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Research paper

Implementation of a structured revision program and the impact on final-year undergraduate nursing students' preparedness for clinical placement: Mixed methods study

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ABSTRACT

Problem: The effects of a revision program on undergraduate nursing students' preparedness for their final clinical placement leading to their graduate year are unknown.
Aim: To explore students' perceptions of confidence, anxiety, self-doubt, and preparedness for a high-acuity clinical placement following a three-day structured revision program.
Method: This was a mixed methods study conducted in the final year of the undergraduate nursing degree. Data were collected by survey using a self-developed 10-item instrument with three components of confidence, inhibitors (self-doubt/anxiety), and preparedness (n = 75) and by semi-structured individual interviews and focus group (7 students in total). Independent sample t-tests were used to compare data between components' scores and demographic characteristics. Interview data were analysed using thematic analysis.
Results: Students who attended the revision program had significantly higher scores for confidence, inhibitors, and preparation. Higher scores in one or more components were associated with enrolment in the Bachelor of Nursing (BN) versus the Bachelor of Nursing/Bachelor of Midwifery, enrolment in the accelerated pathway of the BN, older age, and previous healthcare experience. Four themes emerged from the qualitative data: anticipatory concerns, confidence, preparedness, and striving to belong.
Conclusion: The findings have potential implications for adverse learning outcomes and poor student performance because of negative behaviours, lack of preparedness, and belongingness. There is a need to structure curricula, implement instructional support for students with anxiety and self-doubt, and faculty to align pedagogy to best educational practices with student attendance at structured revision sessions before each clinical placement.

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Summary of relevance

Problem or Issue

Final-year students feel underprepared and lack confidence about their final-year placement. The effects of a revision program on students' perceptions of their preparedness, confidence, and inhibitors to preparedness, such as anxiety and self-doubt in their final-year placement, are unknown.

What is already known

Strategies such as simulation and practice enhance student confidence.

What this paper adds

This study contributes new knowledge on factors that impact students' perception of preparedness, confidence, anxiety, self-doubt, and preparedness for their final-year clinical placement. A structured revision session reduces self-doubt and improves perceptions of confidence, and positively impacts perceptions of preparedness.

1. Introduction

Undergraduate nurse education programs aim to develop nurses who can meet relevant registration standards. In Australia, these standards are set by the Nursing and Midwifery Board of Australia [NMBA] (2016, 2018). In addition, employers expect graduate nurses to be work-ready, independent, and provide safe, competent care to patients.

Despite completing the required hours of clinical placement during their undergraduate degree, new graduate nurses are often perceived as underprepared for the demands of the clinical environment (Missen, McKenna, & Beauchamp, 2015).

2. Review of literature

Studies have reported students' concerns about preparedness for clinical placement in the final year of the degree. A survey of 105 nursing students in the final semester of the Bachelor of Nursing (BN) at a university in Australia found that students expressed apprehension about meeting performance expectations once they graduate and considered they lacked experience in the clinical placement setting (Heslop et al., 2001). A qualitative study in the Republic of Ireland of 24 final-year nursing students' perceptions of their preparedness for clinical placement reported concerns relating to competence in medication management, patient caseload management, and communication (Leufer & Cleary-Holdforth, 2020). Studies of undergraduate nursing students in Australia (Usher, Mills, West, Park, & Woods, 2015) and the United States (Casey et al., 2011) have linked increasing patient caseload to decreasing student confidence. Confidence is linked to performance, and in undergraduate nursing students, is known to decrease over the three years of the course (Edwards, Burnard, Bennett, & Hebden, 2010),

In the final semester, strategies have been introduced into undergraduate curricula to improve student preparedness for clinical placement and associated practice (Davies, Sundin, Robinson, & Jacob, 2021) and capstone clinical subjects. Capstone subjects include theory but focus on clinical practice under the guidance of a registered nurse to consolidate students' learning in the context of clinical practice. However, Usher et al. (2015) reported students' perceptions of preparedness did not significantly increase following a capstone subject. According to cognitive and psychological theory, a structured, repetitive practice that uses expert nurses to demonstrate best practice builds on previous experiences and enhances critical reasoning skills, preparing students to manage complex problem-solving situations once they graduate. The Deliberate Practice Framework was developed by Ericsson, Krampe, and Tesch-Römer (1993). The evidence from Ericsson's work emphasises that optimal performance improvement is reliant on repeat opportunities to practice as well as structured practice, which includes setting goals and learning outcomes and feedback from an expert (Ericsson, 2018). This approach also prevents skill decay and improves the long-term retention of skills and knowledge (Ericsson et al., 1993).

According to educational psychology, confidence in one's ability can have a positive impact on learning and performance. Conversely, constructs of anxiety and self-doubt are known inhibitors of preparedness and impact learning and performance negatively (Ericsson & Harwell, 2019). According to Braslow, Guerrettaz, Arkin, and Oleson (2012), self-doubt refers to doubt about one's ability with thoughts that dwell on failure and can lead to anxiety, altering a person's perception so they perceive themselves to be less capable (Graydon, Linkenauger, Teachman, & Proffitt, 2012). Furthermore, both constructs can result in negative thought processes that distract the student from learning (Bledsoe, Baskin, & Berry, 2018), posing a threat to students' preparedness for clinical practice.

Although students gain opportunities to practise during their clinical placements, the practice sessions are not always structured or supervised by an expert registered nurse, highlighting the need for structured repeat revision programs in the final year of the course. The impact of a structured revision program, in the final year of the course, on students' preparedness, confidence, anxiety, and self-doubt, is unknown. Knowing this may provide support for embedding repeat structured revision in the curriculum. For this reason, the university in which this study was conducted introduced a three-day structured revision program involving simulation-based learning, case-based learning, and group work (see Supplementary 1 for details) before the start of the first semester in the final year of the undergraduate nursing degree to prepare students for their final-year clinical placement.

3. Aim

The aim of this study was to explore students' perceptions of confidence, anxiety and self-doubt, and preparedness for a high-acuity clinical placement following a three-day structured revision program.

The research questions were:

- How does a structured revision program impact students' perceptions of preparedness, confidence, anxiety, and self-doubt?
- What factors are associated with preparedness, confidence, anxiety, and self-doubt?

The theoretical framework underpinning this study was informed by the Deliberate Practice Framework, as developed by Ericsson et al. (1993).

4. Methods

4.1. Study design

A mixed methods convergent parallel design was used, with a quantitative and a qualitative phase. Integration of the results of the two phases occurred during the interpretation phase, and the interpretation used convergence of the findings to strengthen results (Creswell & Clark, 2017).

4.2. Sample and setting

The study was conducted at a large university in Victoria, Australia. Two undergraduate programs were conducted at the time of the study: a BN program and a four-year double-degree Bachelor

Table 1
Structured revision program.

Day	Content covered	Learning activities
1	1. Understanding of the hospital and ward expectations of a nursing student 2. Patient conditions and therapeutics associated with those conditions in the designated clinical placement ward 3. Common medical conditions and therapeutics covered in the second year 4. Planning care for three or more patients	2-hour interactive lecture presentation 2-hour workshop with group work 2-hour simulation in a laboratory in a four-bed ward with four simulated clients
2	1. Safe medication administration 2. Core skills and knowledge for providing care to a medical patient 3. Deteriorating state, escalating care, and providing initial response until assistance arrives 4. Effective communication strategies and safe handover techniques 5. Reflective practice and ability to accept constructive feedback	1-hour medication calculation activity 2-hour laboratory practice in a four-bed ward 2-hour simulation in a laboratory for managing one simulated deterioration client
3	1. Core skills and knowledge for providing care to a surgical patient 2. Professional relationships with the preceptor and other team members 3. Reflective practice and ability to accept constructive feedback 4. Scope of practice expected of a third-year nursing student 5. Clinical performance goals for third-year nursing students	2-hour workshop with group work 2-hour simulation in a laboratory in a four-bed ward with four simulated clients

of Nursing/Bachelor of Midwifery (BNBM) program. The BN program includes two pathways: a traditional three-year pathway and an accelerated pathway for enrolled nurses and students with previous non-nursing degrees. Students in both degree programs attend the same classes in their final year and undertake a high-acuity clinical placement during the first semester.

A three-day structured revision program, see Table 1 for content and activities was offered to all BN students about to begin the final year of their degree. Attendance was optional. The final-year BNBM students were on clinical placement and unavailable to attend the revision program. All final-year students were eligible to participate in the quantitative phase of the study to enable comparison between those who had attended the revision program and those who had not. Only students who had attended the program participated in the qualitative phase.

4.3. Questionnaire

The researchers developed a questionnaire with two parts: demographic information and a 10-item tool (see Supplementary 1) to determine undergraduate nursing students' perceptions of their confidence, inhibitors (anxiety and self-doubt), and preparedness for clinical placement. The demographic section asked students to provide their age, gender, previous education, experiences in healthcare and attendance at the revision program, and enrolment status, that is, BN versus BNBM program, and for BN students, traditional versus accelerated pathway.

A 10-item tool was developed inclusive of three components: confidence (4 items, e.g., *I was confident with my ability to integrate theory to practice during my clinical placement*); inhibitors to preparedness (anxiety and self-doubt) (3 items, e.g., *I feel anxious about commencing the last clinical placement*); and preparedness (3 items, e.g., *I was given sufficient opportunity to practise my clinical skills before the clinical placement*).

The tool was assessed for content validity using the Content Validity Index (CVI). Content validity is concerned with the sampling adequacy of the content measurement (Field & Field, 2018). Expert nurse academics, including expert practitioners, reviewed each item and scored the sampling adequacy using a scale of 1–4: 1 = not relevant, 2 = somewhat relevant, 3 = quite relevant, and 4 = highly relevant. The results of Content Validity Index averages (CVI/AVE) resulted in an acceptable range of 0.92–1.0 (Field & Field, 2018): 0.96 for confidence and 0.94 for both and preparedness components, 0.95 for the entire tool. Based on the researchers' expertise, the 10 items were grouped into three components: confidence, inhibitors to preparedness (anxiety and self-doubt), and preparedness. The 10 items used a 7-point Likert scale from 1 = completely disagree, 4 = neither agree nor disagree, and 7 = completely agree.

4.4. Data collection

4.4.1. Quantitative data collection

One of the researchers not involved in student teaching or assessment approached students attending an orientation session at the start of semester 2, 2018 (n = 78) to participate in the study. The survey, participant information sheets, and consent forms were distributed to students at the end of the class. Students placed the completed questionnaires in a secure box and returned them at the end of the session.

4.4.2. Qualitative data collection

Consenting students were emailed an interview schedule with various dates and times immediately before or after a clinical skill laboratory session. Only three BN students elected to participate in the same time slot; one male and two females formed the focus group (FG). In addition, four BN students, three females and one male attended individual interviews. Therefore, data from the FG and individual interviews were combined; according to Lambert and Loiselle (2008), a pragmatic approach may lead to fewer refusals. Semi-structured audio-recorded interviews lasting 20–30 mins were conducted on the campus of the university. Key interview questions are listed in Table 2.

4.5. Data analysis

Quantitative data were coded with numerical values and entered into SPSS version 24 (IBM). Cronbach alpha coefficient was used to assess the scales' reliability and internal consistency with items expected in the acceptable alpha range of ≥0.7 (DeVellis, 2012). Negatively worded statements were reverse-coded, and individual items were summed to give a total score for each component. Higher scores indicated a higher perception of preparedness and confidence, and

Table 2
Key interview questions.

- Tell me about how subjects in semester 1 prepared you for clinical placement
- What skills and knowledge helped you the most, and what was least helpful?
- Tell me about the revision program
- Besides formal classes, what else did you do to prepare you for your clinical placement in semester 1?
- Is there anything you could have done differently to prepare?
- What strategies would you recommend to other nursing students to assist their preparation for the final clinical placements?
- What behaviours do nursing students exhibit on placement, indicating they are prepared for clinical placement?

lower levels of anxiety and self-doubt. The assumption of Missing Completely at Random was satisfied, and listwise deletion was used to manage the missing data. According to Kang (2013, p.9), this method is known to "produce unbiased estimates and conservative results". Descriptive statistics were used to summarise the demographic data. Initial assumptions for parametric testing were met. Therefore, independent sample t-tests were used to compare scores for each component between revision program attendees and non-attendees, categories of age, additional clinical experience, and program enrolment status. Significance was set at $p < 0.05$.

The interview recordings were transcribed verbatim and entered into NVivo (QSR). Transcripts were aligned with the audio recordings in NVivo, and the accuracy of the transcripts and the coding process was checked. Although participants were invited to review the transcripts, none requested this.

Data were analysed using thematic analysis informed by Grbich (2013). Each transcript was given a unique identifier to enable linkage between interview transcripts, audio recordings, and field notes. This process involved careful repeated reading of transcripts to identify meaningful words and phrases, grouping similar words and phrases, and applying overarching themes. Coding was checked by a second researcher (BC), and discrepancies resolved by a third (CM). Qualitative methods using a FG and individual interviews can cause divergence in epistemological assumptions threatening the trustworthiness of the data (Morse, 2003). However, the researchers' checking, and agreement of data did not reveal divergence of themes, which was further confirmed with the alignment of the exemplars. Rigour was determined by ensuring data saturation, evident by no new themes occurring in the analysis (Urquhart, 2013).

Data integration (merging approach) occurred at the reporting level to create a joint display of qualitative and quantitative data. This was done by matching the qualitative themes to their corresponding survey item domains.

4.6. Ethical considerations

Ethical approval was obtained from (Blinded) University in which the study was conducted (ID 2000001517). Before recruitment, students received information on the study, its purpose, the procedure involved, and the guarantee of anonymity (for those completing the questionnaire) and confidentiality. Students also received a copy of the Participant Information Statement informing them that no academic involved in their teaching or assessments would be present during the data collection or have access to the data. No incentive was offered for participation; students were further informed that participation would be voluntary, and those participating in the interviews could withdraw at any time.

Completing the survey indicated consent; students wishing to participate in an interview provided written consent on a separate form. All anonymous survey forms were collected separately from consent forms and placed in a secured box. Only the CI had access to identifiable data, such as consent forms or audio recordings.

5. Results

5.1. Quantitative findings

A total of 119 students were enrolled in the BN and the BNBM program. In total, 75 questionnaires were completed, eliciting a response rate of 63%. There were 8 (10.7%) male and 67 (89.3%) female students. The mean age was 23.1 years (Standard deviation (*SD* 7.2)). Age was categorised into two groups: 19–24 years (n = 47, 62.7%) and 25 years and above (n = 27, 36.0%); 1 student did not answer the question.

Sixty one (81.3%) were enrolled in the BN program, which included 22 (29.3% of the total) who were enrolled in an accelerated pathway and 14 (18.7%) in the BNBM program. Among 38 (50.7%) students who had previously achieved a qualification, 17 had a Diploma of Nursing and 21 an undergraduate degree in another discipline. Thirty-eight students (50.7%) had previous experience working in healthcare, and 37 (49.3%) did not. Thirty-two students (42.7%) attended the three-day revision program, and 42 (56.0%) did not attend, with 1 not answering.

Cronbach's alpha for the 10-item tool was 0.87 overall, 0.77 for the confidence component, 0.72 for the inhibitors component, and 0.68 for the preparedness component. The results of independent sample t-tests are shown in Table 3. Those students who attended the three-day revision program had significantly higher scores for confidence ($p < 0.001$), inhibitors ($p < 0.001$), and preparation for clinical placement ($p < 0.05$). There were significant differences in scores related to age, with older students having significantly higher scores for confidence ($p < 0.001$) and inhibitors ($p < 0.05$) than students in the younger age group. Students in the accelerated pathway had significantly higher scores than students in the traditional pathway for confidence ($p < 0.001$), inhibitors ($p < 0.05$), and preparedness for clinical placement ($p < 0.01$).

Confidence scores were significantly higher in students with healthcare experience than in students with no healthcare experience ($p < 0.05$). However, differences in scores for inhibitors and perceptions of preparedness were not statistically significant, although the scores were higher in those having healthcare experience.

Students enrolled in the BN program had significantly higher scores for confidence ($p < 0.01$) and perceptions of preparedness ($p < 0.01$) than those enrolled in the BNBM program. However, the difference between the BN and BNBM groups for inhibitor scores was not statistically significant.

5.2. Qualitative findings

Five females and two males participated in the interviews. Both the FG and individual interviews (II) yielded meaningful data about the students' experience of preparedness for clinical placement. Four main themes emerged from the data analysis: *confidence, anticipatory concerns, preparedness,* and *striving to belong.*

5.2.1. Confidence

Confidence is widely known to improve student performance and build trust and rapport with staff and patients. Confidence was displayed in behaviours such as being proactive, showing initiative, and communicating with the health team. Conversely, students who lacked confidence were perceived by their peers as using avoidance behaviours:

> *Confidence is the biggest thing when you go for the placement, and you can see who's confident and has the knowledge. Those students are more likely to be proactive; they go quickly on the ward and try to figure out things by themselves. So compared to those, they sit around, not hide, but avoid situations or go to one room, and they are there for a while (FG 2)*

> *They will hide in the corners or waste their time doing a practical activity. They are not showing initiative or not communicating to other teams, like doctors or the physio (FG 1)*

Effective teamwork and communication are known to improve health outcomes, so preparation and working with healthcare teams are important in the undergraduate program. However, students reported a lack of preparation and relied on previous work experiences to enhance their ability to work with teams during clinical placement, as outlined by the following exemplar:

> *I think it's, it's one of the scary things about being a student, talking across a multidisciplinary team, you don't get a lot of preparation on how you go about that or how you assert yourself in those situations. Confidence comes with working with the public for many years. I'm*

Table 3
Analysis of demographic variables and the three components.

Demographic characteristics		Confidence Mean (*SD*)	Inhibitors (anxiety and self-doubt) Mean (*SD*)	Preparedness Mean (*SD*)
Attended the revision program	No (n = 41)	5.07 (1.08)	4.85 (1.22)	4.72 (1.09)
	Yes (n = 32)	5.91 (0.87)	5.63 (1.21)	5.27 (1.25)
		t = −3.591***	t = −2.719**	t = −1.992*
Previous education	Diploma (n = 17)	5.50 (1.06)	5.43 (1.25)	5.00 (1.33)
	Degree (n = 21)	6.06 (0.81)	5.76 (1.05)	5.48 (1.17)
		t = −1.84	t = −0.88	t = −1.17
Age group	Less than 24 (n = 45)	5.15 (1.08)	4.87 (1.27)	4.80 (1.05)
	Older than 25 (n = 27)	5.94 (0.86)	5.73 (1.09)	5.26 (1.33)
		t = −3.24***	t = −2.93**	t = −1.63
Accelerated pathway	No (n = 41)	5.21 (1.05)	4.87 (1.33)	4.67 (1.17)
	Yes (n = 32)	5.92 (0.88)	5.83 (0.71)	5.52 (0.90)
		t = −2.78**	t = −4.03***	t = −3.01**
Previous healthcare experience	No (n = 37)	5.18 (1.16)	4.92 (1.26)	4.77 (1.28)
	Yes (n = 38)	5.69 (0.90)	5.44 (1.22)	5.12 (1.05)
		t = −2.121*	t = −1.810	t = −1.288
BN or BNBM	BN (n = 61)	5.62 (0.96)	5.33 (1.14)	5.13 (1.17)
	BNBM (n = 14)	4.73 (1.24)	4.62 (1.60)	4.19 (0.91)
		t = 2.937**	t = 1.578	t = 2.811**

*p < 0.05; **p < 0.01; ***p < 0.001.
BN: Bachelor of Nursing; BNBM: Bachelor of Nursing/Bachelor of Midwifery.

more fortunate in the fact that I do RUSON work (Assistant in Nursing). That helped build confidence around navigating your way through a ward and talking to people (II: 2).

5.2.2. Anticipatory concerns

Students reported anxiety about the impending clinical placement. Furthermore, the unplanned placement environment, as opposed to the simulation environment, evoked concern.

I know it still makes you anxious being out there on placement because it's totally different, and it's not planned. So, you don't have that fallback of a dummy (Manikin), but it definitely helped a lot to do the simulations (FG:3).

Despite the anticipated anxiety, students' self-regulatory behaviour such as planning and revision was an effective strategy to overcome the concerns about attending placement:

I know that I'm going to be doing a lot of study before placement, I'm quite nervous about going along to that placement, so I'll make sure that I scrub up on procedures. And, just doing a bit of research before I go into placements and understand where I'm going (II:1)

Students acknowledged that underprepared students, including students who did not attend scheduled simulation sessions, exhibited anxiety and self-doubting behaviours:

They're always very nervous and they just go around, and they're like, "What am I doing? What am I to do?" and they're confused (II:3).

I notice they're more unsure or very timid; some people are so nervous they won't ask their buddy for guidance. They don't know what to do, and they need more guidance during placement. I think it takes a little bit longer for them to get settled because there's probably those anxiety levels and self-confidence and doubt at the beginning because they haven't had that preparation, like the simulation (II:4)

5.2.3. Preparedness

The students saw authentic simulation and the revision program as beneficial in preparing them for clinical practice.

The Boot Camp (revision program) at the start of the year was really good; they (the educators) summed up everything that we needed to know pretty well, and it definitely prepared me for the start of the placement (II:4)

The following student describes how the revision program provided an opportunity to actively engage in a simulated clinical situation and integrate the knowledge into the clinical setting:

We were thrown into a group (in simulation), …you had that time to talk about it and work it out, whereas in the real setting, as a student, quite often you take a step back and you just observe, but then you can sort of start to link together the simulation with what you see in real life, and you have more understanding of what's going on, rather than standing there panicking (FG:1)

The lack of preparedness in students who do not attend the simulation or labs is evident during placement, as highlighted by the following student:

Simulation and labs it's not compulsory here, and some of the students don't turn up; I come for each class. What happens when they don't turn up for the lab or simulation classes, then they go on placement, and someone will say, "oh did you do that?" they will say, "yeah, we did", but they don't know what to do (FG:1)

Repeat practice was an important preparation for students with a concern about skill decay, particularly concerning knowledge about medications:

In the last semester, we just had one simulation session; it would be better to have another one just as a quick recap. I need to get to know again about my medications because last placement, I had a community mental health placement and couldn't attend the revision session (II:3)

We had such a significant break between studies and then the start of this year. I think it was about two to three months where there wasn't really much going on, and I had forgotten quite a lot, to be honest, so once I got into the revision session, it really did prepare me. It refreshed my memory on how the different types of medications we're allowed to give and that sort of stuff (II:4)

5.2.4. Striving to belong

Students struggled to have a sense of belonging in their final year. For example, the following student describes attempting to negotiate to be part of the team and avoid feeling alone:

During the placements, I have seen you are left alone… you are a student on the ward looking for a buddy, so you are not allocated to anyone (registered nurse); you are following someone and asking,

"Would you like to take me with you for this shift?" So, on those days, you feel you are left alone, and you do not feel part of the team (II:2)

Struggling to be part of the team was demonstrated by the following student where they had to negotiate skills, prove competency, and be the positive person in the buddy nurse relationship to obtain learning opportunities:

This nurse is horrible; she's not nice, she's not involving me in anything. She's shutting me out, and then I've been paired with that same nurse, and I was like, right, I'm going to make a real effort to be friends with this nurse, to make sure she knows what I can do (FG3)

6. Discussion

This is the first-known study to report the impact of a structured revision program in the first semester of the final year on nursing students' preparedness for clinical placement, including factors that impact preparedness, such as confidence, anxiety, and self-doubt. Both the quantitative and qualitative findings indicated that attending the structured three-day revision program was beneficial to students, concurring with theory related to deliberate practice (Ericsson & Harwell, 2019). Preparedness for clinical placement involves preparedness for practice. This study has highlighted the importance of deliberate practice, which can positively impact students' perceptions of preparedness for practice in the clinical setting. The qualitative findings indicated the revision program prepared students for clinical placement, increased confidence, and reduced anxiety. The importance of deliberate practice relies on not merely performing a skill several times, it involves feedback on how well the skill is performed (Ericsson & Harwell, 2019). The use of peer learning and peer feedback in the revision session in this study is in line with the theory of deliberate practice and social cognitive theory, which posit that peer learning is an effective pedagogy and enhances performance (Pintrich, 2004). Therefore, peer assessment and feedback included in all clinical practice sessions could facilitate students' expertise. Further, deliberate practice cannot rely on students' motivation and therefore, faculty may need to consider mandating attendance at laboratory and simulation sessions.

According to both the qualitative and quantitative reports in this study, students who were unprepared for clinical placement, including non-attendance at the revision session, exhibited low confidence, self-doubting, and avoidance behaviours, which were highlighted in the qualitative data. Most people experience self-doubt at times, however, the extent to which they may experience chronic doubt about their competence and routinely feel distressed about the upcoming performance requires further investigation. Low confidence and self-doubting behaviours can be associated with poor performance (Ericsson & Harwell, 2019). Therefore, it is important to identify these negative behaviours and provide students with instructional support (Blinded for review, 2020) to transform before commencing clinical placement. The importance of attendance at a revision program before each clinical placement cannot be overemphasised. This was supported by the results showing that students in the BNBM program who did not attend the revision program had lower confidence and lower scores for preparedness.

Prior experience in education, healthcare experience, and participation in the structured revision program were significant factors positively impacting students' confidence, highlighted in both the qualitative and quantitative data. Confidence was associated with age, with older students, including students in the accelerated pathway, more confident about clinical placement than younger students in this study. Given that older students are more likely to have had previous education experiences, this result was unsurprising.

Those students enrolled in the accelerated pathway had higher scores for confidence, inhibitors, and preparedness for clinical placement than those who were not enrolled in an accelerated pathway or had not attended the revision program. This finding contrasts with social cognitive theory (Pintrich, 2004), where an increase in confidence is known to be associated with a decrease in anxiety. One explanation for negative affective behaviours in final-year nursing students could be related to their anticipation of practising independently once they graduate (Watt & Pascoe, 2013).

Students experiencing a sense of belonging are more motivated and involved in educational learning opportunities (Kim & Park, 2011). Conversely, not having a sense of belonging has been shown to negatively impact students' psychological well-being and learning (Ashktorab, Hasanvand, Seyedfatemi, Salmani, & Hosseini, 2017). The results of this study align with other nursing studies reporting students' experiences of a lack of belongingness in the clinical setting (McLeod, Jokwiro, Gong, Irvine, & Edvardsson, 2021; Levett-Jones, Lathlean, Higgins, & McMillan, 2009). The degree to which students' negative thoughts reported in this study are related to the anticipation of the climate of the clinical placement setting is worthy of larger studies across different universities. Further research would be required to determine the optimal spacing between classes, placement, and revision sessions.

7. Limitations

This study demonstrated relationships between confidence, anxiety and self-doubt, and preparedness; definitive causal pathways require experimental studies and structural modelling. In addition, although the new tool used in this study demonstrated reasonable internal consistency, further construct validation with a larger cohort is required. A limitation of the study was the lack of evaluation of the revision session by exploring the impact on students' actual performance in the clinical setting. While we collected data on several factors that may impact students' perception of preparedness, there may be other confounders of which we are not aware. Further research is needed to identify potential factors.

One challenge was accessing participants at the beginning of the year when students were applying for a graduate year and attending graduate interviews, which limited the availability for students to attend the scheduled individual interview for this study. However, a group of students were able to attend an interview together. This resulted in combining the data from the FG and individual interviews, which can threaten trustworthiness if themes do not align (Morse, 2003). The alignment of the themes between the FG and individual interviews demonstrated that this did not occur, however.

The research was conducted in Australia from only one nursing cohort and may not produce similar results in other countries or other undergraduate nursing groups. Students who chose to participate could have been more motivated and had positive attitudes towards their preparedness for clinical placement than those who did not volunteer. Regardless of these limitations, the findings have yielded new and essential insights that can inform future nursing curricula and support educational content.

8. Conclusion and implications for practice

This study contributes new knowledge on factors that impact students' confidence and preparedness and adds to the existing nursing literature on the significance of preparing a student for clinical placement before graduating. It has highlighted the importance of revision using simulation and peer learning to build confidence. In addition, reports of negative behaviours linked to the reality of a knowledge gap and expectation of placement are worthy of further investigation.

Given that low confidence and negative thoughts have an adverse effect on performance, the results of this study have potential implications for adverse learning outcomes and poor student performance because of negative thoughts related to anxiety, lack of preparedness, and lack of belongingness during clinical placement. Hence, the findings can be used to structure curricula and launch systematic efforts to implement instructional support for students with negative behaviours and for faculty to align pedagogy to best educational practices with student attendance at clinical simulation and revision sessions before each clinical placement.

The findings in this study provide insights into the factors that impact students' preparedness for those responsible in the academic and clinical settings for preparing students for their final-year placement and graduate year. Furthermore, it highlights the importance of structured repeat practice, embedded as mandatory in the curriculum, to ensure competence and patient safety.

Author contributions

Substantial contributions to the conception or design of the work SI, YHU, CM, YJ, and BC. Analysis or interpretation of data SI, YHU, and BC. Drafting the work or revising it critically for important intellectual content SI, YHU, CM, YJ, and BC. Final approval of the version to be published SI, YHU, CM, YJ, and BC. Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved SI, YHU, CM, YJ, and BC.

CRediT authorship contribution statement

Susan Irvine Yangama Jokwiro; Conceptualisation, **Susan Irvine, Beverley Copnell, Yu Hua Gong, Yangama Jokwiro, Carmel McLeod**; Methodology, **Yu Hua Gong, Beverley Copnell, Susan Irvine, Carmel McLeod**; Formal analysis, **Susan Irvine, Carmel McLeod, data collection. Susan Irvine;** Original draft preparation, **Susan Irvine, Beverley Copnell, Yu Hua Gong, Yangama Jokwiro, Carmel McLeod**; critical review and editing and visualisation. Funding acquisition-Nil.

Ethical statement

The submitted manuscript is based on a research study which was subjected to a full review by: La Trobe University Human Research Ethics Committee. Approval number: HEC18314; Date of approval: 30/7/2018.

Conflict of interest

No conflicts of interest to declare.

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Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at doi:10.1016/j.colegn.2023.08.006.

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