***Student Interprofessional Mental Health Simulation (SIMHS)*: Evaluating the impact on medical, nursing, and clinical psychology trainees**

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**Abstract**

**Purpose:** Mental health simulation is the educational practice of recreating clinical situations in safe environments using actors, followed by structured debriefing, to foster professional development and improve care. Although evidence outlines the benefits of simulation, few studies have examined the impact of *interprofessional* mental health simulation on healthcare trainees, which is more reflective of clinical care.

This study evaluated the impact of mental health simulation training on students' confidence, attitudes, knowledge, and perceived professional development and anticipated clinical practice.

**Methodology:** Participants (n=56) were medical (41%) and mental health nursing students (41%), and clinical psychology trainees (18%). Six simulated scenarios, involving 1-3 trainees, were followed by structured debriefs with trained facilitators. Scenarios, using actors, reflected patient journeys through emergency, medical, and psychiatric settings. Participants' confidence, knowledge, and attitudes were measured quantitatively using pre- and post-course self-report questionnaires. Perceptions of impact on professional development and clinical practice were assessed using thematic analysis of post-course questionnaire responses.

**Findings:** Knowledge, confidence, and attitudes scores showed statistically significant increases, with large effect sizes. Thematic analyses highlighted themes of: interprofessionalism; communication skills; reflective practice; personal resilience; clinical skills; confidence.

**Practical Implications:** Simulation training may begin to influence participants' professional development and future clinical practice and subsequently care delivered, supporting its increased use in mental health.

**Research Implications:** Further research should clarify the impact of interprofessional simulation training on mental health practice in the context of other training received.

**Originality:** This study adds to nascent understandings of the use and potential of interprofessional mental health simulation, outlining innovative training, its positive outcomes and implications.

## INTRODUCTION

Mental health simulation refers to the educational practice of recreating clinical situations in safe learning environments using trained actors, followed by a structured debrief, aiming to foster professional development and improve care for individuals with mental health needs (Attoe, Kowalski, Fernando & Cross, 2016; Fernando *et al.,* 2017). Simulation's experiential learning methods allow for flexibility to address the rapidly changing healthcare landscape, while also overcoming the challenges of teaching clinical skills relevant to mental health, as well as reducing fear and anxiety experienced by trainees (Beutler & Harwood, 2004; Brown, Eagles & Calder, 2011). These skills, often dubbed 'non-technical' or 'human factors', refer to proficiencies in communication, reflection, and other abilities that are essential for psychological working (Beutler & Harwood, 2004; Brown, Eagles & Calder, 2011). Due to the complex nature and variability of these skills, their development requires the opportunity to practice, receive constructive feedback, and reflect on competencies, with simulation training able to afford these requirements (Coyle *et al.,* 1998; Kolb, 1984; Schon, 1987).

Simulation training can be flexibly tailored to the educational requirements of trainees rather than the patient (Gay *et al.,* 2002). Numerous studies have highlighted the suitability of simulation as a teaching tool for mental health professionals at various stage of training, including students of medicine (Bennett *et al.,* 2006; Birndorf & Kaye, 2002; Chur-Hansen & Koopowitz, 2002; Gay *et al.,* 2002; Kowalski & Sathanandan, 2015; Krahn *et al.,* 2002), nursing (Edward *et al.,* 2007; Gough & Happell, 2009; Guise *et al.,* 2012; Happell, 2008; Kameg *et al.,* 2010; Shawler, 2008; Tiffen *et al.,* 2009), and allied health professions (Coyle *et al.,* 1998; Goulter, 2011). Greater exposure to simulated patients and scenarios in psychiatry rotations and medical training, from interviewing patients to team decision-making, has improved examination scores as well as knowledge and recognition of certain disorders (Bennett *et al.,* 2006; Chur-Hansen & Koopowitz, 2002; Krahn *et al.,* 2002). Simulation has been shown to improve communication skills, from beliefs about one's abilities, to using them in therapeutic contexts (Granhein *et al.,* 2018; Grant *et al.,* 2011; Kameg *et al.,* 2010; Kowalski & Sathanandan, 2015; Labrague *et al.,* 2018; Sleeper & Thompson, 2008). The use

of simulated patients and scenarios, both as a one-off and over a sustained period, has been employed to develop teamwork and interpersonal skills in healthcare settings (Bennett *et al.,* 2006; Fichtner *et al.,* 2000; Granhein *et al.,* 2018; Labrague *et al.,* 2018; Shawler, 2008). Simulation has evidence in the literature to support its use to reduce stigma and improve trainees' attitudes towards mental health (Brown, 2009; Gough & Happell, 2009; Happell, 2008). Further benefits outlined in the literature include improved confidence and decision-making in nursing (Guise *et al.,* 2012; Happell, 2008; Labrague *et al.,* 2018; Tiffen *et al.,* 2009), and reflective and critical thinking (Edward *et al.,* 2007; Sleeper & Thompson, 2008).

Although existing research demonstrates the positive impact of simulation on healthcare trainees, studies have generally examined professional groups in isolation rather than an interprofessional group. This is surprising considering the recent emphasis on the importance of interprofessional education which can be defined as 'occasions when two or more professions learn from and about each other to improve collaboration and the quality of care' (Barr, 2002; Barr & Coyle, 2013; CAIPE, 1997; Department of Health, 2008; Frenk *et al.,* 2010; Reeves, 2001; World Health Organisation, 2010). Simulation training has been highlighted as an appropriate vehicle through which to deliver training interprofessionally, and the limited literature on mental health simulation has yielded promising findings relating to attitudes and the potential to enhance patient care (Attoe *et al.,* 2016; Baker *et al.,* 2008; Boet *et al.,* 2014; CAIPE, 2013; Ker *et al.,* 2003). In recent times the literature base for interprofessional simulation in mental health has grown, further advocating the potential of this modality (Attoe *et al.,* 2016; Billon *et al.,* 2016; Fernando *et al.,* 2017; Kowalski *et al.,* 2017; Lavelle, Attoe, Tritschler & Cross, 2017). However these findings relate to healthcare professionals rather than students and trainees. This study seeks to be the first to assess the impact of specifically designed interprofessional mental health simulation on medical, nursing, and clinical psychology trainees.

This study aimed to evaluate changes to the confidence, attitudes, knowledge, and perceived professional development and anticipated clinical practice of healthcare trainees following their participation in interprofessional mental health simulation training.

## METHODS

**Participants & Procedure**:

Participants (n=56) were third-year medical students (n=23, 41%), final-year mental health nursing students (n=23, 41%), and first-year clinical psychology trainees (n=10, 18%) based in South London. Opportunity sampling was used to recruit participants who had volunteered to attend one of 5 full-day Student Interprofessional Mental Health Simulation (SIMHS) courses.

Participants were introduced to the study and presented with consent forms prior to the course. They were then provided with self-report questionnaires assessing knowledge, confidence, and attitudes, which were re-administered on completion of the course, along with a further questionnaire collecting views on the impact of the training. Right to withdraw from the study at any time was stressed, responses were anonymised, and the contact details of the researchers were provided to participants. Ethical approval was granted by the Psychiatry, Nursing, and Midwifery Research Ethics Subcommittee on behalf of the UK Department of Health's Health Research Authority.

**Measures:**

*Self-report Questionnaire* – The questionnaire was administered pre and post-course, quantitatively assessing knowledge, confidence, and attitudes (see Table 1 for individual items). The knowledge scale consisted of 10 'true or false' items assessing knowledge of treatments, patient interaction, professional boundaries, and patients' rights. The confidence scale requested ratings from 0-100 per cent (not at all confident – highly confident) for 10 items assessing confidence in symptom recognition, care delivery, communication, and interprofessional collaboration. The attitudes scale

employed 1-5 Likert ratings (strongly disagree – strongly agree) for 10 items assessing attitudes towards patient presentations, professional roles, care delivery, and interprofessional working. Reverse-scored items were recoded and scores converted to percentages prior to analysis for ease of reporting, with high scores indicating good knowledge, confidence, and attitudes.

*Course Evaluation Form* – The form consisted of open-response questions to assess participant perceptions of the impact of training on clinical practice. Questions focused on the utility of the course professionally, and with reference to client groups, identifying specific changes to practice that participants expected following this training, for example, *"how useful, it at all, do you think this course will be for your work with clients?"*.

These measures were designed for this study due to a lack of validated measures in the mental health simulation literature, ascertained at the outset of this study through a thorough literature search and consultation with subject matter experts by the research team. Measurement development and the focus of scales and individual items were developed in line with existing research, the clinical expertise of the research team, and previous approaches in relevant literature (Fernando *et al.,* 2017; Kowalski et al., 2017). Both measures were piloted on healthcare professionals and subsequent stylistic alterations made, including spacing and formatting of the documents and clarity of wording in the text introducing the Likert scales.

*Table 1. Confidence, knowledge and attitudes items from survey measures*

**Course Content:**

The SIMHS course was interprofessionally designed and delivered, focusing on experience of interprofessional collaboration, patient perspective, challenging clinical scenarios, and professional boundaries in the context of managing physical and psychiatric comorbidity in emergency, medical, and psychiatric settings.

Clinical educators from the simulation centre, academic staff from the medicine, nursing, and clinical psychology courses, and individuals from the local service users in training and education (SUITE) team collaborated on the course design. This group focused specifically on the learning objectives, scenario and actor briefings, and course materials, with particular focus on ensuring that scenarios were realistic, accurate, and had fidelity to clinical practice. Simulation centre faculty lead on the use of technology, debriefing approach, and logistical considerations.

Course learning objectives were: (1) understand the role of human factors and non-technical skills in providing care; (2) reflect on capabilities and experience, recognising when help is required and allocating tasks accordingly; (3) gain experience of managing psychiatric and medical emergencies; (4) increase awareness of common mental health problems and associated risks; (5) develop basic psychiatric and medical assessment skills; (6) reflect on working as a multi-disciplinary team in care and treatment planning.

The course ran on 5 occasions at Maudsley Simulation centre, South London, with 10-12 participants per day, ideally made up of 5 medical students, 5 nursing students, and 2 clinical psychology trainees. Six scenarios, each lasting 10-15 minutes, involved 1-3 participants while the remainder observed via live video feed. Scenarios followed a trained actor simulating the journey of a patient with Emotionally Unstable Personality Disorder (borderline type) through healthcare services. The patient: (scenario 1) presents to psychiatric services via 136 suite for a risk assessment; (2) medically deteriorates from an overdose in 136 suite; (3) is transferred to an inpatient medical unit; (4) is then moved to an inpatient psychiatric unit; (5) for continued monitoring and treatment; (6) with subsequent discharge and follow up in a community clinic. Tasks for trainees during the scenarios varied from risk and capacity assessments to recognising and managing medical deterioration in a psychiatric setting, while considering interpersonal issues such as professional boundaries, splitting, and managing challenging team and family dynamics. Scenarios involved handing over between professions, multi-disciplinary meetings, and the necessity to collaborate between professions, and involved participants depending on what tasks in each scenario were most applicable to their clinical

roles. All scenarios afforded the opportunity for interprofessional collaboration by involving at least 2 professions, either through consultation during scenarios, direct team working with the simulated patients, or multi-disciplinary meetings and handovers.

Each scenario was followed by a structured and reflective debrief led by trained facilitators, following a modified Pendleton's model of feedback (Pendleton *et al.,* 1984). Initially, positive behaviours were highlighted and reinforced, with further discussion on these methods, and subsequently options for different approaches were reflected upon, with a 'golden moment' which had a notable impact on the scenario also identified. Further discussions allowed participants to reflect on the role of human factors and non-technical skills in individual and team assessment, decision-making, treatment planning, and transferring patients, as well as the patient perspective. Scenario participants, other trainees as active observers, and expert faculty all provided feedback and reflection during the debrief, while perspectives of different professions were included to foster learning through interprofessional education.

**Data analysis:**

Paired samples t-tests were used to investigate the effect of SIMHS on the knowledge, confidence, and attitudes of participants (Pallant, 2007). Eta squared was used to calculate the effect size (Cohen, 1988).

Responses to open questions were analysed using thematic analysis, involving verbatim transcription, familiarisation with the data, and development of coding schemes, before data were categorised into themes and the findings interpreted (Graneheim & Lundman, 2004; Green & Thorogood, 2004). Three researchers, two of whom were blinded to the training, reviewed codes and their relationships to themes, suggesting alternative interpretations until consensus was reached about interpretations that best represented the data (Graneheim & Lundman, 2004; Green & Thorogood, 2004).

## RESULTS

### Quantitative findings:

Table 2 displays the paired samples t-test comparisons of participants' knowledge, confidence and attitudes questionnaire scores pre and post training. Compared to pre-training, participants showed significantly improved knowledge ($p$=.001), confidence ($p$=.001), and attitudes towards ($p$=.001) mental health following training. Figure 1 shows mean total pre and post-course scores for knowledge, confidence and attitudes, after conversion to percentages.

*Table 2. Paired samples t-test and eta squared statistics for confidence, knowledge, and attitudes scales*

*Figure 1. Pre and post-training totals for knowledge, confidence, and attitudes scores as percentages*

### Qualitative findings:

Thematic analysis of open-response questions was completed to assess participants' perspectives on the potential impact of SIMHS on their professional development and clinical practice, identifying six key themes; interprofessionalism, communication skills, reflective practice, personal resilience, clinical skills, and confidence.

#### Interprofessionalism

"We train with other doctors and forget that in reality there will be others there with different and specialist training who we can call on for help. It was really enjoyable and helped me to appreciate how skilled each profession is in different ways and how we can work together to be more effective at dealing with difficult situations." (Participant 26)

Referring to an openness towards and appreciation of working closely and collaboratively with professionals from different disciplines, this concept was highlighted as a positive impact of the course. Participants reported finding the multiple perspectives expressed during debriefs valuable, recognising the benefits of interprofessional collaboration in clinical care, as well as understanding different roles and how these can be shared in care delivery.

"Being more aware and mindful of different roles and responsibilities of other professions and how to work best together." (Participant 40)

The impact of interprofessional working on the course encouraged recognition of the skill, training, and utility of other professions. Students suggested that in future they would be more inclined to call on colleagues from varying professions. There was a sense of humility amongst the participants in the recognition of professional limitations, and recognition of the need to consult other colleagues to achieve the best outcome for patients. Participants also indicated that working with other disciplines encouraged them to be open-minded, which they hoped to take into clinical situations in future.

**Communication skills**

"Extremely useful, it helped refine and develop communication skills." (Participant 10)

A key interpersonal skill that is particularly significant for mental health professionals, communication was highlighted as a significant area of improvement by participants.
This applied to interacting with both colleagues and patients, as participants reported being more likely to foster communication within clinical teams and to communicate clearly when in challenging situations with patients, citing different communication styles that could be employed. Improved understanding and execution of effective clinical handover was highlighted, as was the maintenance

of appropriate professional boundaries. Participants also reported an improvement in their assertiveness and ability to raise issues at the right time. Professional maturity was evidenced by participants' acknowledgement of the need to "engage family members" in care rather than solely patients.

"Be more open in communicating within sessions and between sessions, with patients and colleagues." (Participant 16)

Students indicated that following the course their communication with colleagues, patients, and families would be improved, also suggesting improvements to clinical practice as a result. There was a reported improvement in questioning styles and use of psychotherapeutic techniques in clinical settings, such as Socratic questioning.

**Reflective practice**

"Useful to work with the MDT [multi-disciplinary team] and to hear their views and reflections particularly around grey areas." (Participant 27)

Participants highlighted reflective practice as an area of improvement, stating that they would be more self-aware and employ reflection more regularly as an individual in their professional roles. The benefit of reflection within an interprofessional team was also highlighted, with assertions that the course would increase the regularity of this practice. Participants commented that simulation afforded increased opportunity to reflect on performance as well as personal and team dynamics, encouraging students to feel comfortable employing reflection in their clinical role to improve care delivery. Some reports suggested that even further opportunity to reflect would have been beneficial.

**Personal resilience**

"Helps prepare for challenging patients and situations appropriate to real life scenarios that we may come across." (Participant 37)

Resilience refers to the capacity to adapt and cope with adversity, difficulties, and stressors, in this context referring to those experienced in the clinical environment, relating to both patients and colleagues (American Psychological Association, 2018). Participants felt better prepared to cope personally with clinical situations that they may find challenging, including stressful clinical interactions with challenging behaviour, dealing with uncertainty in decision making, and having difficult conversations regarding sensitive issues.

"It was good to have first hand experience of a challenging situation and to get feedback there and then, I now feel more equipped to deal with them." (Participant 15)

Participants linked their improved resilience to a feeling of general preparedness to deal with challenging clinical circumstances, and reported this as a substantial professional development. Specific practices identified by participants as improving their resilience following the course included problem solving skills and the ability to remain calm and flexible in demanding situations. Certain trainees reported that this course and its impact on their personal resilience would be beneficial earlier in their professional training.

**Clinical skills**

"Be mindful of information in the notes, be up to date and know your client's history." (Participant 25)

Clinical skills refer to the execution of predetermined tasks in clinical care, such as risk assessment, history taking, handing over to colleagues, and psychotherapeutic techniques. Participants emphasised the utility of simulation in covering clinical and technical aspects of patient contact and treatment. There was a reported improvement in questioning styles and use of psychotherapeutic techniques in clinical settings, such as Socratic questioning.

Participants reported increased abilities surrounding capacity and risk assessments and the gathering of appropriate evidence in clinical assessment and planning. Improved understanding and execution of effective clinical handover was highlighted, as was the maintenance of appropriate professional boundaries. Professional maturity in these clinical skills was evidenced, as participants highlighted increased acknowledgement of the need to "engage family members" (Participant 6) in care. However, some participants felt that further improvements could have been made had more clarity been given on the expectations of each simulation scenario. Nevertheless participants reported that they had gained clinical skills that would make them better clinicians and better prepared for future training and clinical practice.

**Confidence**

"I will approach 'difficult' situations more confidently." (Participant 24)

Participants cited increased confidence in delivering clinical care. This ranged across key domains in care provision, from increased confidence in verbalising issues and being assertive, to being more confident working interprofessionally. Participants reported increased confidence in requesting assistance and in their ability to fulfil their current and future clinical roles. There were also statements of increased confidence in their knowledge and ability in specific clinical settings. Although some participants indicated that more information on individual roles in scenarios would have improved their confidence, there were considerable reports of greater confidence post-course.

## DISCUSSION

This study evaluated the impact of an interprofessional simulation training course (SIMHS) on trainees from three healthcare disciplines; medicine, mental health nursing, and clinical psychology. Students demonstrated significant improvements in their knowledge, confidence, and attitudes regarding working interprofessionally with physical and psychiatric comorbidities in emergency, medical, and psychiatric settings. Participants reported expected improvements to their own clinical practice in the domains of interprofessional working, clinical skills, confidence, communication, reflection, and resilience.

### Interpretation of findings

Knowledge of clinical care was found to have improved following the course, in line with existing literature regarding knowledge changes following simulation training (Chur-Hansen & Koopowitz, 2002; Krahn *et al.,* 2002). This indicates that simulation training has a positive impact on trainees' knowledge in mental health contexts, although further research is required to compare this finding with those of more traditional and didactic teaching methods.

Attitudes towards working with mental health patients improved overall, in line with existing literature on attitudes and mental health simulation (Brown, 2009; Gough & Happell, 2009; Happell, 2008). Attitudes towards interprofessional roles, responsibilities, and collaboration all improved, as did attitudes towards individual responsibility for patient care, intimating beneficial implications for care delivery individually and interprofessionally. This finding may be linked to the experiential nature of simulation, and the opportunity in debriefs to reflect on the patient perspective. Lack of improvements in remaining attitudes may relate to the complexity of achieving attitude change in mental health, or the methodological difficulties in assessing attitude change (Couture & Penn, 2003), particularly in the absence of validated methods of assessing attitudes in mental health simulation.

Confidence in working interprofessionally, with colleagues, patients, families, and carers in mental health improved significantly, as did confidence in managing emergency situations and delivering compassionate care. These findings were supplemented by qualitative analyses, as improved confidence in clinical care emerged as a major theme evidencing similar changes. These findings support those of existing research and further develop the view that simulation training can improve confidence in working with mental health patients (Guise *et al.,* 2012; Happell, 2008; Labrague *et al.,* 2018; Tiffen *et al.,* 2009).

Qualitative analyses identified interprofessionalism as a considerable benefit, supporting findings relating to this concept from the attitudes and confidence scales for which multiple items related to interprofessional teamwork and collaboration (see table 1). In line with existing literature, simulation training improved participants' openness towards and appreciation of consulting and involving colleagues from other professions in clinical care, which was accompanied by increased understanding of other professions, their roles, and one's own limitations (Baker *et al.,* 2008; Fichtner *et al.,* 2000; Granheim *et al.,* 2018; Ker *et al.,* 2003; Labrague *et al.,* 2018; Reeves, 2001). Interprofessionalism has been highlighted as essential in mental healthcare, indicating that improving collaboration and understanding through interprofessional simulation training may be having a positive impact on quality of care (Reeves, 2001).

Perceived improvements in clinical skills were identified, with participants reporting increased ability to perform risk assessments, history-taking, and clinical handovers, in keeping with the findings of previous research (Bennett *et al.,* 2006; Birndorf & Kaye, 2002; Chur-Hansen & Koopowitz, 2002; Edward *et al.,* 2007; Gay *et al.,* 2002). These improvements were deemed highly valuable by participants, and may have future implications for improved clinical practice. Learning outcomes relating to clinical skills can be considered in the context of increased knowledge and confidence relating to clinical practice, identified by quantitative analyses, that may underpin these skills. This finding has implications for current healthcare education and the training modalities utilised, and again may relate to the practical and experiential nature of simulation.

Communication was highlighted as an area of significant improvement, in line with current research (Granheim *et al.,* 2018; Grant *et al.,* 2011; Kameg *et al.,* 2010; Labrague *et al.,* 2018; Sleeper & Thompson, 2008). These skills applied to interactions with patients and families, as well as colleagues, touching on the likelihood of communication, as well as effectiveness and confidence. As such this theme overlapped with interprofessionalism, confidence, and clinical skills in its effect on participants' anticipated clinical practice, demonstrating its importance, particularly in the field of mental health. Additionally, communication featured on the confidence and attitudes scales, which suggested improvements in these areas, likely linking back to participants' beliefs that their communication skills had improved. The opportunity to practice these skills with accurately simulated patients, and then develop the experiential learning cycle through debriefs is essential in this skill development.

In line with the literature base, reflection was emphasised as a key benefit from this course, particularly by nursing and medical students who may have been less familiar with this practice (Edward *et al.,* 2007; Sleeper & Thompson, 2008). Appreciation of and openness to using reflection in both clinical decision-making and personal development was mentioned in both individual and team contexts. As an essential part of care delivery and professional development in mental health, fostering reflective practice could be of considerable benefit to healthcare professionals. This activity was introduced through debrief and modelled by facilitators, consolidating learning for participants in this area.

Resilience in the workplace, or a sense of being able to cope with and overcome challenges, was a further perceived benefit of this training, although one that has not featured prominently in the literature as yet (Happell, 2008). This finding may be due to having participants in the early stages of their careers, possibly before resilience has been significantly developed. There are significant implications relating to adequately equipping healthcare trainees with the resilience to cope with challenging clinical situations in mental health, from fostering professional development and

improving care delivery, to encouraging healthcare trainees to work in this field and addressing burnout.

**Implications**

This study has implications for interprofessional education. Having recently received increased attention in literature and policy, interprofessional education has consistently and clearly been outlined as a priority in healthcare in order to foster interprofessional collaboration and subsequently safer and better quality care (Barr & Coyle, 2013; Department of Health, 2008; Frenk *et al.,* 2010; Reeves, 2001; World Health Organisation, 2010). This study's findings that mental health simulation training can increase awareness, appreciation and openness to such collaboration highlights the importance of including simulation training in its interprofessional format prominently in the education of healthcare professionals from undergraduate training to in the workplace.

This study has further implications for healthcare education, in highlighting the impact of simulation training at pre-qualification level and the benefits that they perceived. Resilience and reflective practice can be highlighted as proficiencies that are not normally present at such early stages, although could possibly be fostered in medical, nursing, and clinical psychology courses through the increased use of simulation in healthcare education.

Such implications concerning mental health simulation in its interprofessional format, and with healthcare trainees have been posited in previous studies. However, the findings of this study allow it to be one of the first to combine these two implications in demonstrating the importance of employing mental health simulation both interprofessionally *and* in the early stages of professional training. This step in healthcare education is key to embedding the interprofessional ethos at an early stage to ensure it filters up through professional and organisation hierarchies, aiming to deliver benefits both during training and subsequently in professional development and clinical practice.

The further proficiencies in clinical tasks, communication, and knowledge, coupled with improvements in confidence and attitudes, indicate that simulation training may have an impact on

the clinical care delivered by participants. These areas are highly important in mental healthcare, and this study gives justification to further investigate the impact that interprofessional mental health simulation training may have on patient experience. Although the SIMHS course in this study used borderline personality disorder, overdose, and other specific presentations, this course template could be applied to a variety of healthcare topics, presentations, and settings to provide a platform to teach critical personal and interprofessional skills and capabilities.

**Limitations**

It is acknowledged that employing a paired samples design for pre- and post-course measures do not allow for comparisons to be drawn between mental health simulation training and other educational modalities. While this study demonstrates the potential benefits of such training, further research comparing simulation to other educational interventions would be beneficial. The sample size of each professional group was limited and sampling methods could have been improved. Consequently the benefits to each individual profession were not examined, and future research to investigate the possibility of differences would be advisable, both through quantitative measures of learning outcomes and in depth qualitative analyses such as semi-structured interviews. Validated measures were not employed in this study, not least due to the fact that such measures for attitudes, knowledge, and confidence do not exist in the simulation literature. Rather, the facilitators and collaborators referred to their professional experience and predetermined course objectives to design the measures utilised. The presence of validated tools in the literature, as well as consensus over the outcomes targeted by such measures, is an important next step in mental health simulation research. Similarly, following up participants when they had returned to training and practice to ascertain whether the self-reported and perceived effects of the course had been maintained was have been beneficial and is a limitation of this study.

**Conclusion**

The Student Interprofessional Mental Health Simulation course was developed to focus on the clinician and service user experience of a patient's navigation through healthcare systems, presenting with physical and psychiatric comorbidities in emergency, medical, and psychiatric settings. There were statistically significant improvements to participants' self-reported knowledge, confidence, and attitudes towards mental health and clinical practice. Thematic analysis suggested improvements to participants' interprofessionalism, clinical skills, resilience, communication, confidence, and reflective practice. These findings have implications for the use of mental health simulation training to achieve positive educational outcomes that may impact on clinical practice, most notably the benefits of employing simulation interprofessionally in the early stages of healthcare training. Although this study may possess methodological limitations, the findings are valuable to the literature base of mental health simulation and raise interesting areas for further research, such as comparison of learning outcomes between professions following interprofessional mental health simulation training.

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**Competing Interests**

On behalf of all authors, the corresponding author states that there is no conflict of interest.

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