



Research

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

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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 competence⁶; 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

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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 suboptimal¹⁸ compared with mental illnesses such as depression¹⁹; this may be attributed to the effects of interpersonal stigma²⁰ and implicit bias²¹ 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 anti-psychotic 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 Health²⁷ 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.

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.

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 [2,235] = 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 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 groups¹⁵ 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 students¹⁵ 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 interns³⁵; 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.

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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.

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