Title: Using simulation to improve the capability of undergraduate nursing students in mental health care.

KEYWORDS: Simulation; Mental Health; Psychiatric Nursing; Students, Nursing

Abstract:

Introduction: Mental health care is an increasing component of acute patient care and yet mental health care is often a small component of undergraduate nursing programs. The aim of this study was to establish if simulation learning can be an effective method of improving undergraduate nurses’ capability in mental health care in an acute care environment.

Intervention: Undergraduate nursing students were exposed to several high-fidelity high-technology simulation activities that incorporated elements of acute emergency nursing practice and acute mental health intervention, scaffolded by theories of learning. This approach provided a safe environment for students to experience clinical practice, and develop their skills for dealing with complex clinical challenges.

Methods: Using a mixed method approach, the primary domains of interest in this study were student confidence, knowledge and ability. These were self-reported and assessed before and after the simulation activities (intervention) using a pre-validated survey, to gauge the self-rated capacity of students to initiate and complete effective care episodes. Focus group interviews were subsequently held with students who attended placement in the ED to explore the impact of the intervention on student performance in this clinical setting.

Results: Students who participated in the simulation activity identified and reported significantly increased confidence, knowledge and ability in mental health care post-
They identified key features of the intervention included the impact of its
realism on the quality of learning. There is some evidence to suggest that the intervention
had an impact on the performance and reflection of students in the clinical setting.

Discussion: This study provides evidence to support the use of simulation to enhance
student nurses’ clinical capabilities in providing mental health care in acute care
environments. Nursing curriculum development should be based on best-evidence to
ensure that future nursing graduates have the skills and capability to provide high-quality,
holistic care.
Keywords: Nurse Education; Simulation; Mannequin; Mental Health; Nurses; Psychiatric Nursing; Students, Nursing.

BACKGROUND

Mental health is a significant issue globally (World Health Organization, 2016), as psychological disability increases along with the demand for specialist mental health services (World Health Organisation (WHO), 2013; World Health Organization, 2015) with corresponding increased costs to governments (Bloom et al., 2011). Mental and behavioural disorders were the third highest contributor to the burden of disease worldwide after cancer and cardiovascular disease in 2014/2015 (Australian Institute of Health and Welfare (AIHW), 2015; World Health Organization, 2015). Internationally, the growing burden of disease from mental and behavioural disease will impose challenges on health systems (Murray et al., 2012). Nurses play a significant role in mental health care (WHO, 2015). More than ever before, all nurses should be competent in mental health care, as exemplified by positive attitudes, behaviours, capability, experience, knowledge and skills in patient care across the health care spectrum (Australian College of Mental Health Nurses, 2013).

Importantly, the need for mental health care is widespread, and is not limited to that which occurs in dedicated mental health facilities. While there are a range of mental health services provided by nurses, acute care facilities, like the emergency department (ED), are a primary access point for people needing mental health care in many countries including Australia (Saurman, 2014). Care and management of patients in these facilities will often be undertaken by a range of health professionals (medical, nursing, social workers) with varying levels of skill, knowledge and confidence. Deficits in knowledge of mental health conditions and expertise in mental health assessment may lead to less than optimum care.
for individuals with mental health problems (Sivakumar, Weiland, Gerdtz, Knott, & Jelinek, 2011). Support is needed for all nurses to develop their expertise in nursing management of mental health conditions (Innes, Morphet, O'Brien, & Munro, 2014). Importantly, even experienced ED nurses with post graduate qualifications and years of specialisation, often lack confidence in their ability to care for patients with mental health problems (Moxham, McCann, Usher, Farrell, & Crookes, 2011).

Few students enter their undergraduate nursing course with the intention of specialising in mental health, however, as highlighted above, all nurses need to be capable to provide mental health care. Of concern is that there has been limited inclusion of mental health content across nursing curricula internationally (Moxham et al., 2011). The development of clinicians with mental health knowledge and skill and the confidence to use these in the clinical setting requires quality educational strategies, possibly including simulation, to support effective student learning experiences in mental health care (Barrett & Jackson, 2013).

Simulation is widely used across nurse education, both in undergraduate settings and in clinical education for ongoing professional development (Cant & Cooper, 2014; Foronda, Liu & Bauman, 2013). Despite this broad usage, little evaluation has been reported around the transference of the knowledge and skill acquisition attained in the simulated setting into nurses’ clinical practice (Cant & Cooper, 2010; Cook, Hatala, Brydges, & et al., 2011). To be effective for learning, simulation activities need to be pedagogically scaffolded into the overall learning plan (Zigmont, Kappus & Sudikoff, 2011), be supported by experienced educators, and include debrief techniques (Berragan, 2013; Cant & Cooper, 2010; Kable, Arthur, Levett-Jones & Reid-Searl, 2013). Questions exist as to the effectiveness of
simulation as a learning tool for mental health assessment (McGarry, Cashin & Fowler, 2014). For simulation to be embraced as an effective learning strategy, evidence for its use in nursing curricula to enhance competence with mental health presentations is needed.

Key points:

- Mental health is a significant and growing health issue in the international health care context
- Contemporary nursing graduates need to be multi-skilled, with the ability to care for clients with a range of health issues including mental health, especially in emergency care departments
- Simulation education should be well-planned and pedagogically supported, with evaluation to assess the learning outcomes.

SIGNIFICANCE AND INNOVATION

There is a broad range of evidence to support the use of simulation in undergraduate nurse education (Cant & Cooper, 2010; Cook et al., 2011; Foronda et al., 2013; Shin, Park & Kim, 2015). There is, however, little specific evidence to support the use of simulation in the development of undergraduate nurses’ skill and confidence in mental health nursing care, particularly for student nurses with an acute care clinical focus. While provision of integrated mental health care is a key priority in both the Australian health care context (Australian Government, 2009; AIHW, 2014; Standing Council on Health, 2012) and internationally (WHO, 2013), mental health nursing care is often taught in isolation in nursing curriculum (Moxham et al., 2011). An innovative approach of integration of mental health care concepts into an acute care focus, with the aim of improved student
engagement and increased ability to provide quality mental health care in any context is reported in this paper.

**AIM**

The aim of this study was to determine if simulation scenarios are an effective learning format to improve nursing students’ self-reported confidence, knowledge and ability in managing mental health issues in the acute care setting and to determine if these benefits can translate into improved capacity in clinical practice.

**DESIGN**

A convergent parallel design was used with a fixed mixed method protocol with independent analysis of each strand and concurrent quantitative and qualitative data collection (Chiang-Hanisko, Newman, Dyess, Piyakong & Liehr, 2016). This pragmatic approach has high external validity, as it allows the intervention to have the flexibility to fit within normal practice, so that the outcomes have direct relevance to current educational practice (Plano-Clark & Creswell, 2011). Subsequent synthesis of data ensured a meaningful response to the intervention study aims (see Figure 1).

**Pedagogy underpinning this study**

Translation into practice ideally includes an underpinning pedagogical framework. Bandura’s theory of social change was selected for this study as it emphasises social experience and observational learning in the formation of new knowledge. It proposes that increased self-efficacy can lead to individuals viewing difficult tasks differently; as something to master rather than avoid (Bandura, 1977, 1997; Zimmerman, 2000). Bandura’s theory proposes that the self-efficacy of learners increases through modelling of behaviour and reinforcement of
Bandura’s theory of self-efficacy can be applied to the use of simulation in mental health care education for undergraduate nurses. Bandura (1997) identified four factors that impact self-efficacy: past performance (experience), vicarious experience (modelling), social persuasion, and physiological factors. Simulation education enables students to meet these factors, and therefore increase self-efficacy. This will enhance student nurse engagement with mental health care in acute care settings and positively influence future behaviour in mental health nursing care.
learning in simulation activities (Kaakinen & Arwood, 2009). Self-efficacy is enhanced by mastery of skill in performance, learning through observed experience, and provision of immediate feedback. Simulation learning can provide this experience (Hall, 2015; Sinclair & Ferguson, 2009). This is depicted diagrammatically in Figure 1.

METHODS

Site, sample and recruitment strategies

This study was undertaken in the simulation nursing laboratories of an Australian tertiary education facility, across three regional campuses. There are no similar studies to provide information to enable a power calculation for sample size (Polit & Beck, 2014), thus we adopted a pragmatic approach and invited the entire student population who met the inclusion criteria to participate by student email.

Intervention

The intervention was embedded in a final year, final semester of study unit in the Bachelor of Nursing program. Prior to this unit, all students undertook 80 hours of clinical placement in a mental health care facility. The learning content that comprised the intervention (see Box 1) was developed by mental health nurse educators, educationally peer reviewed, and was piloted in a previous student cohort. Mask-EdTM, a hybrid form of simulation where the educator uses realistic silicon masks and props to become the patient, was incorporated into the learning content after feedback about the lack of facial expression given by the mannequin in pilot simulations.

Further details of the learning outcomes, session objectives and the simulation intervention can be found in supplemental material. The learning outcomes for this course
Box 1: The intervention

The intervention included four sequential phases

Online pre-learning - podcasts and reading covering:

- integrated patient assessment
- theoretical knowledge of personality disorders
- effective communication in challenging clinical situations
- standard course material
- duration - approximately 2-3 hours of self-directed activity to complete
  - could be undertaken in multiple sessions at any time
  - recommended completion prior to attending lab

Introduction to scenario; in-class activity

- students attended their usual nursing laboratory class
- introduced by the tutor to a complex patient care scenario involving provision of integrated care
  - scenario included both physiological and psychological concerns
  - tutor-led discussion of personality disorders to clarify pre-learning
  - review of strategies for providing nursing care and communicating with someone with a personality disorder
  - scenario 1: demonstration of communication with Mask-Ed expert patient
    - duration – 30 minutes

Simulated clinical experience; immediately following introduction

- small group (up to fifteen students)
- two familiar tutors directed simulation- mental health background and acute care background and monitored progress in simulation
- students took on either a nursing or observer role, working through two escalating clinical scenarios

scenario 2: patient presenting in the ED with a wound sustained from possible self-harm
- further assessment of the patient reveals multiple cues for mental health risk, in addition to cues pointing toward substance abuse
  - aim is for students to recognise cues and respond appropriately
- when students completed the mental health risk assessment, using the Australasian Triage Scale mental health triage tool, the scenario concluded and students undertook a tutor-led debriefing
  - using SimMan 3G mannequin
- duration: 20-30 minutes plus 20 minutes debriefing

scenario 3:
- same patient (scenario 1) escalating with challenging communication showing increasing agitation and withdrawal symptoms
- students are prompted by clinical cues in the scenario to undertake an alcohol withdrawal assessment of the patient and make a clinical decision regarding administration of oral Diazepam for control of symptoms
- scenario concludes when students have completed assessment and administration of medication
  - using SimMan 3G mannequin
- duration: 20-30 minutes

Debriefing immediately post-simulated experience

- participants are guided through a tutor-led debriefing immediately after conclusion of simulation
- included reinforcement of key learning concepts and clarification of key learning points
  - duration – approximately 30 minutes
were developed as part of an accredited undergraduate program approved by the Australian National Nursing and Midwifery Board (NMBA), and were subject to tertiary learning and teaching review and approval. All of the teaching materials, including lectures, directed study, and laboratory scenarios, were developed by a team of expert mental health clinicians and education experts.

Data Collection

Immediately following each simulation session, informal discussions were conducted with the teaching staff who delivered the intervention learning materials. Notes from these interviews were taken to ensure consistent delivery of the intervention across sites.

The experimental protocol is set out in Figure 2. Pre-test data were collected using an online survey of the student group, with comparison survey data collected post-intervention, using the three domains of the Mental Health Related Learning Needs of ED Nurses (Sivakumar et al., 2011). This validated survey tool (Cronbach’s alpha ranged between 0.79 and 0.91) was designed to measure participants’ self-reported confidence, ability and knowledge in managing mental health care across a range of clinical scenarios (Sivakumar et al., 2011). This tool was initially used to assess the attributes of a more specific population of nurses already working in ED, therefore supplementary questions related to roles in ED, such as hours worked per week and workload were not relevant in this context, and were not included. In addition, information about future mental health learning requirements was not included in the modified survey (supplemental materials), as it was workplace specific. Permission was obtained from the authors for the use of this tool (T. Weiland, 16/10/2014).

The majority of students participated in the simulation activity as part of the usual learning activity for their university course, however participation in the survey before and after the
Development and expert-review of protocol. Ethical approval gained. Tool was piloted on a small sample of students at a similar level of learning to the intended cohort to ensure contextual appropriateness (Groves et al., 2009: p 265)

Student population identified (n=146): All enrolled students emailed with information sheet and pre-intervention survey link. A convenience sample of Bachelor of Nursing students enrolled in a third year acute clinical care unit were invited to participate in this study, participation in the simulated learning activity was voluntary, but a part of the usual learning activities for this student cohort. Students who did not attend the simulation laboratory could access online learning material related to mental health care.

Students completed pre-intervention survey (n=79) online using Survey Monkey software, and took approximately 20 minutes to complete.

Responses were self-rated across three domains:

- **Confidence** 23 points related to mental health in assessment, communication and management of specific conditions, across a five-point scale Likert scale from ‘Never confident’ to ‘Always confident’.
- **Ability** 23 points, self-reported ability in managing mental health concerns across a five point scale from ‘Poor’ to ‘Excellent’.
- **Knowledge** in mental health care was rated by participants’ across 13 points related to communication and management strategies as well as understanding of specific conditions across a five point scale from ‘Poor’ to ‘Excellent’ include reference for the survey.

All students invited to participate in intervention (n=112): 3 hour education session incorporating mental health scenario in simulated ED environment, using 3G simulation mannequin and Mask-Ed (see Box 1).

Students completed post-intervention survey (n=44) with same format as pre-intervention survey.

Additional open-ended responses were collected via survey from participants post-intervention about the perceived value of the mental health simulation activity and its contribution to their learning. This information was gathered to enhance detail, qualify, and give clarity to survey response.

All students attended 4 weeks (160 hours) of facilitator-led clinical placement.

Placement in ED (n=22) across three clinical sites

Placement in other areas

Participants were invited to give further feedback after attendance at clinical placement in three focus group interviews of between 4 and 12 participants. A standard list of prompt questions were used for all focus groups for consistency, for example, ‘What skills did you feel you had developed from participating in the sim activity?’ and ‘how were the skills you developed useful in your ED clinical practice?’ Participants were also asked to give examples of situations where they were able to apply concepts and skills developed from the simulation activity into clinical practice. Field notes were also taken during and immediately following these interviews to record salient points, body language and other reflections (Barbour, 2012; Lamb, 2012; Liamputtong, 2011). Interviews were transcribed in full for thematic analysis.
learning activity was voluntary and did not involve any direct staff contact with students or other reward or coercion. Qualitative data were collected via open-ended questions in the post-intervention survey and also in focus groups. Only students who attended an ED placement were eligible for inclusion in the focus group discussions. In these focus groups, participants were invited to give further feedback after attendance at clinical placement in three group interviews of between 4 and 12 participants. The focus group questions can be found in the supplemental material.

**Ethical considerations**

Ethical approval was gained (ECN-15-181, NRS/33/15/HREC). Participation in the research project was voluntary and had no bearing on the participants’ results or relationship with the university. Completion of the on-line survey implied participant consent, while written consent was obtained for each member of the focus groups. Participation in the intervention or data collection was unrelated to student assessment in this unit.

**Data Analysis**

Quantitative data were imported into an Excel 2013 spreadsheet from Survey Monkey, checked, and summed across each of the three pre-established domains. There were no missing data. The data were assessed for distribution and spread and then analysed using Excel Data Analysis tool, using the two-sample, unequal variances (Welch’s) t-test for each of the three domains, that is, for ability, confidence and knowledge (Welch, 1947).

There were two sets of qualitative data. Open-ended survey responses were analysed using manual theme identification and concept grouping (Groves, 2009). Procedural rigour was maintained with manual transcription of digital recording of focus group interviews to
enable researcher immersion in the data, and the transcription was checked against the notes for each group for verity. Transcripts and recordings were reviewed for accuracy. Themes from these data were identified, highlighted and grouped. These were then synthesised with the qualitative themes drawn from the open-ended survey responses, to enhance interpretative rigour. The developed themes were discussed and agreed with the second author (AJ) to gain interrater confirmability. These processes contributed to the dependability of the data (Polit & Beck, 2014).

RESULTS

There were 146 students enrolled in the unit and therefore eligible to participate. Of these, 112 participants completed the optional simulation activity, with 79 students completing the pre-test survey (response rate = 70%), and 44 students the post-test survey (response rate = 40%). The intervention was delivered consistently across all three campuses. A group of 22 students were also involved in the three, post-ED clinical placement, focus group interviews. Of the pre-intervention respondents, less than 8% (n=7) had prior professional experience in mental health care other than that experienced as a student nurse, and only 7.5% (n=6) reported personal experience (self, family or friend) in mental health care.

Quantitative results

The mean self-rated confidence, ability and knowledge score of undergraduate nurses in mental health care before and after intervention significantly increased in all three domains. A comprehensive summary of the quantitative results can be found in Table 1. The greatest mean difference was seen in the score for knowledge pre- and post-intervention.
Table 1. Self-rated confidence, ability and knowledge of undergraduate nursing students, in provision of mental health care in acute care environments, pre- and post- the simulation activity.

<table>
<thead>
<tr>
<th>Domain</th>
<th>Pre-intervention mean (±SD)</th>
<th>Post-intervention mean (±SD)</th>
<th>Mean Pre-Post simulation difference</th>
<th><em>t-value</em> (two-tailed)</th>
<th>p value (α .05, CI 95%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confidence</td>
<td>3.16 (+/-0.86) n=79 students</td>
<td>3.44 (+/-0.8) n=44 students</td>
<td>0.28</td>
<td>1.96</td>
<td>p &lt; .001</td>
</tr>
<tr>
<td>Ability</td>
<td>3.14 (+/-0.84) n=79 students</td>
<td>3.56 (+/-0.81) n=44 students</td>
<td>0.42</td>
<td>1.96</td>
<td>p &lt; .001</td>
</tr>
<tr>
<td>Knowledge</td>
<td>2.92 (+/-0.95) n=79 students</td>
<td>3.54 (+/-0.84) n=44 students</td>
<td>0.63</td>
<td>1.96</td>
<td>p &lt; .001</td>
</tr>
</tbody>
</table>

*Outcomes are based on a mean rating from the questions examining each domain.

+Analysis was undertaken using Welch’s t-test.

Abbreviations:
- SD - standard deviation
- CI - confidence interval
- t value - difference between an observed sample statistic and its hypothesized population parameter
- α - significance level

Qualitative results

Three key themes emerged in both the focus group interviews and the open ended survey questions, namely the positive impact of simulation on participants’ knowledge, confidence and ability/skill in mental health care. Additional sub themes were uncovered including where respondents discussed the *realism* of the scenario and the *quality of learning*, and the capability of simulation to *encourage participants to reflect in practice*. Participation in the simulation allowed the students to integrate a range of skills into their practice, including communication, focussed assessment, and listening for patient cues, and allowed the development of expertise in a low risk environment. An example of these are in the following student response:
'I remember watching it [the simulation scenario] and catching little cues, like the person who was doing it, she didn’t mean to but she [the student in the nurse role] was kind of like reading off the list, and trying to stick to what she had to do and there were little bits that he [simulated patient] said that she didn’t quite go into .... Like I think he said ‘I’m going to finish it’ and she didn’t delve into that because she was focussing on the document [alcohol withdrawal assessment]. But eventually they [the student in the nurse role] got it.’ [G3P4]

**Knowledge**

Students reported increased understanding and consolidation of knowledge of mental health conditions and better understanding of the application of nursing assessment tools used in management of mental health conditions after participating in the simulated scenario. Enhanced knowledge included the development of greater insight into mental health conditions and their impact on general health, and in particular, a better understanding of the patient’s perspective in mental health care. One student valued ‘...working through responses with the view to understanding and gaining information; a deeper understanding of the state of the patient and why they act this way.’ [open-ended survey response]. The knowledge and understanding gained from the simulation appeared to be useful in the clinical environment, with students reporting better understanding of assessment and nursing processes in the care of a patient with mental health needs in the ED, which would indicate that knowledge of mental health gained in the simulation scenario is both credible and transferable.

**Confidence**
Students reported that having the opportunity to observe and undertake practice in a simulated mental health scenario, while receiving feedback in a supportive environment, allowed them to build confidence to undertake mental health care. However, once in the ED, students still felt that they needed support and supervision from an experienced clinician to be effective in mental health care. Some students felt that they would not be confident in their capability to deliver mental health care until they experienced a challenging situation as a graduate when they had greater responsibility for patient care.

Lack of confidence was particularly noted in students who did not participate in the mental health simulation activity, but were on placement in the ED. One of these students stated:

‘...because I missed the sim [simulation], I was looking at the questions thinking how do I go about asking these things... how do I ask that?...The first time I was a bit worried, because I didn’t know how to do it ... I haven’t done this before... the sim probably would have definitely helped I guess in that respect.’[G2P3]

**Ability/rehearsal of clinical skill**

Participants stated that the simulation activity gave them an opportunity to rehearse strategies for communicating with an aggressive or challenging patient, which they found to be a new and useful experience. They valued this experience as it allowed clinical rehearsal, and helped students’ to practically conceptualise the role of the nurse in mental health care in an acute care environment. However, while the simulation enhanced students self-assessed clinical skills, participants’ remained unsure of their ability to manage patients with complex mental health concerns in an acute setting such as the ED.

**Realism**
Students perceived that the simulation scenario and environment was authentic, and acknowledged that the pressure to perform clinically under pressure in the realistic scenario contributed to their learning in mental health care. ‘I find simulation activities to be useful learning tools as they add an element of realism to the situation. I find that I tend to learn a lot from what I did wrong!’ [Open-ended survey response].

**Quality of learning**

Students reported a high level of satisfaction with the quality of learning during the simulation: ‘It help linked theory to practice’ [Open-ended survey response].

**Reflection**

Students identified that participation in the simulation activity encouraged self-reflection in it and then in clinical practice, and enabled them to develop greater awareness of their own capability and identification of areas for improvement: ‘even if you make mistakes you can reflect on how to make your practice better’ [open-ended survey response].

**DISCUSSION**

The aim of this study was to determine if simulation scenarios are an effective learning format to improve nursing students’ self-reported confidence, knowledge and ability in managing mental health issues in an acute care setting scenario and whether that could translate into great capacity in practice. Overall, the findings indicate that this was the case; the simulation intervention had a statistically significantly positive effect on undergraduate nurses’ confidence, ability, and knowledge outcomes in managing mental health care (Table 1). Thus simulation can be an effective learning format to increase the capability of nursing
students in mental health care in acute settings such as ED. Indeed, synthesis of evidence from both quantitative and qualitative investigations suggests that self-reported student confidence, knowledge and ability increased in response to engagement with the simulation intervention.

The integration of mixed-methodology in the design of this study allowed for the exploration of undergraduate nurse experience of learning in mental health care using simulation (Polit & Beck, 2014). In addition, we were able to explore the relationship between student experience in mental health care in both the simulated clinical setting and an acute care clinical environment. The results of both the quantitative and qualitative analysis provide evidence that simulation can effectively enhance student confidence, knowledge and ability in the provision of mental health care in acute care settings.

**Knowledge**

Simulation education can be a very effective tool to consolidate knowledge and build understanding (Cant & Cooper, 2010; Kaddoura, Vandyke, Smallwood, & Gonzalez, 2016). Participation in simulated clinical practice can help students to develop awareness of knowledge deficits and integration of knowledge through application to practice (Kaddoura et al., 2016). The simulation scenario compels students to consider their own understanding of mental health conditions, and the increasing clinical cues in the scenario creates a situational urgency that engages students to provide care; demonstrating engaging realism in training. The authenticity of the scenario provided tangible links between theoretical learning of mental health conditions and assessment, and the practical application of nursing knowledge in a clinical environment. Thus, the realism of the scenarios appeared to enhance the student’s assessment of the quality of learning. In addition, the practical
demonstration of the simulation scenario and subsequent debriefing emphasises the most salient parts of the situation that creates memorable highlights and appears to support student **reflective practice**.

**Confidence and Ability/skills**

Simulation education allows clinical rehearsal of skills, including therapeutic communication and communication with peers, patient assessment, and other nursing interventions, in a relatively low risk environment (Shearer, 2012; Weaver, 2011). Students also have the opportunity to practice critical thinking and clinical decision making, along with an opportunity to repeat the skills until some level of competence or even mastery is achieved (Stroup, 2014). Exposure to a realistic clinical scenario allows students to gain a better understanding of the role of the nurse in managing mental health care in the acute care environment.

**Self-efficacy**

Bandura’s theory of self-efficacy posits that a person will have increased potential for engagement in situations in which they believe they can be successful, and avoids situations in which they feel that they will be unsuccessful (Bandura, 1997). Applying this theory, student nurses who have higher self-efficacy are more likely to engage with challenging care contexts, like the provision of mental health care in acute care environments. Figure 1 represents this process schematically. Simulation education can be a useful educational tool in the development of self-efficacy in mental health care (Kameg, Howard, Clochesy, Mitchell, & Suresky, 2010). Those students who develop higher self-efficacy in mental health care are more likely to feel confident to engage in any future encounters with mental health care.
**Study limitations**

The results of this study with a convenience sample and pre-test/post-test design are not generalizable beyond the sample population of undergraduate nursing education in the local Australian context. There are similarities in the construct of nursing curricula internationally, so the results may have some limited generalisation beyond this. Concerns with self-reporting methods include bias in the accuracy of responses as participants try to create a favourable impression, along with respondent burden if the questionnaire is too long or detailed (LoBiondo-Wood & Haber, 2014). For these reasons, the survey was modified with only the questions addressing the key outcomes of interest, as well as a simple, concise format to provide ease of response for participants.

The response rate for the survey post-intervention was lower than the pre-intervention response rate for the survey, despite email prompts to participants. A contributing factor may be that greater survey burden exists for students in tertiary settings. The number of respondents is on par with similar studies (Kameg et al., 2010; Kameg, Englert, Howard, & Perozzi, 2013), as is the response rate (Murray, 2014), so the results are potentially representative. Smaller response rates do not necessarily increase nonresponse errors, although a higher response rate can reduce the risk of non-respondent bias (Fan & Yan, 2010).

To minimise the risk of low student engagement with the simulation learning session, students were randomly selected to take on the role of the nurses in the scenario, and students were rotated through the roles of nurses and observers in an effort to engage students at each of the three campuses. In addition, expert clinical nurses were used to facilitate the simulation sessions.
Implications for practice

Achieving consistency in clinical exposure for undergraduate nurses professional experience will always be challenging, but particularly in the current climate where placements are increasingly competitive and costly (Bowles, Maloney, Kent, Sevenhuysen, & Tai, 2014). Development of increased confidence, knowledge and ability, and potentially increased self-reflection and self-efficacy may enable undergraduates to apply these benefits to clinical practice more broadly, especially once the transition is made to graduate practice. Increased self-efficacy in clinical practice means that graduates have greater potential to engage in mental health care across a range of clinical settings, including specialist mental health. There is also greater potential for these individuals with greater self-efficacy to develop competence in nursing care more broadly, for example, in other challenging areas like geriatric, paediatric or disability care. Professional nursing practice demands highly skilled, expert clinicians who need to be adaptable to meet the broad range of needs of consumers of health care.

Undergraduate education of nurses continues to be challenging, with increasing pressure to deliver highly skilled graduates in a cost-conscious environment. Educators need to develop effective and efficient, realistic educative strategies to ensure graduates have quality learning experiences and develop the necessary attributes to provide competent care. Larger cohorts in nursing studies means that resources need to be shared creatively, and simulation scenarios such as these, while time and cost intensive to develop, are realistic, engaging and reproducible across a range of educational settings (Rochester et al., 2012).
CONCLUSION

The results of this intervention study suggest that simulation education may enable undergraduate nurses to develop their confidence, skills, and knowledge in mental health care delivery in acute care settings. There is also some evidence to suggest that these attributes have transferability from the simulated environment to clinical practice, which will enhance the delivery of patient care. While mental health nursing is a specialised field of practice that requires expertise to managing complex patient care, all nurses should have the skills, ability and knowledge to engage in mental health care within their own field of practice. However, further inquiry into the role of simulation in mental health care education is warranted to facilitate the development of high-quality, realistic, reliable educational resources that can enhance the future practice of nursing.

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Supplemental material

(A) Learning outcomes of the intervention
(B) Focus group questions
(C) Survey tool- pre and post intervention
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Supplemental Material

A: Learning outcomes for the simulation session

These are selected excerpts from the NMBA-accredited curriculum document (accredited Nov 2011).

By the end of this module/activity students should be able to:

**LEARNING OUTCOME 1** Demonstrate safe and increasing clinical competence in performing nursing skills, and integrated and comprehensive assessments in acute and emergency situations

**LEARNING OUTCOME 2** Demonstrate effective interpersonal skills and cultural safety

**LEARNING OUTCOME 3** Identify best practice principles for working with people with personality disorders (PD)

**LEARNING OUTCOME 4** Demonstrate beginner level leadership skills in a range of nursing emergencies

**LEARNING OUTCOME 5** Demonstrate competence in assessing and responding to psychiatric emergencies, drug-induced psychoses and intoxication and withdrawal states

**LEARNING OUTCOME 6** Demonstrate safe and increasing clinical competence in medication management and performing nursing skills in acute and emergency situations

**LEARNING OUTCOME 7** Demonstrate effective communication using de-escalation strategies

List of abbreviations:

- PD personality disorders
- ED emergency department
- CIWA-Ar Clinical institute withdrawal assessment of alcohol scale, revised
- HR heart rate
- BP non-invasive blood pressure
- Resp respiratory rate
- SaO2 peripheral oxygen saturation
- Temp temperature
- ATS Australasian Triage Scale

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Time frame</th>
<th>Objective</th>
<th>Activity</th>
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<tbody>
<tr>
<td>1</td>
<td>30 min</td>
<td>Develop an early understanding of PD and the challenges of managing PD. Identify best practice principles for working with people with PD</td>
<td>Discussion and role play of patient with PD and demonstration of de-escalation techniques using MaskEd simulation</td>
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|   | 30 min (10-15min for scenario plus debriefing) | General:  
Identifies the primary nursing diagnosis  
Implements risk assessment  
Implements patient safety measures  
Evaluates patient assessment information including vital signs  
Recalls policies related to legal informed consent and information security  
Implements therapeutic communication  
Implements direct communication with multidisciplinary team members  
Demonstrates effective teamwork  
Prioritises and implements doctors instructions appropriately  
Scenario specific:  
Demonstrate clinical competence in performing nursing skills and integrated and comprehensive assessments in acute withdrawal states. | Sim 3G mannequin (simulation lab)  
Students need to assess a patient using the mental health triage scale and decide on a management strategy. The patient will have mild symptoms of withdrawal  
Patient history:  
- Presents to ED after self-harm, with several superficial cuts to forearm, which will require a dressing  
- Pt requests diazepam  
- ‘I feel agitated’ ‘I feel like might do it again- I feel like I could keep cutting’  
- Patient’s behaviour becomes increasingly erratic  
Patient smells of alcohol and appears dishevelled |
<table>
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<tr>
<td>2</td>
<td>30 min (10-15min for scenario plus debriefing)</td>
<td>As for scenario 2</td>
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| 3 | 30 min (10-15min for scenario plus debriefing) | Sim 3G mannequin/ MaskEd (sim lab)  
As part of the nursing assessment, participants suspect that the patient may have alcohol dependence. Following a substance use history, the nurses decide that the patient requires a CIWA-AR. Students need to assess a patient using the scale. The patient will have mild symptoms of withdrawal  
Patient history:  
- Patient reports drinking more than 10 standard drinks per day for the past 2 years.  
- Presents to ED after self-harm, with several superficial cuts to forearm, which will require a dressing |
Scenario 1

A brief scenario is developed at each site by the expert mental health clinician, where a basic interview/assessment will be undertaken using the MaskEd™ expert ‘patient’. A set of cues or responses should be agreed upon between the clinician and the simulated patient. The interaction should demonstrate effective therapeutic communication in the context of mental health assessment. Debriefing should be directed using student questions about de-escalation techniques used.

Script: scenario 2

Patient Details

Name: Brodie Johnson, 35 year old female (DOB 5/7/1979)

Setting: Presented to ED with a multiple small lacerations to left forearm. She is lying down on an examination bed.

Introduction for students (group of 3): give patient details. Ask them to do initial assessment, including ATS category, decide on an appropriate management strategy, and manage the wound.

Instructor cues: When asked about the mechanism of injury, patient states: ‘I did it to myself’

Other verbal cues “I feel restless’ ‘I’m feeling agitated’ ‘I feel unsafe right now’. ‘I feel like might do it again- I feel like I could keep cutting’

Vital signs: tachycardia- sinus rhythm rate 85; BP- 128/85; Temp- 36.5C; Resp- 24; SaO2 98%;

History: Previous self-harm on several occasions, currently in the care of the community mental health team.

Mannequin set-up: Street clothes, but appears dishevelled- messy hair, buttons crooked or stains on clothes. Smells of alcohol on breath (use alcohol swabs)

Small moulage on inner aspect of left forearm, between 5-10 cm, long, shallow lacerations across the arm.

Objectives:

- Students assess according to the Mental health triage scale

- Decide on ATS category (Category 3)
• Discuss appropriate management strategies (using mental health triage as a guide)

• Manage wound appropriately

Aims:

Students gain competence at mental health assessment

Students develop confidence in managing acute mental health presentations

Students prioritise mental health and physical care appropriately.

Debrief points:

Where is the patient at now?

How did they decide on the priority of care? What were the rationales for their decision.

Allow students to drive the learning in terms of discussion around the scenario

Script: scenario 3

Leave mannequin as they are from the previous scenario

Wound should be dressed, mental health assessment completed

Mannequin set-up: As above, added beads of sweat on forehead and lip

Vital signs: HR 105, BP 140/89, resp rate 24, SaO2 98%, Temp 37°C

Introduction for students (group of 3): As part of the nursing assessment, you suspect that the patient may have alcohol dependence. Following a substance use history, you decide that the patient requires a CIWA-AR, and you need to complete this assessment.

Instructor cues:

Patient reports drinking more than 10-15 standard drinks per day for the past 2 years.

• Presents to ED after self-harm, with several superficial cuts to forearm, which will require a dressing

• Patient requests diazepam, students to decide whether to administer according to scale.

“I feel restless’ ‘I’m feeling agitated’. Increasing anxiety

Patient states they feel shaky, they feel like they can’t sit still.

Patient requests ‘Can I have some valium?’

Initial cues according to CIWA-AR:

1. No nausea and vomiting

2. No initial tremor in mannequin, but reports feeling shaky

3. Beads of sweat on forehead
4. Mildly anxious
5. Mild agitation
6. No tactile disturbance
7. No auditory disturbance
8. No visual disturbance
9. No headache
10. Orientated

After 5 min, if students haven’t administered diazepam (Valium):

Vital signs: HR 120, BP 148/94, resp rate 28, SaO2 98%, Temp 37.5°C

Increasing sweating, verbal cues indicate more agitation with increasing demands for valium ‘I really need it- I’m feeling so bad right now’ ‘I’m starting to feel like I could vomit’

Mannequin can have intermittent tremor (Technical: Seizure settings)

Tutor to decide level of patient response: verbally abusive and aggressive, dependent on student response.

Advancing cues according to CIWA-AR:
1. Mild nausea
2. Occasional tremor in mannequin
3. Beads of sweat on forehead
4. Moderately anxious
5. Moderately fidgety and restless
6. No tactile disturbance
7. No auditory disturbance
8. No visual disturbance
9. No headache
10. Orientated

Objectives:
Students assess withdrawal according to CIWA-AR and gain understanding of using the tool
Students make a clinical decision about medication administration according to assessment
Students respond appropriately in a challenging communication situation.
Aims:

Students gain confidence in alcohol withdrawal assessment and clinical decision-making

Students develop some understanding of their response in situations where there is a communication challenge with verbal aggression

Students are challenged on their ideas around drug-seeking behaviour versus clinical need

Debrief Points:

• Scope of Practice and clinical decision making around the administration of variable doses of medication according to their assessment (in particular with regard to sedation)

• Barriers to appropriate administration of sedation (ie nurse ‘fears’ of being duped, their response to the patient aggression, fear of overdosing the patient)
B: Focus group questions

**Focus group questions for interviewer:**

Did you participate in the sim activity?

What were the best parts?

The worst parts?

During your placement in ED, how have you been involved in the care of people needing mental health care?

What skills did you feel you had developed from participating in the sim activity?

How were the skills you developed useful in your ED clinical practice? How were you able to apply these? Can you please give an example?

If you did not find them helpful, can you tell me why that was the case as we always want to improve our teaching?

I’ve just asked you about the skills you developed, I’m also interested in how you are able to use the **knowledge** gained in the sim activity? How were you able to apply this knowledge?

How **confident** do you feel about your ability to deliver good mental health care?

In regards to the team in ED, can you explain how you felt a part of the team when providing mental health care in the ED? What made you feel a part of the team?

How did you feel about your **ability** to provide mental health care in the ED? Thinking ahead to your role as a graduate next year, how could you see yourself functioning as a nurse providing mental health care in that environment?

**Conclusion:** Summarize with confirmation, review and ask if anything has been missed, thank participants.
C: Online Survey

Adapted from ‘Confidence in assessment, treatment and management of patients with mental health presentations’ (from Sivakumar, Weiland, Gerdtz, Knott, & Jelinek, 2011)

Pre-intervention:

Confidence in assessment, treatment and management of patients with mental health presentations: before simulation activity survey

Please rate your confidence in the following assessment, treatment and management skills, tasks or situations involving patients with mental health presentations: (5 point Likert-scale, 1= never confident 2=rarely confident 3= sometimes confident 4= usually confident 5=always confident)

- Managing mental health patient in general
- Communication effectively
- Asking probing questions of patients and their families
- Discussing sensitive issues with patients and their families
- Conducting Mental Status examinations
- Assessing risk of self-harm
- Assessing risks posed to myself or others due to patient behaviour
- Conducting physical examinations
- Differentiating physical (organic) from mental illness
- Treating physical illness (inpatients with mental health conditions)
- Taking histories from patients with impaired cognition
- Triaging mental Health presentations appropriately
- Determining care plans
- Using available referral pathways
- Managing intoxicated patients
- Managing behavioural disturbance
- Managing patients with mood disorders
- Managing patients with psychosis
- Managing patients threatening to self-harm
- Managing patients with suicidal ideation
- Managing patients with personality disorders
- Managing distressed/ mentally unwell patients alongside other acutely unwell patients
- Managing patients with dual diagnoses
- Transferring patients beyond the ED setting

Please rate your ability in the following assessment, treatment and management skills, tasks, or situations involving patients with mental health presentations: (5 point Likert-scale, 1=poor 2=fair 3=average 4=good 5=excellent)

- Managing mental health patients in general
- Communicating effectively
• Asking probing questions of patients and their families
• Discussing sensitive issues with patients and their families
• Conducting Mental Status examinations
• Assessing risk of self-harm
• Assessing risks posed to myself or others due to patient behaviour
• Conducting physical examinations
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• Managing patients with psychosis
• Managing patients threatening to self-harm
• Managing patients with suicidal ideation
• Managing patients with personality disorders
• Managing distressed/mentally unwell patients alongside other acutely unwell patients
• Managing patients with dual diagnoses
• Transferring patients beyond the ED setting

Please rate your knowledge of each of the following: (5 point likert-scale, 1=poor 2=fair 3=average 4=good 5=excellent)

• Communication strategies
• Risk assessment
• Referral pathways
• Strategies to manage intoxication
• Strategies to manage behavioural disturbance
• Strategies to manage patients threatening self-harm
• Strategies to manage patients with suicidal ideation
• Mood disorders
• Psychosis
• Personality disorders
• Dual diagnosis uncommon psychiatric disorders
• Strategies to manage behavioural disturbance
• Policies to manage aggression

How important do you think it is for nurses working in emergency departments to have skills in assessment, treatment and management of mental health patients?
1= unimportant 2= somewhat important 3= very important 4= extremely important

Post intervention [repeated questions from pre-intervention survey, with addition of statement ‘...after completing the simulation’]

After simulation activity: confidence in assessment, treatment and management of patients with mental health presentations

Please rate your confidence in the following assessment, treatment and management skills, tasks or situations involving patients with mental health presentations after completing the simulation activity for acute mental health care in the ED: (5 point Likert-scale 1= never confident 2=rarely confident 3= sometimes confident 4= usually confident 5= always confident)

- Managing mental health patient in general
- Communication effectively
- Asking probing questions of patients and their families
- Discussing sensitive issues with patients and their families
- Conducting Mental Status examinations
- Assessing risk of self-harm
- Assessing risks posed to myself or others due to patient behaviour
- Conducting physical examinations
- Differentiating physical (organic) from mental illness
- Treating physical illness (inpatients with mental health conditions)
- Taking histories from patients with impaired cognition
- Triageing mental Health presentations appropriately
- Determining care plans
- Using available referral pathways
- Managing intoxicated patients
- Managing behavioural disturbance
- Managing patients with mood disorders
- Managing patients with psychosis
- Managing patients threatening to self-harm
- Managing patients with suicidal ideation
- Managing patients with personality disorders
- Managing distressed/ mentally unwell patients alongside other acutely unwell patients
- Managing patients with dual diagnoses
- Transferring patients beyond the ED setting

Please rate your ability in the following assessment, treatment and management skills, tasks, or situations involving patients with mental health presentations after completing the simulation activity for acute mental health care in the ED: (5 point Likert-scale, 1=poor 2=fair 3=average 4=good 5=excellent)

- Managing mental health patients in general
• Communicating effectively
• Asking probing questions of patients and their families
• Discussing sensitive issues with patients and their families
• Conducting Mental Status examinations
• Assessing risk of self-harm
• Assessing risks posed to myself or others due to patient behaviour
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• Taking histories from patients with impaired cognition
• Triaging mental Health presentations appropriately
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• Managing patients with psychosis
• Managing patients threatening to self-harm
• Managing patients with suicidal ideation
• Managing patients with personality disorders
• Managing distressed/ mentally unwell patients alongside other acutely unwell patients
• Managing patients with dual diagnoses
• Transferring patients beyond the ED setting

Please rate your knowledge of each of the following after completing the simulation activity for acute mental health care in the ED: (5 point Likert-scale, 1=poor 2=fair 3=average 4=good 5=excellent)

• Communication strategies
• Risk assessment
• Referral pathways
• Strategies to manage intoxication
• Strategies to manage behavioural disturbance
• Strategies to manage patients threatening self-harm
• Strategies to manage patients with suicidal ideation
• Mood disorders
• Psychosis
• Personality disorders
• Dual diagnosis uncommon psychiatric disorders
• Strategies to manage behavioural disturbance
• Policies to manage aggression
How important do you think it is for nurses working in emergency departments to have skills in assessment, treatment and management of mental health patients?

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