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Literature Review

Undergraduate nursing students' perceptions of debriefing sessions in simulation-based learning: A systematic review

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ABSTRACT

Objectives: The aim of this systematic review is to determine how debriefing processes, perceived by undergraduate nursing students, affect confidence and learning outcomes from qualitative studies conducted between 2019 and 2023.
REVIEW METHODS: This systematic review is aligned with the PRSIMA 2020 search strategy and includes data from only qualitative studies. Previous studies on perceived outcomes surrounding effective debriefing processes within simulation-based learning has predominantly focused on quantitative and mixed method studies.
Results: A total of 358 primary studies were obtained from the initial search: CINAHL (n = 64), ERIC (n = 3), MEDLINE (ProQuest) (n = 42), SCOPUS (n = 101), and WEB OF SCIENCE (n = 137); and hand searched articles (n = 11). A total of 5 studies were included in the review from which 3 underlying commonalities were identified: Self-awareness and self-confidence; Safe Learning Environment; and Confidence for Clinical Practice.
Conclusion: The debriefing process is perceived as having a positive effect on students'; however, a 2-step approach to debriefing in which self-reflection prior to group discussion on their performance is preferred.

Introduction

Since the turn of the millennium, simulation-based learning (SBL) has continued to grow and develop into an integral part of the nursing curriculum (Al Gharibi et al., 2021; Avraham et al., 2021). As a result, the Nursing and Midwifery Council (NMC) in the UK have now incorporated SBL into their Standards of Education and Training (NMC, 2023).

Recent studies have reported on the effectiveness of SBL and the impact this has had on undergraduate nursing student's confidence. SBL has been shown to enhance confidence and efficacy in clinical skills development which can be applied to clinical practice (Al Gharibi et al., 2021; Avraham et al., 2021; Eom et al., 2021; Arrogante *et al.*, 2021; Bai *et al.*, 2023). It also reduces stress and anxiety in the knowledge that no harmful consequences will result to patients through mistakes and errors made during SBL activities (Al-Ghareeb et al., 2019; Craig *et al.*, 2021). In addition, SBL offers undergraduate nursing students the opportunity to identify gaps in their knowledge and skill levels through the process of deep reflection (Mulvogue et al., 2019; Eide et al., 2020; Dix *et al.*, 2021).

The International Nursing Association for Clinical Simulation and Learning (INACSL) describe SBL activities in the HEALTHCARE SIMULATION STANDARDS OF BEST PRACTICE™ as consisting of 3 processes: Prebrief, Scenario and Debriefing (INACSL, 2021). According to INACSL (2021), the debriefing process is reported as being a crucial component in achieving learning outcomes, as it is through engaging in deep reflection that individuals learn from experiences. By using a variety of strategies such as feedback, debriefing and guided reflection, undergraduate nursing students are provided with an opportunity to review and establish insightfulness into their performance during SBL activities (INACSL, 2021). Therefore, providing an environment that is 'safe' to engage in this reflective activity is imperative.

The term 'psychological safety' was first devised by Professor Amy Edmondson of the Harvard Business School, after consolidating 30 years of research within business organizations (American Psychological Association (APA), 2024). The underlying principle of psychological safety is for individuals to feel valued and respected by colleagues/peers when engaged in group activities and meetings. This enables individuals to contribute and share their thoughts, opinions, and suggestions without fear of rebuttal. According to Ito *et al.* (2022), due to the successes of Psychological Safety within the

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workplace, this concept has now significantly expanded beyond the realms of business. As a result, it has now been incorporated in other industries such as aviation, education, manufacturing and is now deemed equally valuable in healthcare (Ito *et al.*, 2022).

Within nursing education, the provision of a "safe environment" is to prevent harm to "real-life" patients. The undergraduate nursing student is safe in the knowledge that they are free to express their opinions and/or thoughts and to ask questions without fear of being ridiculed or judged by the facilitator and/or peers. It also enables participants to discuss mistakes and errors that occurred during the simulation as well as feel that they are an equal and valued member of the learner "team" (APA, 2024).

During the period 2010-2017 researchers worked to gain insight into understanding how effective the debriefing process is in affecting the learner outcomes for undergraduate nursing students. In a systematic review conducted by Lee *et al.* (2020), 7 studies were conducted in universities from USA and Korea during 2012-2016. The authors concluded that having a structured debriefing process following simulation activities was indicative in improving learner outcomes. However, these results were obtained through structured survey/questionnaires which used predetermined statements that were rated on a Likert scale (Lee *et al.*, 2020).

Comparable results were reported in a subsequent systematic review by Nui *et al.* (2021) in which 13 studies conducted between 2012 and 2020, included undergraduate nursing students from universities in Korea, USA, China, and Canada (Niu *et al.*, 2021). These studies aimed to capture the students' perceptions on the debriefing process following SBL activities. The results from these studies supported a positive perception from all the students who participated in the studies. However, the data was obtained from mixed method studies which again relied upon students responding to surveys and questionnaires using a Likert scale, such as the Debriefing Assessment for Simulation in Healthcare – Student Version (DASH-SV) and Debriefing Experience Scale (DES) (Nui *et al.*, 2021). Both these studies lacked sufficient evidence, being captured from the students' own words (Lee *et al.*, 2020; Niu *et al.*, 2021).

As a lecturer in a Scottish University actively involved in undertaking SBL activities in an undergraduate nursing programme, the objective for undertaking this review was to further obtain an in-depth understanding by asking the following questions:

1. How do undergraduate nursing students perceive current debriefing processes?
2. How does the debriefing process contribute to their confidence?

This systematic review looks at recent studies that have been conducted over the past 5 years (2019-2023) in which the focus was obtaining qualitative data relating to undergraduate student nurses' perceptions on the debriefing process.

Method

Design

Systematic reviews are conducted in a transparent and rigorous manner as they are meant to shape future practice through gathering evidence from primary research in which to inform policies and procedures (Zawacki-Richter *et al.*, 2020). This systematic review aligns with the PRISMA 2020 flowchart (Preferred Reporting Items of Systematic reviews and Meta-Analyses). To aid in capturing and recording of the primary research to be included in the systematic review, sections of the PRISMA flowchart have been incorporated into the ENDNOTE 20™ reference library (Clarivate™, 2024) to record each stage of the review process.

Search strategy

Primary research studies were obtained using both clinical and educational databases as the research topic incorporate these 2 disciplines. Five databases used for nursing and education journals were utilized for searching primary research studies, including ERIC, CINAHL, WEB OF SCIENCE, SCOPUS, MEDLINE (ProQuest). The aim was to maximize the inclusion of studies pertinent to the research topic and to achieve, to the greatest extent possible, saturation of the current literature available.

As indicated by Zawacki-Richter *et al.* (2020), conducting systematic reviews on qualitative research studies can be time intensive. Therefore, as a sole researcher under assessment conditions, the initial search was limited to peer reviewed articles ranging between 2019-2023 with no grey literature or books included in the search. Keywords and search terms contained with parentheses () in conjunction with the use of Boolean operators 'AND' and 'OR' and the Wildcard symbol * were utilized. These were used to broaden the initial search to capture potential synonyms of the search terms and to narrow down the specific relevance of the studies being searched (Newman & Gough, 2020). Specific keywords and terms, as well as additional limiters, to aid in the search strategy, are listed as follows:

Search terms

- (Simulation training) OR (simulation education) OR (simulation learning) OR (simulation in nurs* education) OR (simulation based learning) OR (simulation based education)
- AND debriefing OR debrief
- AND effectiveness OR efficacy OR effective
- AND perception* OR attitude* OR opinion* OR experience* OR view* OR reflection* OR belief* OR understanding*
- AND (undergraduate nurs* student*) OR (nurs* student*) OR (student nurse*)

Limiters

- 2019-2023
- English language
- Peer-reviewed
- Academic Journals
- Student experiences

Inclusion/exclusion criteria

To further establish relevance of the content of research studies gathered through the systematic review process it is also necessary to identify inclusion and exclusion criteria (Zawacki-Richter *et al.*, 2020). For inclusion purposes, the use of a framework which identifies specific criteria that the reviewer requires in answering the research question was adopted. According to Boland et al. (2017), they recommend using a 10-step process when conducting a systematic review. The use of 1 such framework that can be adopted for qualitative studies was the PICo framework (Boland et al., 2017). Developed by the Joanna Briggs Institute in 2014, each section represents a specific inclusion target (Boland et al., 2017). Applying the PICo framework to the research questions, the following was used for inclusion criteria:

- P = Population; Undergraduate Nursing Students.
- I = Intervention; Debriefing sessions in Simulation-based learning activities.

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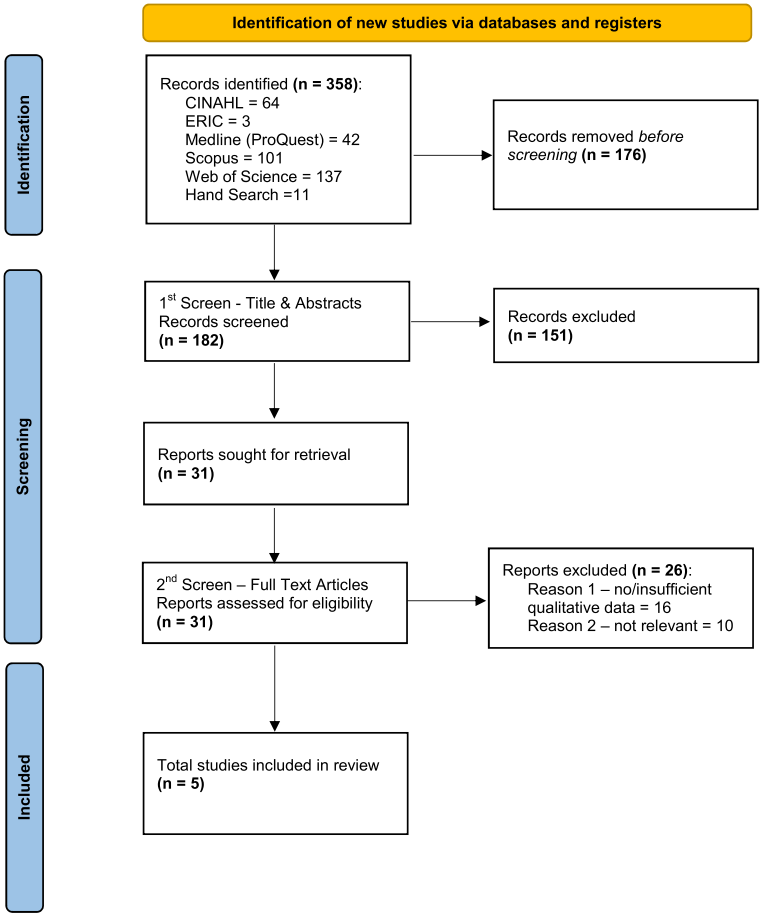

Fig. 1. PRISMA 2020 flow diagram for updated systematic reviews which included searches of databases and registers only.
From: Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. BMJ 2021;372:n71. doi: 10.1136/bmj.n71

- Co = Context; Student perceptions relating to debriefing process and whether this had a positive effect on confidence.

Equally important is the setting of exclusion criteria to exclude studies that were not relevant to the research questions. Several exclusion criteria were formulated to narrow the search for relevancy:

Exclusion 1 – quantitative and mixed methods studies.
Exclusion 2 – interprofessional simulation-based learning activities.
Exclusion 3 – perceptions based on simulation scenarios.
Exclusion 4 – postgraduate nurses/medical/healthcare professionals.
Exclusion 5 – secondary research.
Exclusion 6 – non-nursing professions such as dentistry, social work etc.

Data extraction

In line with the 10 key steps of conducting a systematic review as suggested by Boland et al. (2017) and the PRISMA flowchart (Fig. 1), the literature search was conducted in distinct stages. The first stage incorporated keywords and phrases derived from the research questions along with the initial limiters. The articles captured from each database were entered as a separate group within ENDNOTE™. All the results were then combined into 1 group entitled *a: initial search results*. Using ENDNOTE™ to sort through and remove any duplicate articles, the remaining articles were placed into a separate section entitled *b: articles after duplicates removed*. The initial screening stage involved reading through the titles and abstracts of each of the articles and apply the inclusion/exclusion criteria relevant to the research questions. The results from this process were placed into another section entitled *c: results from first screening process*. Final screening was conducted by obtaining full text copies of each remaining articles to determine whether they contained the information required to complete the systematic review. This involved reading through the methodology, results, and discussion of each of the articles that reported qualitative data from the undergraduate student nurses' perceptions of the debriefing process. The remaining articles were placed within the final section within ENDNOTE™ entitled *d: articles included in review*. Characteristics of these studies have been entered into a table (Table 1) detailing the authors, date of publication, methods/design of study, aims of research, participants and identified themes/subthemes. This enabled clear identification and coding of the commonalities of each of the studies being included in the systematic review.

Quality appraisal & ethical considerations

According to Zawacki-Richter *et al.* (2020), reviewers need to consider the quality of the evidence in each of the primary studies that they seek to include. To determine the quality of the studies included in this systematic review, it was necessary to determine the

Table 1
Study characteristics of articles included in systematic review.

	Authors (Date)	Country	Methodology / Design	Participants	Aim of Study	Themes Identified	Coding
1.	**MacLean *et al* (2019)**	Australia	**Theoretical Framework:** Nursing Education Simulation Framework (NESF) and Schön's reflective practitioner framework. Audio Recordings Transcribed Content and Thematic Analysis	nursing students (Bachelor of Science (Nursing) Programme) (n = 141)	To explore nursing students' reflections on their experience and learning after independently viewing audiovisual recordings of themselves engaging in simulation activity.	**Realism** **Non-verbal Communication** **Verbal Communication** **Reflective Learning** **Becoming a Nurse** **Patients' Needs**	□□ □□ □□ □ □
2.	**Stephen *et al* (2020)**	USA and Canada	**Theoretical Framework:** National League for Nursing (NLN) Simulation Theory – collaborative; learner-centred; grounded in trust. Open-ended question survey Inductive content analysis	pre-licensure nursing students (n = 86)	Study focused on participants' self-reported experiences of psychological safety within the context of simulation.	**Faculty presence** **Learning without fear** **Working together** **Setting expectations** **Positive conversations**	□ □ □ □ □ □
3.	**Verkuyl *et al* (2020a)**	Canada	**Theoretical Framework:** Experiential Learning Model and Learning Styles – acquisition of knowledge through transforming experiences. Focus group Semi-structured Open-ended questions Thematic analysis	4th year baccalaureate nursing students (n = 24)	To explore students' experiences of self-debrief followed by a facilitated group-debrief after an in-person simulation.	**Psychological Safety** **Learning Methodology** **Reflection**	□ □ □□ □□□
4.	**Verkuyl *et al* (2020b)**	Canada	**Theoretical Framework:** Kolb's Experiential Learning Model & Learning Styles – knowledge acquisition through transforming experiences. Focus group Open-ended questions Semi-structured interviews	1st year nursing students (n = 19)	Original study was conducted as a mixed-methods study; however, this article focuses on the qualitative data that was obtained.to better understand the shared experiences from students in relation to different debriefing methods.	**Developing Process** **Promoting Safe Debriefing Spaces** **Engaging in Reflection** **Fortifying Knowledge**	□ □ □□□ □□
5.	**Penalo and Store (2023)**	USA	**Theoretical Framework:** National League for Nursing (NLN) Simulation Theory – collaborative; learner-centred; grounded in trust. Open-ended questionnaire Descriptive study Content analysis	associate degree nursing students (n = 86)	To discover and understand student perceptions after participating in Synchronous Group Virtual simulation.	**Realistic** **Experiential** **Interactive** **Collaborative** **Facilitator** **Pre-briefing** **Debriefing** **Reaction** **Learning** **Behaviour**	□□ □ □ □

appropriateness of the study design in relation to the context of the research question and the extent to which the study methods/design were executed (Zawacki-Richter *et al.*, 2020).

One such critical appraisal tool in which to conduct this scrutiny of primary studies is the use of the Critical Appraisal Skills Programme (CASP) tool (Zawacki-Richter *et al.*, 2020). Choosing the CASP Qualitative Studies Checklist (CASP, 2018) enabled each of the studies to be scrutinized which included examining the methods, participants, context, themes identified. The tool consists of 10 questions across 3 sections that incorporates suggested prompts to determine what is relevant and important from the study rather than to exact a subjective numerical score (CASP, 2018). To help prevent any bias, these prompts were utilized in directing the thought process in a logical manner for each of the questions. Each question is answered with either a 'YES', 'NO' or 'CAN'T TELL' tick box with an additional comments box to include comments for what reviewers deem to be important information (CASP, 2018).

According to Zawacki-Richter *et al.* (2020), primary researchers seek to obtain ethical approval to conduct research containing sensitive and confidential information from participants; however, systematic reviews are not subject to the same ethical approval process. It is suggested that it is the ethical responsibility of the systematic reviewer to determine the quality of the studies to establish that the findings being reported align with both the reported and supportive

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evidence. Furthermore, results should demonstrate that biases have been identified and reduced and that the participants within the studies are being accurately represented (Zawacki-Richter *et al.,* 2020).

Data analysis

Being the sole researcher conducting this systematic review, it was essential to ensure that full extraction of all relevant data from each of the primary studies is included in this review. To achieve this, each of the studies were subjected to scrutiny using the CASP Tool for Qualitative Studies Checklist. This further enabled identification of code specific themes that arose from the content and context from each of the studies. According to Zawacki-Richter *et al.* (2020), when there is more than 1 researcher undertaking data analysis, there is an opportunity for researchers to rigorously cross-check their findings to ascertain all themes are identified to better understand the phenomena being investigated. According to Braun & Clarke (2013), coding is a systematic process which forms an essential component of data analysis of qualitative studies. By scrutinising each of the papers thoroughly and rigorously during the quality assurance stage, common terms/themes were highlighted. This enabled essential information to be extracted that would aid in answering the research questions (Braun & Clarke, 2013).

Results

Search results

The initial search generated 347 articles from the following databases: CINAHL (n = 64), ERIC (n = 3), MEDLINE (ProQuest) (n = 42), SCOPUS (n = 101), and WEB OF SCIENCE (n = 137). In addition, previously obtained articles from earlier study activities were also included (n = 11). A total of 176 duplicates were removed from the total number of articles gathered by initiating a search of duplicates through ENDNOTE™ leaving a total of 182 articles for screening. The first screening process looked at the titles and abstracts of each of the remaining articles and resulted in a total of 151 studies being excluded as they contained elements pertaining to the exclusion criteria. This resulted in 31 studies being selected for final screening which took place after obtaining all 'full text' articles. These were obtained through the 'search for full text' function within ENDNOTE™, with the remainder being requested through the University's library. Reading through the method/design, results, and discussion of each of the studies, these were aligned to the specific inclusion/exclusion criteria. This resulted in a further 26 reports being excluded due to containing insufficient or no qualitative date (n = 16) and not having any relevant information (n = 10). The final total of studies that met all the selection criteria was reached at a total of 5 articles. The full search process is recorded in Figure 1 - PRISMA 2020 flowchart.

Study characteristics

Details of the 5 studies included in this systematic review, are listed in Table 1. The studies included dated from 2019 to 2023 and were conducted in USA, Canada, and Australia. All studies included data obtained from undergraduate nursing students covering aspects of the debriefing process. Whilst some studies were specifically aimed at obtaining students' perspectives relating to their experiences from the debriefing process (Stephen et al., 2020; MacLean *et al.,* 2019; Verkuyl *et al.,* 2020a), others also focused on the debriefing process format such as self, peer, group, audiovisual and written reflective practices that the students undertook (Penalo & Store, 2023; Verkuyl *et al.,* 2020b).

Demographics

A total of 356 undergraduate nursing students participated in the studies within colleges/universities across the USA, Canada, and Australia from varying progress stages of the nursing program. All the SBL scenarios included in each of the studies which preceded the debriefing process were formatted around clinical practice activities in alignment with the progressive stage of the participants involved.

Quality of studies included

The quality of each of the studies included in this review were assessed by implementation of the CASP tool. Each of the 5 studies were deemed to be valid, robust, and relevant with each study receiving a 'YES' tick against the first 9 questions requiring a tick response. Two studies focused on a Kolb's Experiential Learning Model and Learning (Verkuyl *et al.,* 2020a; Verkuyl *et al.,* 2020b); 2 focused on the NLN Jeffries Simulation Theoretical framework based on simulation process (Stephen et al., 2020; Penalo & Store, 2023); and 1 study opting to incorporate a combination of Nursing Education Simulation Framework and Schön's Reflective Practitioner theory (MacLean *et al.,* 2019). This demonstrated each of the studies having a bearing on the content and context of the study being aligned to the participants and specific research question.

Debriefing methods

All 5 studies contained data relating to the perceptions gathered from participants that was relatable to the debriefing process. The manner in which the debriefing sessions were conducted in terms of engaging in reflective practice and receiving constructive feedback, were undertaken in a variety of ways across the studies.

MacLean *et al.* (2019) investigated how students responded to video-assisted debriefing. The participants in this study were video recorded whilst participating in SBL activity. Following the completion of the scenario, students were provided an opportunity to view and self-reflect on the recording privately prior to engaging in a group discussion with their peers (MacLean *et al.,* 2019).

In the study by Verkuyl *et al.* (2020a), focus group studies were conducted to obtain fourth year student nurses perspectives on self-debriefing and group-debriefing during SBL activities. Participants were divided into 2 groups; 1 group would participate in self-reflection followed by a group debrief, whilst the other group would only participate in a group debrief (Verkuyl *et al.,* 2020a).

In another study also conducted by Verkuyl *et al.* (2020b), *first* year undergraduate nursing students were invited to offer their perceptions in undertaking a debriefing session immediately following an online virtual simulation (Verkuyl *et al.* (2020b). The authors sought to explore participants perceptions of undertaking a range of debriefing processes. This included self-debrief only, self-debrief followed by a small group debrief, and self-debrief followed by a large group debrief (Verkuyl *et al.,* 2020b).

Another study incorporating an online questionnaire containing open-ended questions, was conducted by Stephen et al. (2020), whereby specific interest was focused on obtaining participants perceptions relating to psychological safety during SBL activities. In this study the data obtained gave invaluable insights into what elements made participants feel safe or unsafe during the debriefing process and how this aligned to their confidence (Stephen et al., 2020).

Finally, the study conducted by Penalo & Store in 2023, participants were asked to complete an online questionnaire. A set of open-ended questions were aimed at undergraduate nursing students' perceptions in attending an online virtual simulation experience which incorporated a debriefing session (Penalo & Store, 2023). However, the authors gave no indication of how the debriefing sessions were

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1. Self-awareness and self-confidence

2. Safe Learning Environment

3. Confidence for Clinical Practice.

facilitated, whether through self-debriefing, small group debriefing or one large group. According to Douglas (2023), it is recommended that facilitators make use of breakout rooms during online peer to peer discussions, as this is deemed to be most effective .

Themes identified

Each of the studies identified several themes that included student perceptions relating to the debriefing process. However, identification of 3 additional commonalities were routinely reported and are highlighted with the following colours which correlate to each of the themes represented in Table 1:

Self-awareness and self-confidence

Participants from the MacLean *et al.* (2019) study, reported that being able to view their performance within the scenario helped them identify important aspects relating to how they communicated both verbally and nonverbally. Students acknowledged that prior to watching the video, they had been unaware of their own body language when interacting with the simulated patient. Common behaviors such as fidgeting, standing over the patient rather than sitting next to the patient, talking too fast and at times interrupting the patient were reported (MacLean *et al.,* 2019).

From Penalo & Store's (2023) study, several participants reported the debriefing phase as being able to 'decompress' and to recap on how they performed during the scenario. Participants also stated that reflecting on and receiving feedback on their performance helped them determine what went well and what could have been improved upon (Penalo & Store, 2023).

In Verkuyl *et al.* (2020a) study, participants reported that they were able to identify aspects of their performance and the simulation itself which they had not noticed or considered. For some participants, undertaking the self-reflection process enabled them to take the time to realize just how much prior knowledge they did have and to further 'solidify' this knowledge (Verkuyl *et al.,* 2020a).

It was stated in Verkuyl *et al.* (2020b) study, that participants preferred undertaking the self-debrief immediately following the simulation experience. It was reported that their thoughts, feelings and emotions were still 'raw' which aided in the reflective process, rather than having to think about how they were feeling for an extended period after the simulation experience (Verkuyl *et al.,* 2020b). Many participants reported value in the self-debriefing process in that it offered them opportunities to identify gaps in knowledge whilst also gathering their thoughts immediately following the scenario. However, some respondents found that not being able to communicate and share this information at the time left them feeling disconnected from the rest of the group (Verkuyl *et al.,* 2020b). Here, participants indicated that there was a benefit to also engaging in a 2-step debriefing process which involved self-debriefing and some element of group debriefing. When undertaking the group debriefing session, participants reported that hearing the experiences from their peers reinforced their own feelings and emotions. It also gave participants the opportunity to discuss the scenario in more detail and collaborate on how to work around common mistakes (Verkuyl *et al.,* 2020b).

Safe learning environment

Participants from MacLean *et al.* (2019) study, reported that students felt much safer in having time to self-reflect prior to group debriefing, as some were experiencing levels of anxiety and embarrassment. Through watching their performance and having the time to undergo a deep and personal reflection, it provided participants the opportunity to see how well they had performed as well as what they needed to do to further their knowledge and skills. This then provided them with a feeling of safety and preparedness before undertaking the group debriefing (MacLean *et al.,* 2019).

In Stephen et al. (2020) study, participants reported that they felt less threatened when they knew the facilitator guiding them through the debriefing phase. However, some participants reported being fearful of retribution for not 'knowing' or being unprepared for the activities. In addition, some individuals were fearful of being ridiculed by peers when asking questions or being blamed by their peers for mistakes made by the group during the scenario (Stephen et al., 2020). The authors reported that participants had a mixture of feelings when it came to the group debriefing sessions, with some participants feeling embarrassed in sharing feelings and emotions with others, whilst for others it made them feel safe (Stephen et al., 2020).

Verkuyl *et al.* (2020a) reported that having the time for self-reflection participants felt that this helped them prepare for the group debrief. Those participants who undertook the self-reflection process first, found that they felt much more prepared to engage in the group debrief as it helped in reflecting more honestly about their feelings and emotions. For those who engaged just in the group debrief, they found it difficult in immediately recalling how they had performed during the scenario. However, what was reported from the group debrief sessions was that it was beneficial to participants in choosing what they felt comfortable in sharing whilst comparing their experiences with their peers (Verkuyl *et al.,* 2020a).

Confidence for clinical practice

In Penalo & Store's (2023) study, there was very limited reporting on how the debriefing process assisted with their confidence moving into clinical practice. However, one participant did report being able to reflect provided them with the confidence in applying critical thinking to nursing practice (Penalo & Store, 2023).

From the two studies undertaken by Verkuyl *et al.,* participants reported being more mindful of how to speak with patients (2020a); as well as helping them in making connections that they had not made before (2020b); and, in recognizing patient-centered care which involved also caring for the patient's family (2020a). One participant reported that the debriefing process had provided them with an awareness of the importance of continually extending their knowledge and skills. This insight enabled them to feel confident when encountering similar situations in clinical practice (2020a).

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Discussion

Simulation frameworks

The Nursing Education Simulation Framework (2005) developed by Jeffries to provide a structured approach for designing, implementing, and evaluating SBL activities being undertaken by nursing students (Ravert & McAfooes, 2013). This framework looked specifically at teacher/student factors, educational practices, simulation design and learner outcomes (Ravert & McAfooes, 2013). Subsequent modifications in 2007 led to a renaming of the framework to National League for Nursing (NLN) Simulation Theory and from 2012 and is now referred to as NLN Jeffries Simulation Theory (Jeffries et al., 2015). Modifications applied to this theory are now categorized into specific factors surrounding

SBL activities

- Contextual:
  - Place and purpose of the simulation activity.
- Background:
  - Outcomes based on identified benchmarks, expectations and required resources (time / equipment).
- Design:
  - Development of the scenarios align with learning objectives containing appropriate level of complexity
  - Designated participant/observer roles, structured prebriefing / debriefing stages and progression of the activity.
- Experience:
  - Undertaken in an appropriate environment that promotes experiential learning, is interactive, and allows for collaboration with peers and is ultimately learner-centred
  - Foster a shared understanding of both the facilitators and the participants responsibility in establishing a trusting and dynamic relationship
  - Facilitator / participant preparedness
  - How role assignment may impact upon the learning experience.
- Learner outcomes:
  - Overall satisfaction and demonstration of self-confidence
  - Demonstration through participant learning and understanding as demonstrated in acquisition of new knowledge, skills, and attitudes
  - Ultimately how participants will apply what they have learned into clinical practice. (Jeffries et al., 2015)

Links with previous studies

The results that were explored in this review suggest a positive effect on confidence and learner outcomes. This is conducive with the findings from the studies that were reviewed by both Lee *et al.* (2020) and Nui *et al.* (2021), in which several mixed method research studies reported students' perceptions also proving to be positive when undertaking SBL activities including the debriefing process.

Implications for current practice

Looking at the results from this review, there is strong evidence to suggest faculty may need to consider incorporating a 2-stepped approach to debriefing, be it through written or audiovisual methods, so that undergraduate nursing students are able to engage in deep reflection on their performances during SBL. Further research into how faculty conduct debriefing sessions and the level of consistency between institutional settings could be a way in which to ensure all students are being offered equitable opportunities in participating in the debriefing process.

Limitations

This systematic review was conducted by a sole reviewer under assessment conditions. Duplicating this systematic review with 2 or more reviewers could result in a more rigorous and robust process of the search process and data analysis. Nursing is a profession that exists globally, yet the number of qualitative studies that have been conducted are in short supply with very few studies originating within the UK, European and African nations. As SBL activities remain set to play a large part in undergraduate nursing programmes, there is scope for additional studies to be conducted. Comparative studies could demonstrate the level of consistency of debriefing being undertaken by undergraduate nursing students here in Scotland, the UK, across Europe and globally.

Conclusion

By undertaking this systematic review, the intent was to understand from undergraduate nursing students' perspectives of what they took from the debriefing process. Adopting a 2-stepped approach to debriefing in providing students an opportunity to undertake self-reflection followed by a group debriefing, enables students to gain much more meaningful and positive learner outcomes. Having an opportunity to reflect upon their experience by themselves, enables the student to explore their own performance without feeling embarrassment and without the distraction and judgement from others. Being able to reflect on how they performed certain tasks, and how they communicated with others during the scenario both individually and as a group leads to identifying gaps in knowledge.

Participants feel better prepared to share with their peers which provided further insight and self-awareness of how their peers reacted to the same scenario. Being able to explore and share their feelings and emotions when reviewing activities with their peers provided additional insight into how they might address tasks differently in similar situations. Participants feel more confident in understanding what they needed to do to further expand on their skills and knowledge in undertaking the nursing role in clinical practice. Participants engaging in the debriefing process provides an opportunity to reflect upon aspects of the SBL activity which they otherwise might not have considered.

Declaration of competing interest

The authors declare that they have no known competing personal relationships or financial interests that may have influenced the study reported in this paper.

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Leanne Glennie: Writing – review & editing, Writing – original draft, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization.

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