answer these questions about yourself to help us analyse the results of the survey.

1	Age				
2	Sex	M	F	Other	Prefer not to respond
3	Pharmacy degree enrolment	BPharm	BPharmMgmt	MPharm	
4	Did you role-play with a simulated patient in this study?*	Yes		No	

*additional question included only in post-simulated patient role-play surveys

SECTION B: MENTAL HEALTH FIRST AID CONFIDENCE

This section is about your confidence in caring for someone experiencing a mental health problem and/or mental health crisis.

Please indicate the level of agreement that best fits with your opinion:

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
1. I feel confident that I can recognise the signs that indicate that someone may be developing a mental health problem or experiencing a mental health crisis.	○1	○2	○3	○4	○5
2. I feel confident that I can approach someone who may be developing a mental health problem or experiencing a mental health crisis.	○1	○2	○3	○4	○5
3. I feel confident that I can ask a person whether they are having thoughts of suicide.	○1	○2	○3	○4	○5
4. I feel confident that I can listen to and interact with a person without expressing judgement about their situation.	○1	○2	○3	○4	○5
5. I feel confident that I can offer a person information and support about mental health problems.	○1	○2	○3	○4	○5
6. I feel confident that I can encourage a person to seek appropriate professional help.	○1	○2	○3	○4	○5

7. I feel confident that I can encourage a person to access other support.	○ 1	○ 2	○ 3	○ 4	○ 5
8. I feel confident that I can recognise and correct other people's misconceptions about mental health problems.	○ 1	○ 2	○ 3	○ 4	○ 5

SECTION C: ATTITUDES TOWARDS PEOPLE LIVING WITH MENTAL ILLNESS

This section concerns your attitudes towards people living with mental illness.

In relation to a person who has previously been hospitalised for <u>severe and persistent</u> mental illness, such as schizophrenia, how willing would you be to:

	Definitely willing	Probably willing	Probably unwilling	Definitely unwilling
1. Share a flat with that person	○ 1	○ 2	○ 3	○ 4
2. Work alongside that person	○ 1	○ 2	○ 3	○ 4
3. Have that person as a neighbour	○ 1	○ 2	○ 3	○ 4
4. Have that person as a baby-sitter for your child	○ 1	○ 2	○ 3	○ 4
5. Have one of your children marry that person	○ 1	○ 2	○ 3	○ 4
6. Introduce that person to a single friend as a potential relationship partner	○ 1	○ 2	○ 3	○ 4
7. Recommend that person for a job	○ 1	○ 2	○ 3	○ 4

SECTION D: PERSONAL AND PROFESSIONAL EXPERIENCES OF MENTAL ILLNESS

The final 3 questions inquire about your personal and professional experiences with mental illness.

1.	Have you ever been diagnosed with a mental illness (e.g. mood disorder, anxiety disorder, substance use disorder, etc.)?	Yes	No
2.	Does someone close to you (e.g. close friend or relative) live with a mental illness?	Yes	No
3.	Do you currently work in a community pharmacy?	Yes	No

Thank you for completing this survey.

If you feel distressed by your participation in this survey, please contact:

Counselling and Psychological Services (CAPS) at The University of Sydney.

Evaluation of simulated patient role-plays of mental health problems and crises in health curricula:

Student focus group guide

Aim: To evaluate simulated patient role-plays that were used for post-MHFA training assessment

SCRIPT: "Thank you for volunteering to take part in this focus group about your experience of the post-MHFA training assessment. We anticipate the discussion to take approximately 30 minutes. I would like to remind you that the focus group is being audio recorded. All participants will be referred to by code in order to maintain anonymity."

[Hand out numbers to students]

QUESTIONS TO ASK

1. How do you feel about MHFA training?

2. As part of the post-MHFA training assessment, we used simulated patient role-play scenarios. In general, how did you feel about these scenarios?

    a. A person experiencing first-episode psychosis
    b. A carer of someone living with schizophrenia
    c. A person living with schizophrenia who is non-adherent to their antipsychotics and at risk of relapse

3. What did you think about having a trained actor portray the simulated patient (as opposed to the tutor)?

4. What did you think about the feedback process?
    a. Self-assessment
    b. Real-life feedback from an educator with lived experience of mental illness (as opposed to the tutor)?

5. How did participating in or observing these role-plays affect your confidence?

6. How could we further improve your mental health confidence?

APPENDIX XIV –

SCENARIO 2 FOR PHARMACIST EVALUATION

Scenario 2 (Pharmacy): A person living with a diagnosis of schizophrenia who has a plan for suicide

Role play information

Criteria	Details
2.1 Information for student role-playing	A person known to the pharmacy (and to you, as the pharmacist) who has been trialing different antipsychotics for a few years comes in today. You are aware they have a history of alcohol misuse. They are holding a bag from the liquor shop next door and are browsing the pain management shelves in the pharmacy. It seems that he has been crying.
2.2 Setting	Community pharmacy
2.3 Demographic profile e.g., age, gender, physical attribute, etc.	CONSISTENT ACROSS ALL DISCIPLINES • Early 20s • Male • A bit disheveled
2.4 Opening line	Slurred speech: *"I'm in so much pain, I can't sleep, I need a couple of your biggest boxes of pain medicines, like Panamax [paracetamol] or any cheap one."*
2.5 Presentation of mental illness i.e., signs and symptoms	CONSISTENT ACROSS ALL DISCIPLINES • Person appears to have had alcohol today. There is a smell of alcohol on their breath and his speech is understandable but slurred. • This is someone you have met before, and you know to have a history of alcohol use and a diagnosis of schizophrenia. • It seems that he has been crying. • Initially, the person says that all the pain meds are for 'back pain' but upon further questioning admits that he intends to use them to attempt suicide. He has not attempted suicide before. • Voices are not present right now but have been present earlier this week (alcohol helps shut them up a little). They tell the person that he is worthless, and all of his family and friends are going behind his back and lying to him.
2.6 Other relevant information e.g., medical/social history	CONSISTENT ACROSS ALL DISCIPLINES • Currently taking aripiprazole 30 mg od. He still hears voices every now and then… he has an appointment with the psychiatrist in a few weeks to see if it needs to be changed (again!). • No side effects with aripiprazole, but it's not working! He has been on it for three months and still hear the voices a few times a week. • He has trialed 2-3 antipsychotics over the last 2-3 years. He has not used clozapine before. Risperidone was the one before aripiprazole (can't remember the names of any others as it was 'ages ago') which seemed to work but side effects were too severe (breast enlargement and breastmilk production), so it was ceased. In the last few months, the breast enlargement and milk production has significantly decreased, and his doctor thinks it will go away completely over the coming weeks. If asked, when the doctor decided to cease the risperidone, they titrated it with the aripiprazole and then increased aripiprazole dose, until now where they have reached at 30 mg od dose of aripiprazole and that is the only antipsychotic he is taking. • Sees his GP when he needs to – sometimes once every 2 months • Other medicines: none. • Unemployed, enrolled part-time in TAFE studying sound and music production. Has a "studio" in his bedroom in his parent's house, where he spends most of his time. He has been missing a lot of his TAFE classes, recently. • Lifestyle: goes through phases where he doesn't drink at all but has been drinking for most of this year. He went to a New Year's Eve party and had his first drink in a while and sort of never stopped since. Drinks up a bottle or two of wine per day and some beers spread out throughout the day. Wine at night helps him sleep. • Does not smoke cigarettes or use recreational drugs. Uses a vape as it is 'less unhealthy' than smoking. • Eats whatever his mum cooks. Walks a lot as he does not have a car. He is saving up to buy a car. • If asked, he mentions that his parents are really great, but they have their own lives and don't have a clue about what he is going through.
2.7 Key phrases to include during role play	CONSISTENT ACROSS ALL DISCIPLINES • *"These voices won't shut up and I'm sick of hearing them."* • *"You would think three years and three different medicines – that something would work and shut them up."* • *"I really can't take it anymore and can't keep trying things that don't work, it's just not worth it."* • *"I feel like a burden to my parents."*
2.8 Scenario resolution	CONSISTENT ACROSS ALL DISCIPLINES • Person explains that he was considering taking all the pain medications at once with some alcohol. He does not know when he will do this but wanted to have a stash of pain medications at home so that he could use them in this way if the voices became too much. • He does not agree to contacting parents, initially, but eventually agrees. He has a good relationship with his GP and is willing to see the GP. He is also willing to see other services the student might recommend, but asks how these 'services' can help? • If student recommends crisis team, person is hesitant but then agrees. He was connected to the crisis team years ago when he was first diagnosed but has never been contacted by them since. He has just been trialing all the different antipsychotics with his doctors for the last few years.

Scenario 2 Rubric

- Actions shaded in GREY must be performed by the student to pass the scenario.
- The student must receive a score of at least 50% (i.e., 11/22) AND perform all actions shaded in GREY to pass the scenario.
- Phrases and actions that are underlined must be performed by the student to pass the item.
- *Phrases and actions* that are *italicised* are merely suggestions and examples, and do not need to be articulated by the student word-for-word.
- **Scoring for each item: 0 = no marks; 1 = partial mark; 2 = full marks**

Item	ACTION	FULL MARKS (2)	PARTIAL MARKS (1)	NO MARKS (0)
1	**Approaches person appropriately** • *Introduces self* • *Greets person* • *Allows the person to express their concerns and gives space for the person to tell their story*			
2	**Provides comfortable setting for person to talk** • *Negotiates privacy (e.g., asks if the person wishes to speak in a private area where no one else can hear the conversation)* • *Ensures the person is comfortable (e.g., offers the person a seat +/- water to drink)*			
3	**Listens and communicates non-judgementally** • *Does not blame the person* • *Does not invalidate the person's concerns about their situation* • *Acknowledges the person's capacity to cope/manage to this point* • *Does not use stigmatising or dismissive language like "crazy", "stupid", "silly"* • *Demonstrates active listening by nodding, paraphrasing, reflective listening by synthesising/interpreting the given scenario, or using responsive words (e.g., "I see")* • *Uses the person's own language/terms* • *Summarises key points to ensure understanding*			
4	**Asks appropriate open-ended questions to assess situation** • *"How can I help you?"* • *"How is your health otherwise?"* • *"How are you going with your antipsychotic medications?"* • *"How long have you been experiencing this?"* • *"Who have you spoken to about this?* • *"How are you coping/feeling while hearing these voices?"*			
5	**Conducts appropriate crisis assessment** • *Recognises signs and symptoms of psychosis* • *Investigates alcohol and drug use (e.g., "Are you under the influence of any drugs or alcohol right now?" "How much have you taken?")* • *Assesses urgency of current situation ("Are you feeling safe?" "Do you have a friend you can call to meet you here and take you home?" "Have you made any plans?")*			
6	**Asks if the person is having suicidal thoughts** • Asks directly about suicidal thoughts *e.g., "Are you thinking of killing yourself/ending your life/suicide?"* • Asks sensitively about suicidal thoughts *(e.g., "It is not unusual for someone to become so distressed that they think about suicide, has that happened for you?").* Note: To receive full marks (2) for this item, the student must ask about suicide directly AND independently from self-harm. If the student asks about suicide using indirect language, only, (e.g., *"harming/hurting yourself"*), then only give partial marks (1). If the student asks about suicide and self-harm together but does not ask about suicide separately, give partial marks (1). *Student MUST achieve at least a partial mark (1) on this item to pass the scenario.			
7	**Asks appropriate follow-up questions in relation to person's suicidal thoughts** 1. Enquires about a suicide plan *(e.g., "Do you have a plan?", "How/when will you suicide?")* 2. Asks other appropriate follow-up questions *(e.g., "Have you attempted suicide before?", "Are you using alcohol/drugs?", "Do you have a friend you can call to meet you here and take you home?"))* Note: Student MUST enquire about a "plan", otherwise "0" marks for this item. If the student asks about the plan, only, give partial mark (1). If the student asks about the plan, and at least one other question, give full marks (2).			
8	**Gives reassurance and appropriate information** • *Thanks the person for telling them about their thoughts of suicide and acknowledges that may have been difficult to do.* • *Indicates that they care and want to help (e.g., "Is there anything I can do to help?", "Let's talk about various ways I can support you during this tough time")* • *Provides factual information (e.g., "Thoughts of suicide do not have to be acted on and are often associated with treatable mental illness", "Mental illness is common and there is a wide range of effective psychological/ pharmacological treatment available" ; it is important to get support to find what works best for you")* • *Explains what the next point of care (e.g., psychiatrist appointment, ambulance, admission to hospital) will entail (e.g., mental health assessment) so the person is aware and reassure* **CONTINUES ON NEXT PAGE**			

9	**Demonstrates recognition of potential mental health problem and takes appropriate action** • Ensures the person's safety by not leaving the person alone *(e.g., consensually connect with family member/friend to pick up, calls Mental Health Crisis Team/ambulance to pick up*) • Connects the person with appropriate professional help (*e.g., Mental Health Crisis Team/Ambulance, Lifeline/Suicide Call Back Service or immediately see the doctor or Community Mental Health Service for assessment, contacts psychiatrist for emergency appointment*) *Student MUST perform BOTH of these actions to pass the scenario. Additional examples of follow-up actions • *Takes phone number to call for follow up* • *Provides pharmacy number for person to call back* • *Recommends that the person contacts support such as a GP, a friend, or lifeline if they are feeling unsafe, scared, having suicidal thoughts, or making plans to act on thoughts about suicide*			
10	**Good non-verbal communication** • *Open and relaxed body posture* • *Appropriate eye contact* • *Non-judgemental facial expressions*			
11	**Displays empathy** • *Uses empathetic language (e.g., "I can see that this is a difficult time for you")* • *Does not use sympathetic language (e.g., does NOT say things like "I feel sorry for you")* • *Acknowledges the person's situation/challenges while also holding hope for the future* • *Demonstrates concern for the person and continual willingness to help*			

APPENDIX XV –

SCENARIO 4 FOR PHARMACIST EVALUATION

PSA4 – Mania

OPENING LINE FOR SIMULATED PATIENT

"Hi, I'm here to pick up a refill for my antidepressant. It has been working really well. I have really noticed a difference in the last week."

INFORMATION FOR SIMULATED PATIENT

This is a prescription that you filled for the first time a little over a month ago and this is the first time you are refilling the prescription. You are very hyper and can't seem to maintain a conversation without jumping from subject to subject but state "you have never felt better, I have so much energy". You have called into work sick a couple of times this week but feel it is fine as the company would shut down if you didn't work there. You have not had to take your medications everyday as they seem to work when you need them.

Key Phrases to mention: *"I have so many ideas it is hard to keep track", "These meds really worked fast", "I don't have to sleep much anymore with all this energy"*

Possible Questions

How long have you been feeling this way?	2 maybe 3 days
Have you told anyone how you are feeling?	No, I don't see the doctor for another month
Have you sought professional help?	No, I have all this energy and ideas, other people are just having trouble keeping up.
Have you had thoughts of suicide? *(Participants may ask about this, not the focus of the case)*	No, that is why I went to the doctor last month. I feel great now.
Have you ever attempted suicide before? *(Participants may ask about this, not the focus of the case)*	No
Do you have a plan if you were to attempt suicide? *(Participants may ask about this, not the focus of the case)*	No, haven't thought about it seriously
Have you been using alcohol or drugs recently?	Yes, alcohol seems to slow me down enough to get a little sleep. Six-pack in the evening
Have you had mental illness/depression before?	Yes, that is why I was put on the citalopram
Who is the personal contact?	My brother but we had a falling out yesterday because he was jealous of my intelligence.
Phone number to contact you?	0447 887 342 (made up number)
Would you allow me to discuss these changes in mood with your provider and help you set an appointment?	I don't know, I think I am doing great. I think I could probably provide help to my doctor.

Notes: Potential manic episode that may be inappropriately treated or caused by the antidepressant

PSA4 Simulation Rubric

Scoring Guide:

- Actions shaded in GREY must be performed by the participant to pass the case.
- The participant must receive a score of at least 10/20 AND perform all actions shaded in GREY to pass the case.
- *Phrases and actions* that are *italicized* are merely suggestions and examples, and do not need to be articulated by the participant word-for-word.

Item	ACTION	FULL MARKS (2)	PARTIAL MARKS (1)	NO MARKS (0)
1	**Approaches consumer appropriately** • *Introduces self* • *Greets consumer*			
2	**Provides comfortable setting for consumer to talk** • *Negotiates privacy* • *Ensures the consumer is comfortable*			
3	**Listens and communicates non-judgmentally** • *Does not blame the consumer* • *Does not use words like "alcoholic", "druggie"* • *Non-judgemental attitudes displayed*			
4	**Asks appropriate open-ended questions** • *E.g. "How can I help?"* • *E.g. "How long have you been feeling this way?"* • *E.g. "What type of support have you sought?"* • *E.g. "How are you coping?"* • *E.g. "Who have you spoken to about your emotions?"*			
5	**Conducts appropriate assessment** • *Recognise signs & symptoms of possible panic attack, manic episode or severe psychotic state* • *Assesses urgency of current situation*			
6	**Gives reassurance and appropriate information** • *They care and want to help* • *If panic attack – e.g. provide reassurance (they are safe & symptoms will pass, empathise with distress)* • *If psychoses – e.g. empathise with distress, symptoms are real*			
7	**Displays empathy** • *Uses empathetic language (e.g. "You seem very upset")* • *Does not use sympathetic language (e.g. "I feel sorry for you")* • *Demonstrates continual willingness to help*			

8	**<u>Takes appropriate action</u>** **For example:** • *<u>worsening mania/psychosis needs immediate referral</u>* *OR* • *<u>first-time panic attack requires immediate, emergency care</u>* *Other appropriate actions* • *Offers a range of professional services (e.g. GP, case manager, psychologist, psychiatrist, hospital emergency department or calling ambulance)* • *Encourages discussing with family member/friend/partner* • *Takes phone number to call for follow up* • *Provides pharmacy number for consumer to call back*			
9	**Encourages self-help** • *Lifestyle recommendations (e.g. exercise, eating well)* • *Relevant support groups (e.g. widowers, carers, divorcees, mental health support groups)* • *E.g. "Have you told anyone else about this?"*			
10	**Good non-verbal communication** • *Open body language* • *Appropriate eye contact* • *Non-judgemental facial expressions*			
TOTAL (out of 20)				

APPENDIX XVI –

ETHICS APPROVED DOCUMENTS FOR PROJECT NO. 2023/148 (PHARMACIST EVALUATION)

Appendix XVI includes the following ethics approved documents for Project No. 2023/148:

- Participant Information Statement for pharmacist evaluation
- Participant Consent Form for pharmacist evaluation
- Survey for pharmacist evaluation
- Participant Information Statement for pharmacist interviews
- Participant Consent Form for pharmacist interviews
- Interview guide for pharmacist evaluation

Participant Information Statement

Pharmacists

THE UNIVERSITY OF SYDNEY

Research Study: Exploring how pharmacists support people experiencing mental health symptoms or crises through mystery shopping: A simulated patient study

A/Prof Claire O'Reilly (Responsible Researcher)
Sydney Pharmacy School
Phone: +61 2 9351 2729 | Email: claire.oreilly@sydney.edu.au
Mrs Tina Ung (PhD student) | Email: tina.xu@sydney.edu.au

---

1. What is this study about?

We are conducting a research study to explore how pharmacists who have completed Mental Health First Aid (MHFA) training support people experiencing mental health symptoms or crises, via the use of simulated patients (SPs) in educational workshop and real-life community practice settings. Specifically, we will be exploring pharmacists' ability to provide MHFA across a range of mental health scenarios in an educational workshop setting, the impact of SP role-plays on pharmacists' intended and provided behaviours when supporting people experiencing mental health symptoms or crises, as well as the impact of repeated covert SP (mystery shopping) visits with immediate feedback and coaching on pharmacists' behaviour when responding to mental health symptoms or crises in real-life clinical practice, over time. Taking part in this study is voluntary.

Please read this sheet carefully and ask questions about anything that you don't understand or want to know more about.

2. Who is running the study?

The study is being carried out by the following researchers:

- A/Prof Claire O'Reilly, Associate Professor, Sydney Pharmacy School
- Dr Sarira El-Den, Lecturer, Sydney Pharmacy School
- A/Prof Rebekah Moles, Associate Professor, Sydney Pharmacy School
- Dr Jack Collins, Lecturer, Sydney Pharmacy School
- Mr Kevin Ou, Manager of Training Delivery and Assessment, The Pharmaceutical Society of Australia
- Mrs Tina Ung, Associate Lecturer and PhD Candidate, Sydney Pharmacy School

Tina Ung is conducting this study as the basis for the degree of Doctor of Philosophy at The University of Sydney.

3. Who can take part in the study?

You have been invited to take part in this study because you have registered to attend an educational workshop jointly conducted by The University of Sydney and the Pharmaceutical Society of Australia (PSA) in Sydney, Australia.

4. What will the study involve for me?

If you decide to take part in this study, you will be involved in one or more of the following parts of the study:

STAGE 1: SP WORKSHOP

Part A: Participation in an audio-recorded SP role-play

If you have completed MHFA training in the past 5 years and volunteer to be a participating pharmacist, you will be randomly allocated to participate in a role-play with a SP. You will be observed by the remaining pharmacists in your workshop group, as well as a facilitator and a mental health consumer educator. Following the scenario, a rubric will be used to guide a discussion with the group, and will be completed by yourself (self-assessment), your pharmacist peers, workshop facilitator, and the consumer educator. The mental health consumer educator and facilitator will then facilitate immediate feedback discussion with the group to debrief the role-play.

Three different role-plays will be conducted during the workshop, each with a different volunteering pharmacist. Each of the role-plays and debrief discussions will take approximately 30 minutes, therefore total time commitment for the workshop is approximately 90 minutes.

Part B: Completion of pre- and post-workshop surveys

You will be asked to complete some short surveys regarding your intended behaviours when supporting people experiencing mental health symptoms or crises, prior to and after participating in or observing the SP role-plays. The surveys will be delivered online, and will take approximately 3-5 minutes to complete each time.

You may choose to participate in Part A or Part B, or both.

STAGE 2: COVERT SP VISITS (MYSTERY SHOPPING)

Part C: Participation in covert SP (mystery shopping) visits

At the conclusion of the workshop, MHFA-trained pharmacists who practise in metropolitan Sydney will be invited to participate in Stage 2 of the study, which will involve three covert SP (mystery shopping) visits in the three months after the workshop.

You do not need to have participated in a SP role-play in the Stage 1 SP workshop (you may have observed and/or provided feedback to your peers during debrief discussions)

to participate in Stage 2 covert SP (mystery shopping) visits, however you will need to be MHFA-trained within the past 5 years.

A SP will visit your place of clinical practice (community pharmacy) to enact a mental health scenario. The SP will interact with only you and no other pharmacy staff. You will not know the true identity of the SP and will provide mental health support as though they are a genuine customer in the pharmacy. The interaction will be audio-recorded using a concealed device for training purposes. The SP will exit the pharmacy, then a member of the research team will listen to the audio-recording, immediately enter the pharmacy, reveal that the covert SP (mystery shopping) visit has occurred and provide you with feedback and coaching.

Please note that the pharmacy owner or authorised representative must also provide consent (separate Participant Information Statement and Consent Form available) for you to participate in this activity, if you are not the pharmacy owner or authorised representative.

STAGE 3: QUALITATIVE EVALUATION

Part D: Participation in a semi-structured interview

After all covert SP (mystery shopping) visits have been conducted, Stage 2 pharmacists will be invited to participate in a semi-structured interview to share your experiences in participating in this study. The interview will take approximately 30 minutes and will be organised at a time convenient for you. It is voluntary to take part in the interview.

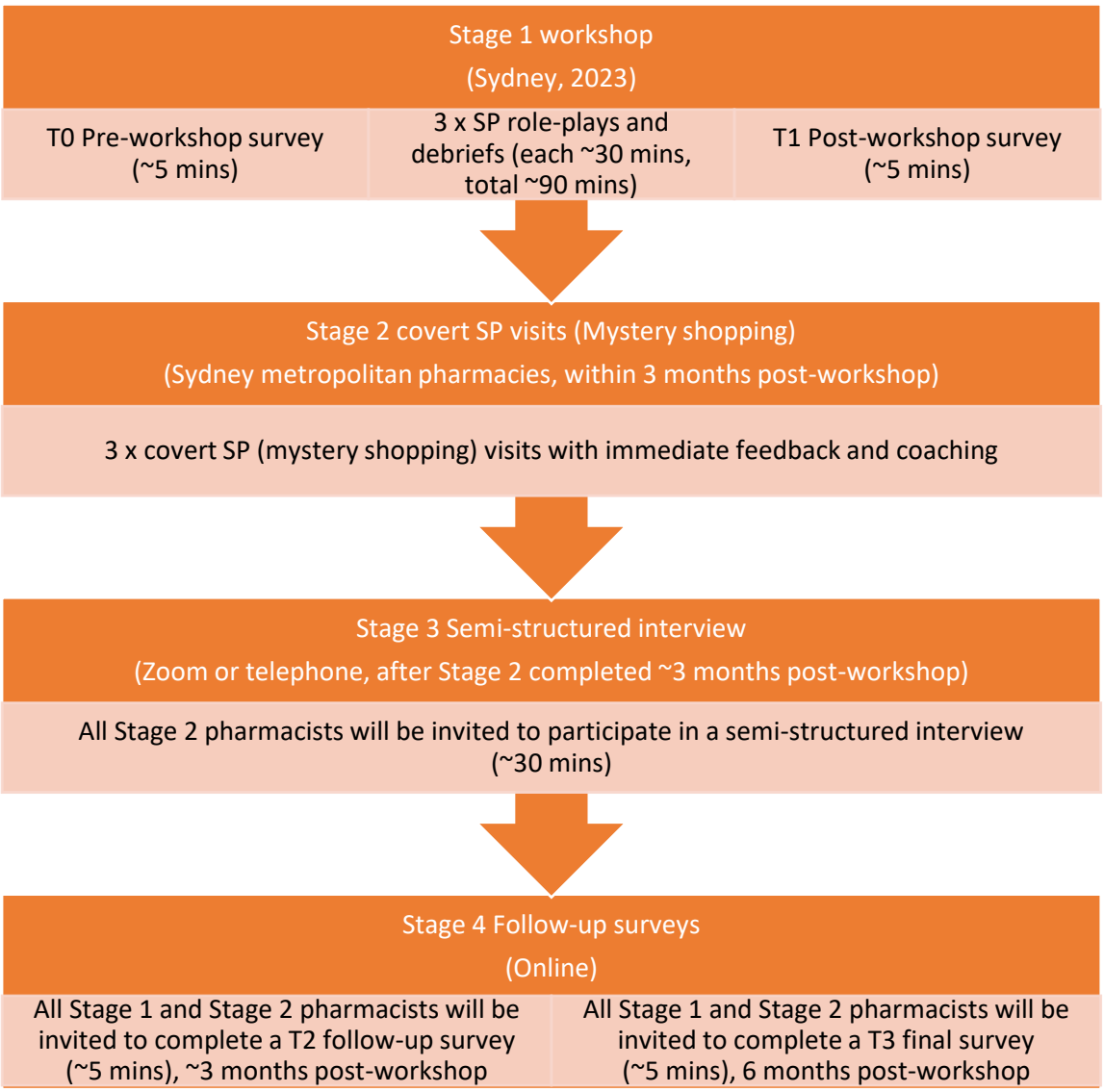
The SP role-plays and debrief discussions, covert SP (mystery shopping) visits and interviews will all be audio-recorded, and conducted at the PSA educational workshop, your place of practice (community pharmacy) and either online via Zoom or by telephone, respectively.

The figure below illustrates the potential timeline of your involvement in the study.

STAGE 4: FOLLOW-UP SURVEYS

Part E: Completion of follow-up surveys

Approximately three months after attending the workshop, you will be asked to complete a follow-up survey, then a final survey a further three months later (6 months post-workshop) to explore your provided behaviours when responding to mental health symptoms or crises in the community. The surveys will be delivered online, and will take approximately 3-5 minutes to complete each time.



The table below provides an additional visual representation of the activities involved in each Stage of the project that you can volunteer to participate in.

Activity	**Stage 1** **SP workshop**	**Stage 2** **Covert SP visits (Mystery shopping)**	**Stage 3** **Qualitative evaluation**	**Stage 4** **Follow-up surveys**
SP role-play participation (Part A)	✓			
Pre- and post-workshop surveys (Part B)	✓			
Covert SP (mystery shopping) visits (Part C)		✓	✓	
Semi-structured interview (Part D)			✓	
Follow-up surveys (Part E)				✓

5. Can I withdraw once I've started?

Being in this study is completely voluntary and you do not have to take part.

Your decision will not affect your current or future relationship with the researchers or anyone else at The University of Sydney.

We do not anticipate your decision will affect your relationship with the PSA.

If you decide to take part in the study and then change your mind you can withdraw by contacting A/Prof Claire O'Reilly at claire.oreilly@sydney.edu.au or on 02 9351 2729.

By submitting your surveys, you consent to take part in that Stage of the study. You can withdraw any time before you submit however once your responses are submitted, they cannot be withdrawn. This is because they are anonymous, and we will not be able to tell which one is yours.

If you decide to participate in the SP role-plays, you can withdraw at any time before audio-recording commences.

If you take part in the covert SP (mystery shopping) visits, you can withdraw at any time before the SP commences audio-recording of your mystery shopping visit.

If you take part in an interview you may refuse to answer any questions that you do not wish to answer.

If you decide to withdraw, we will not collect any more information from you. Any information that we have already collected will be kept in our study records and may be included in the study results as it will be de-identified.

6. Are there any risks or costs?

Aside from giving up your time, we do not expect that there will be any risks or costs associated with taking part in this study. If you feel distressed while participating in the study, all members of the research team have MHFA training and will immediately put you in contact with the appropriate health professional (e.g. your GP) or mental health service (e.g. Pharmacists' Support Service 1300 244 910, Lifeline 13 11 14) to ensure adequate help and support is provided.

7. Are there any benefits?

Attendance at the Stage 1 workshop will be accredited to claim CPD points. If you attend the workshop, you will be eligible to record 2 x Group 2 CPD points (4 CPD points).

If you volunteer to participate in the covert SP (mystery shopping) visits (Stage 2, Part C) you will be eligible to record 0.5 x Group 3 CPD points (1.5 CPD points) per mystery

shopping visit. Therefore if you participate in all 3 mystery shopping visits, you will be eligible to record a total of 1.5 x Group 3 CPD points (4.5 CPD points) for participating in Stage 2. The pharmacy will also be issued a framed certificate of participation.

If you volunteer to participate in a semi-structured interview (Stage 3, Part D), to thank you for your time you will be reimbursed with a $30 gift voucher.

If you complete and submit a follow-up survey 3 and/or 6 months post-Stage 1 workshop (Stage 4, Part E), you will receive a $10 gift voucher for each follow-up survey completed ($20 if you complete both follow-up surveys). Please note that the email address you provide to receive the e-voucher will be collected and stored separately from your anonymous survey responses.

Please note that you must complete the part that you volunteer for to be eligible for its incentive.

Your participation will also help to inform future research in relation to utilising SPs in pharmacy education and the continuing professional development of pharmacists.

8. What will happen to information that is collected?

By providing your consent, you are agreeing to us collecting information about you for the purposes of this study.

Any information you provide us will be stored securely and we will only disclose identifiable information with your permission, unless we are required by law to release information. We are planning for the study findings to be published.

You will not be individually identifiable in these publications.

9. Will I be told the results of the study?

You have a right to receive feedback about the overall results of this study. You can request this by providing your contact details on the consent form. This feedback will be in the form of a brief lay summary and may be later available as a published journal article. You will receive this feedback after the study is finished.

If you participate in a SP role-play, you will receive immediate personalised feedback during the associated debrief, facilitated by the mental health consumer educator and facilitator.

If you participate in the covert SP (mystery shopping) visits, you will receive immediate personalised feedback and coaching when a member of the research team enters the pharmacy after each mystery shopping visit has occurred. Your personalised feedback will be for only yourself and will not be shared with your employer or any other pharmacy staff.

10. What if I would like further information?

When you have read this information, the following researcher/s will be available to discuss it with you further and answer any questions you may have:

- A/Prof Claire O'Reilly on claire.oreilly@sydney.edu.au or 02 9351 2729
- Mrs Tina Ung on tina.xu@sydney.edu.au or 02 9351 7586

11. What if I have a complaint or any concerns?

The ethical aspects of this study have been approved by the Human Research Ethics Committee (HREC) of The University of Sydney [HREC Approval No. 2023/148] according to the *National Statement on Ethical Conduct in Human Research (2007).*

If you are concerned about the way this study is being conducted or you wish to make a complaint to someone independent from the study, please contact the University:

Human Ethics Manager
human.ethics@sydney.edu.au
+61 2 8627 8176

This information sheet is for you to keep

Participant Consent Form

Pharmacists

THE UNIVERSITY OF SYDNEY

Research Study: Exploring how pharmacists support people experiencing mental health symptoms or crises through mystery shopping: A simulated patient study

A/Prof Claire O'Reilly (Responsible Researcher)
Sydney Pharmacy School
Phone: +61 2 9351 2729 | Email: claire.oreilly@sydney.edu.au
Mrs Tina Ung (PhD student) | Email: tina.xu@sydney.edu.au

Participant Name _____

I agree to take part in this research study. In giving my consent, I confirm that that:

- The details of my involvement have been explained to me, and I have been provided with a written Participant Information Statement to keep.

- I understand the purpose of the study is to explore how pharmacists who have completed Mental Health First Aid (MHFA) training support people experiencing mental health symptoms or crises, via the use of simulated patients (SPs) in educational workshop and real-life community practice settings, the impact of SP role-plays on pharmacists' intended and provided behaviours when supporting people experiencing mental health symptoms or crises, as well as the impact of repeated covert SP (mystery shopping) visits with immediate feedback and coaching on pharmacists' behaviour when responding to mental health symptoms or crises in real-life clinical practice, over time.

- I acknowledge that the risks and benefits of participating in this study have been explained to me to my satisfaction.

- I understand that there are five parts to this study and I can be involved in one or more of the following:
    A. Participation in an audio-recorded SP role-play
    B. Completion of short surveys about my intended behaviours when supporting people experiencing mental health symptoms or crises
    C. Participation in covert SP (mystery shopping) visits
    D. Participation in a semi-structured interview
    E. Completion of short follow-up surveys about my provided behaviours when supporting people experiencing mental health symptoms or crises

- I understand that my participation in the SP role-plays and interview will be audio recorded for research purposes.

- I understand that my participation in the covert SP (mystery shopping) visits will be audio recorded with a concealed device for research purposes.

- I understand that being in this study is completely voluntary.

- I am assured that my decision to participate will not have any impact on my relationship with the research team or the University of Sydney or The Pharmaceutical Society of Australia.

- I understand that I am free to withdraw from this study at any time and that any information already collected from me will be kept in study records and may be included in the study results as it will be de-identified.

- I have been informed that the confidentiality of the information I provide will be protected and will only be used for purposes that I have agreed to. I understand that information identifying me will only be told to others with my permission, except as required by law.

- I understand that the results of this study may be published, and that publications will not contain my name or any identifiable information about me.

- Please place a tick in the final row of this table to indicate which Stage you consent to participating in:

Activity	**Stage 1** **SP workshop**	**Stage 2** **Covert SP (mystery shopping) visits**	**Stage 3** **Qualitative evaluation**
SP role-play participation (Part A)	✓		
Covert SP (mystery shopping) visits (Part C)		✓	✓
Semi-structured interview (Part D)			✓
I consent to participating in this Stage	Yes ☐	Yes ☐	Yes ☐

- I understand that my participation in the pre-, post- and/or follow-up surveys is voluntary and that my consent is implied via completion of the survey(s).

- I consent to audio recordings Yes ☐ No ☐

- I am MHFA-trained Yes ☐ No ☐
  *If you answered **Yes**, please provide the year of MHFA training:* _____

- I am the owner of the pharmacy and I give consent for the premises to participate in covert SP (mystery shopping) visits (Stages 2 and 3) Yes ☐ No ☐
  *If you answered **No,** please obtain a copy of the Participant Information Statement and Consent Form for the owner or authorised representative of the pharmacy where you work to complete*

- I would like feedback on the overall results of this study Yes ☐ No ☐
  *If you answered **Yes**, please provide your email address:*

  _____

- I understand that after I sign and return this consent form it will be retained by the researcher, and that I may request a copy at any time.

Participant Name _____

Signature _____

Date _____

Exploring how pharmacists support people experiencing mental health symptoms or crises through mystery shopping: a simulated patient study

T0 (pre-workshop) and T1 (post-workshop) survey

What are the last THREE digits of your mobile number? ☐☐☐

What day of the month you were born? (please express in double digits e.g. if you were born on 1st December then please type '01') ☐☐

Note that your responses are confidential and the identifier is for research purposes only.

SECTION A: DEMOGRAPHICS

Please answer these questions about yourself to help us analyse the results of the survey.

1	Age				
2	Sex	M	F	Other	Prefer not to respond
3	Years of pharmacy experience				
4	Have you received MHFA training?	Yes Year of MHFA training accreditation _____		No	
5	Did you role-play with a simulated patient in this study?*				

*additional question included only in post-simulated patient role-play survey i.e. T1 survey

SECTION B: MENTAL HEALTH SUPPORT SCALE – INTENDED

For the purposes of this study, a 'mental health problem' occurs when a person feels depressed, anxious or emotionally stressed over a period of weeks or more, and this interferes with their life. It could include, for example, depression, anxiety disorders, eating disorders, substance use disorders, schizophrenia, bipolar disorder or personality disorders.

Take a moment to think about somebody you know or a customer in your pharmacy. Imagine this person is experiencing a mental health problem, experiencing a worsening of an existing mental health problem, or is in a mental health crisis (e.g. they are suicidal, experiencing symptoms of psychosis).

How likely is it that you would take the following actions with the person?

[Response scale: Very unlikely (1), Unlikely (2), Neither likely nor unlikely (3), Likely (4), Very likely (5)]

1 Ask if they have been having thoughts of harming themselves or others. (A)
2 Discuss with them their wishes about privacy and confidentiality. (A)
3* Listen to their problems and try to provide solutions. (L)

4 Let them know you are listening to what they are saying by restating and summarising what they have said. (L)
5 Communicate clearly and simply, and repeat things where necessary. (L)
6* Tell them they have to get their act together. (G)
7 Convey a message of hope by telling them help is available and things can get better. (G)
8* Try to cheer them up by telling them that things don't seem that bad. (G)
9 Offer them information and resources appropriate to their situation. (G)
10 Discuss their options for seeking professional help. (EP)
11 Ask whether they have other supportive people they can rely on. (EO)
12 Discuss with them whether they are interested in self-help strategies. (EO)

For the next few questions, imagine you suspect that this person may be thinking about suicide. How likely is it that you would take the following actions with the person?

13 Ask if they have been thinking about suicide. (S)
14* Tell them how much it will hurt their family and friends if they were to kill themselves. (S)
15* Try to make them understand that suicide is wrong. (S)
16 Ask if they have a plan for suicide – for example, how, when and where they intend to die. (S)

Imagine this person is at immediate risk of suicide. How likely is it that you would take the following actions?

17 Encourage them to get appropriate professional help as soon as possible – for example, see a mental health professional or someone at a mental health service. (I)
18 Make sure they are not left on their own. (I)

For the next few questions, imagine this person was out of contact with reality, for example, experiencing delusions, hallucinations, or paranoia. How likely is it that you would take the following actions with the person?

19 Acknowledge they might be frightened by what they are experiencing. (P)
20* Try to convince them that their beliefs and perceptions are false. (P)
21 Listen to them talk about their experiences even though you know they are not based in reality. (P)

Imagine the person's mental health problem is having a major impact on their life but they are reluctant to seek professional help. How likely is it that you would take the following actions?

22 Find out if there are specific reasons why they do not want to seek professional help. (R)
23 Let them know they can contact you if they change their mind about seeking help. (R)

(Note. * denotes item on the Not Recommended Scale and is reverse scored. A: Approach, assess and assist with any crisis. L: Listen and communicate non-judgmentally. G: Give support and information. EP: Encourage the person to get appropriate professional help. EO: Encourage other supports. S: Suicidal behaviour. I: Immediate risk of suicide. P: Psychotic symptoms. R: Reluctance to seek help)

SECTION C: PERSONAL EXPERIENCES OF MENTAL ILLNESS

The final 2 questions inquire about your personal experiences with mental illness.

1.	Have you ever been diagnosed with a mental illness (e.g. mood disorder, anxiety disorder, substance use disorder, etc.)?	Yes	No
2.	Does someone close to you (e.g. close friend or relative) live with a mental illness?	Yes	No

Thank you for completing this survey.

If you feel distressed by your participation in this survey, please contact:

Your GP, Pharmacists' Support Service (1300 244 910) or Lifeline (13 11 14).

Participant Information Statement

SP Workshop Pharmacists – Interview

THE UNIVERSITY OF SYDNEY

Research Study: Exploring how pharmacists support people experiencing mental health symptoms or crises through mystery shopping: A simulated patient study

A/Prof Claire O'Reilly (Responsible Researcher)
Sydney Pharmacy School
Phone: +61 2 9351 2729 | Email: claire.oreilly@sydney.edu.au
Mrs Tina Ung (PhD student) | Email: tina.xu@sydney.edu.au

---

1. What is this study about?

We are conducting a research study to explore how pharmacists who have completed Mental Health First Aid (MHFA) training support people experiencing mental health symptoms or crises, via the use of simulated patients (SPs) in educational workshop settings. Specifically, we will be exploring pharmacists' ability to provide MHFA across a range of mental health scenarios in an educational workshop setting, and the impact of SP role-plays on pharmacists' intended behaviours when supporting people experiencing mental health symptoms or crises. Additionally, we will be seeking feedback on the SP educational workshop experience from the pharmacist's perspective, and pharmacists' opinions on potentially using SPs (via repeated covert visits or 'mystery shopping' with immediate feedback and coaching) as a way to train and shape mental health support skills in real-life community practice settings. Taking part in this study is voluntary.

Please read this sheet carefully and ask questions about anything that you don't understand or want to know more about.

2. Who is running the study?

The study is being carried out by the following researchers:

- A/Prof Claire O'Reilly, Associate Professor, Sydney Pharmacy School
- Dr Sarira El-Den, Lecturer, Sydney Pharmacy School
- Prof Rebekah Moles, Associate Professor, Sydney Pharmacy School
- Dr Jack Collins, Lecturer, Sydney Pharmacy School
- Mr Kevin Ou, Manager of Training Delivery and Assessment, The Pharmaceutical Society of Australia
- Mrs Tina Ung, Associate Lecturer and PhD Candidate, Sydney Pharmacy School

Tina Ung is conducting this study as the basis for the degree of Doctor of Philosophy at The University of Sydney.

3. Who can take part in the study?

You have been invited to take part in this study because you attended an educational workshop jointly conducted by The University of Sydney and the Pharmaceutical Society of Australia (PSA) in Sydney, Australia.

4. What will the study involve for me?

If you decide to take part in this study, you will be invited to participate in a semi-structured interview to provide feedback on your experiences of participating in and/or observing SP role-plays at the educational workshop. You will also be asked to share your opinions on using repeated covert SP (mystery shopping) visits and coaching to shape pharmacists' behaviours when supporting people experiencing mental health symptoms or crises in real-life practice settings. The interview will take approximately 30 minutes and will be organised at a time convenient for you. It is voluntary to take part in the interview. The interview will be audio-recorded and conducted either online via Zoom or by telephone.

5. Can I withdraw once I've started?

Being in this study is completely voluntary and you do not have to take part.

Your decision will not affect your current or future relationship with the researchers or anyone else at The University of Sydney.

We do not anticipate your decision will affect your relationship with the PSA.

If you decide to take part in the study and then change your mind you can withdraw by contacting A/Prof Claire O'Reilly at claire.oreilly@sydney.edu.au or on 02 9351 2729.

If you take part in an interview you may refuse to answer any questions that you do not wish to answer.

If you decide to withdraw, we will not collect any more information from you. Any information that we have already collected will be kept in our study records and may be included in the study results as it will be de-identified.

6. Are there any risks or costs?

Aside from giving up your time, we do not expect that there will be any risks or costs associated with taking part in this study. If you feel distressed while participating in the study, all members of the research team have MHFA training and will immediately put you in contact with the appropriate health professional (e.g. your GP) or mental health service (e.g. Pharmacists' Support Service 1300 244 910, Lifeline 13 11 14) to ensure adequate help and support is provided.

7. Are there any benefits?

To thank you for your time at the interview, you will be reimbursed with a $30 gift card.

Your participation will also help to inform future research in relation to utilising SPs in pharmacy education and the continuing professional development of pharmacists.

8. What will happen to information that is collected?

By providing your consent, you are agreeing to us collecting information about you for the purposes of this study.

Any information you provide us will be stored securely and we will only disclose identifiable information with your permission, unless we are required by law to release information. We are planning for the study findings to be published.

You will not be individually identifiable in these publications.

9. Will I be told the results of the study?

You have a right to receive feedback about the overall results of this study. You can request this by providing your contact details on the consent form. This feedback will be in the form of a brief lay summary and may be later available as a published journal article. You will receive this feedback after the study is finished.

10. What if I would like further information?

When you have read this information, the following researcher/s will be available to discuss it with you further and answer any questions you may have:

- A/Prof Claire O'Reilly on claire.oreilly@sydney.edu.au or 02 9351 2729
- Mrs Tina Ung on tina.xu@sydney.edu.au or 02 9351 7586

11. What if I have a complaint or any concerns?

The ethical aspects of this study have been approved by the Human Research Ethics Committee (HREC) of The University of Sydney [HREC Approval No. 2023/148] according to the *National Statement on Ethical Conduct in Human Research (2007).*

If you are concerned about the way this study is being conducted or you wish to make a complaint to someone independent from the study, please contact the University:

Human Ethics Manager
human.ethics@sydney.edu.au
+61 2 8627 8176

This information sheet is for you to keep

Participant Consent Form

SP Workshop Pharmacists – Interview

THE UNIVERSITY OF SYDNEY

Research Study: Exploring how pharmacists support people experiencing mental health symptoms or crises through mystery shopping: A simulated patient study

A/Prof Claire O'Reilly (Responsible Researcher)
Sydney Pharmacy School
Phone: +61 2 9351 2729 | Email: claire.oreilly@sydney.edu.au
Mrs Tina Ung (PhD student) | Email: tina.xu@sydney.edu.au

Participant Name _____

I agree to take part in this research study. In giving my consent, I confirm that that:

- The details of my involvement have been explained to me, and I have been provided with a written Participant Information Statement to keep.
- I understand the purpose of the study is to explore how pharmacists who have completed Mental Health First Aid (MHFA) training support people experiencing mental health symptoms or crises, via the use of simulated patients (SPs) in educational workshop settings, the impact of SP role-plays on pharmacists' intended behaviours when supporting people experiencing mental health symptoms or crises, as well as to seek feedback on the SP educational workshop experience from the pharmacist's perspective, and pharmacists' opinions on potentially using SPs (via repeated covert visits or 'mystery shopping' with immediate feedback and coaching) as a way to train and shape mental health support skills in real-life community practice settings.
- I acknowledge that the risks and benefits of participating in this study have been explained to me to my satisfaction.
- I understand that this study will involve my participation in a semi-structured interview to provide feedback on my experiences of participating in and/or observing SP role-plays at the educational workshop, and to share my opinions on using repeated covert SP (mystery shopping) visits and coaching to shape pharmacists' behaviours when supporting people experiencing mental health symptoms or crises in real-life practice settings.
- I understand that my participation in the interview will be audio recorded for research purposes.
- I understand that being in this study is completely voluntary.
- I am assured that my decision to participate will not have any impact on my relationship with the research team or the University of Sydney or The Pharmaceutical Society of Australia.

- I understand that I am free to withdraw from this study at any time and that any information already collected from me will be kept in study records and may be included in the study results as it will be de-identified.

- I have been informed that the confidentiality of the information I provide will be protected and will only be used for purposes that I have agreed to. I understand that information identifying me will only be told to others with my permission, except as required by law.

- I understand that the results of this study may be published, and that publications will not contain my name or any identifiable information about me.

- I confirm the following:

I consent to participating in a semi-structured interview	Yes ☐	No ☐
I consent to audio recordings of the interview	Yes ☐	No ☐
I would like feedback on the overall results of this study *If you answered **Yes**, please provide your email address:* _____	Yes ☐	No ☐

- I understand that after I sign and return this consent form it will be retained by the researcher, and that I may request a copy at any time.

Participant Name _____

Signature _____

Date _____

Exploring how pharmacists support people experiencing mental health symptoms or crises through mystery shopping: a simulated patient study

SP WORKSHOP PHARMACIST interview guide

AIM: To explore pharmacists' experiences of participating in and/or observing SP role-plays at the educational workshop, and their opinions on using covert SP (mystery shopping) visits and coaching to shape behaviours when supporting people experiencing mental health symptoms or crises.

SCRIPT: "Thank you for volunteering to take part in this interview about your experiences of the SP workshop you attended. We anticipate the discussion to take approximately 30 minutes. I would like to remind you that the interview is being audio recorded and whatever you say will be de-identified."

QUESTIONS TO ASK

1. Recently you attended an educational workshop conducted by The University of Sydney and The Pharmaceutical Society of Australia (PSA). How did you feel about this workshop?

2. As part of the workshop activities, you participated in and/or observed SP role-play scenarios. How did you feel about these scenarios?
    a. Ask about each scenario individually

3. What did you think about the feedback process?
    a. Self-assessment
    b. Feedback from an educator with lived experience of mental illness

4. How has participating in the educational workshop overall impacted your confidence in supporting people experiencing mental health symptoms or crises?
    a. How could we further improve this?

5. What would you think about using the SP method (with immediate feedback and coaching) to train pharmacists in providing MHFA to people experiencing mental health symptoms or crises?

Thank you for sharing your SP workshop experiences. I'd now like to ask about your thoughts on adapting the SP method to real-life practice and workplace settings.

6. How would you feel about having a SP-enacted mental health scenario in your workplace?
    a. How do you think you would compare responding to these scenarios in real-life practice vs the workshop setting?

7. How acceptable would you say repeated covert visits from SPs (mystery shopping) with immediate feedback and coaching would be to improve practice in supporting people experiencing mental health symptoms or crises?
    a. What would be the strengths/facilitators to this method?
    b. Challenges/barriers?
        i. How could they be mitigated?

8. Anything else you would like to share about your experience participating in this study?

THANK YOU: Request details to send $30 gift card