

Review

Enhancing students learning experiences in nursing programmes: An integrated review

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ABSTRACT

Nursing as a profession is both fragmented and complex. The education setting is demanding, and prepared students are more clinically and academically robust. Therefore, nursing programmes should implement high-quality teaching based on the best available scientific evidence to improve learning quality and students' experience. This study aimed to identify the teaching tools used to enhance students' perceived experiences in undergraduate nursing programmes. Nine databases were systematically searched to identify quantitative and qualitative studies regarding the teaching tools utilised across nursing education programmes. Results were summarised following a systematic integrated review framework. The searches identified 15,886 citations, and after title/abstract/full-text screening, 66 primary research studies were included comprising data from 4,411 participants with a mean sample size of 66 (range 6–447). Educators utilising a student-centred wrapping approach exploiting knowledge building and self-development were found to improve students' experiences; however, consensus on success factors was lacking. The findings indicate that educators' knowledge and pedagogical skills used in a flexible way, tailored and sensible to students and the learning context, enhance student experiences. Nursing educators should identify learning situations that make students vulnerable and pay particular attention to the students' learning experiences. We identified several tools accommodating the students' experience.

1. Introduction

According to the World Health Organization (World Health Organization, 2020), nurses are the key to achieving health coverage. However, nursing shortage is a global challenge, and the health care systems need more nurses with high professional competence to handle the escalating epidemic of communicable and noncommunicable diseases appearing in a rapidly ageing population (Catton, 2020; OECD, 2019). Nursing as a profession is both fragmented and complex. A successful academic programme should promote students' confidence in their ability to master educational and clinical requirements (Hatlevik, 2014). However, a successful learning process is not only about acquiring knowledge and skills, but it also involves a process of growing into a professional healthcare community (Taylor and Hamdy, 2013). Guidelines emphasise that quality in education is mainly attributed to the interaction between teachers, students, and the institutional learning environment (European Association for Quality Assurance in Higher Education, 2015).

Nursing students experience stress related to their academic and clinical settings, and a lack of preparation is associated with an increased risk of clinical and academic failure. Accordingly, by acquiring different skills, students can develop a repository of coping strategies that can position them to be more successful (Beanlands et al., 2019). The most common sources of stress and anxiety identified in nursing programmes were related to a high amount of academic-related work, assessment, clinical learning environment, fear of unfamiliar situations, harming patients, handling technical equipment, and lack of pre-clinical preparation. Also to personal stressors (e.g., financial stress) contribute to a more demanding academic experience (Dwyer and Revell, 2014; McCarthy et al., 2018b; Pulido-Martos et al., 2012).

Educational research aims to produce better evidence bases for policy and decision-making by exploring what works in practice so that students can meet society's expected standards and improve their achievements (Kvernbekk, 2019). Mapping of scientific disciplines is conducted to overview the discipline or field components and indicate how these are connected and distinguished from other areas. This is

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important, as nursing educators need to respond and adapt to society’s demand for improvement, effectiveness, testing, and measurement of students’ performance (Kvernbekk and Jarning, 2019). Therefore, the aim of this integrated review was to identify teaching tools used to enhance the students’ perceived experiences in undergraduate nursing programmes.

2. Methods

The guidelines from the reporting of systematic reviews (PRISMA) (Moher et al., 2015) and the framework for integrated reviews synthesised by Whittemore and Knafl (2005) were utilised in the present review (PROSPERO registration number CRD42019121894).

2.1. Search strategies

The search strategies were developed collaboratively with a health science librarian, and search terms according to nursing students, resources used in education, and quality measures were utilised (Table 1).

Table 1
Search strategy MEDLINE.

Concept	Search terms and synonyms
Nursing students	MeSH: Students, Nursing/OR Education, Nursing/OR Education, Nursing, Associate/OR Education, Nursing, Baccalaureate/OR Education, Nursing, Diploma Programmes/OR Nursing Education Research/ Keywords: Nurs* adj3 (stud* or educat*or bac* or programme*). tw,kf.
Resources	MeSH: Mentoring/ Keywords: (intervention* or tool* or resource* or instrument* or guideline* or procedure* or support* or instruction* or technol* or faciliti* or material* or polic* or remuner* or communic*or evaluate* or feedback*).tw,kf.
Quality	MeSH: Educational Measurement/OR Academic Performance/OR Academic Failure/OR Student Dropouts/OR Self-efficacy/OR Quality of Life/ Keywords: experience*. tw,kf. OR satisfaction*. tw,kf. OR academic* adj3(achieve* or progress* or withdraw* or persistence). tw,kf. OR self-efficacy. tw,kf. OR (quality of life).tw, kf.

The search terms were translated to each of the databases associated with thesaurus, including CINAHL, Cochrane Library, Education Source, ERIC, IDUNN, OVID MEDLINE, ProQuest dissertations and thesis, PsycINFO, and Scopus.

The searches were performed on January 25th, 2019. The results were imported to the Covidence systematic review software (Veritas Health Innovation, 2017), and duplicates were removed. The titles and abstracts were double screened by all the reviewers against eligibility criteria, followed by an independently double assessment/screening of full-text articles (Fig. 1).

The inclusion criteria were quantitative and qualitative primary research studies regarding nursing students. Outcome were defined as tools used to improve students’ experiences. Searches were limited to studies after 2000, published in English or Scandinavian languages. Table 2 outlines the eligibility criteria.

2.2. Data extraction and synthesis of results

The data extraction and synthesis of results were performed following the four steps by Whittemore and Knafl (2005): (1) data reduction, (2) data display, (3) data comparison, and (4) conclusion. Using NVivo qualitative data analysis software, data from included articles were coded, categorised, and themes identified under thematic approach (Vaismoradi et al., 2013). Data from all included studies across study designs were displayed in a summary table, including study aims, settings, design, sample characteristics, and main findings. The patterns, themes, and relationships between themes across qualitative and quantitative data were displayed in conceptual maps highlighting research gaps and conclusions.

2.3. Quality assessments

The methodological quality of the included studies was independently assessed by two reviewers using the Joanna Briggs Institute checklist (2019), as appropriate. Disagreement was resolved in a consensus meeting between the two reviewers, and if necessary, a third reviewer was consulted. The GRADE-CERQual framework (Lewin et al., 2015) informed the assessment of overall confidence in the review findings.

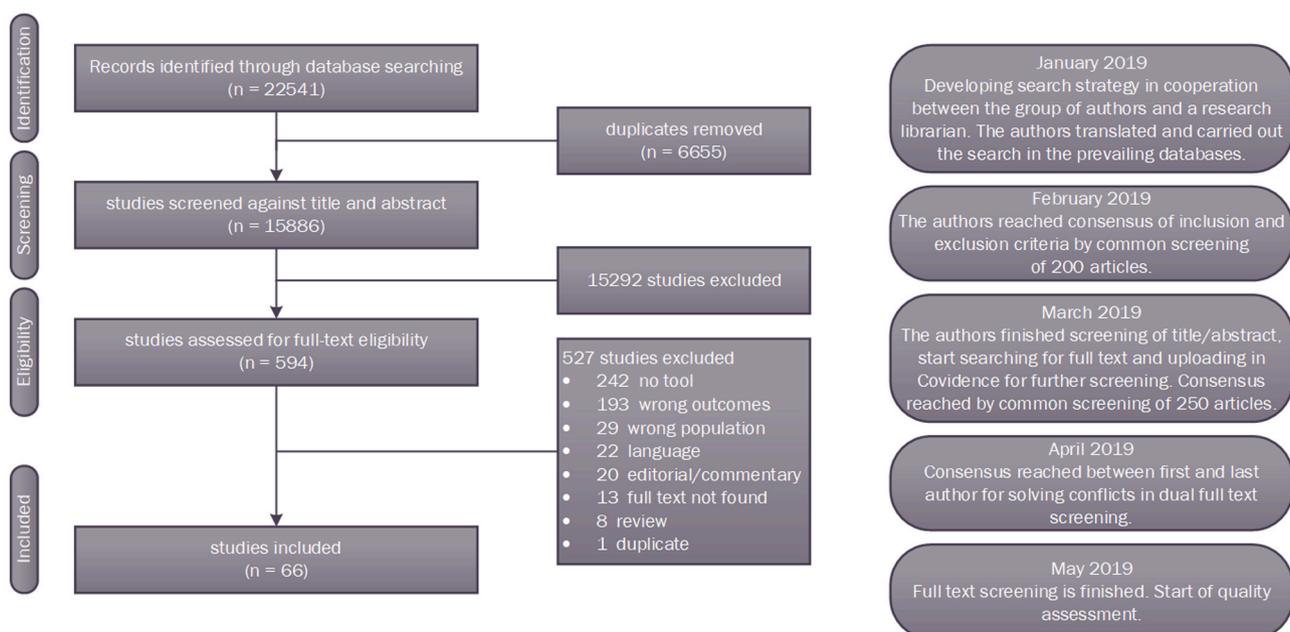


Fig. 1. Flowchart of the literature search including the work process.

Table 2
Eligibility criteria.

Criteria	Included	Excluded
Study design	Studies with experimental designs Non-intervention studies (quasi-experimental, non-experimental/observational/qualitative and case study evidence)	Editorial, commentaries Cost analyses only Theoretical or methodological studies particularly Studies that describes or evaluates the processes of interventions only (e.g., protocols) Curriculum only
Population	Nursing students in a university or college programme	The study is not about undergraduate nursing students, or does not describe the views and perspectives of undergraduate nursing students Faculty perceptions about nursing education only Post-registered nurses Nurses in postgraduate programmes Accelerated nursing programmes Online programme only A minimum of 25% nursing student included
Outcome	Tools/strategies to improve the quality/students' experience Students' experience, academic achievement/progress/withdrawal/persistence, self-efficacy or quality of life	Knowledge description without assessment of student experiences Organising education only
Language	English or a Scandinavian language	
Dates	≥ 2000 to present (2019)	

3. Results

The database searches, including grey literature sources, resulted in 15,886 citations after duplicates were removed, following title, abstract, and full-text screening, 66 primary research studies were included in a narrative synthesis. Study characteristics are presented in Table 3 and in the summary table (Appendix 1).

Table 3
Demographic findings from the included original studies (N = 66).

	Number (%)	Range
Student sample size (mean n = 66)	4411	6–447
Sex, female ^a	3105 (70.39)	
Age ^b		17–50+
Ethnicity ^c		
Studies targeting		
First year students	30 (47)	
Second year students	9 (14)	
Final year students	8 (12)	
Across all years	17 (27)	
Design of the studies		
Qualitative	26 (39)	
Quasi-experimental	20 (30)	
Randomised Controlled trials	13 (20)	
Mixed methods	4 (6)	
Prospective cohort	2 (3)	
Cross sectional	1	
Study origin		
North America	35 (51)	
Europe	16 (23)	
Australia	8 (12)	
Asia	7 (11)	

Reported in n (%) of the studies:

^a 49 (74).

^b 23 (68).

^c 20 (31).

3.1. Nursing students being overwhelmed, challenged, and exposed

Students expressed being overwhelmed as they entered the nursing education environment and the course requirements (Friesen and Anderson, 2003; Knowlton, 2017). First year students expressed learning practical skills more challenging than others (Aldridge and Hummel, 2019); however, senior students also recognised the complexity in communication with patients and the need to learn and improve skills in areas related to patient interaction and decision-making (Aldridge and Hummel, 2019; Arveklev et al., 2018; Rogan et al., 2006). Studies focusing on supporting second-year students were lacking in our findings.

3.2. To encounter complex clinical situations by simulation

Debriefing following simulation sessions emerged as an important tool, where faculty offers affirmation of the students' reflections or actions, supervising in constructive and supportive terms to enhance the students' confidence (Abelsson and Bisholt, 2017; Aldridge and Hummel, 2019; Choi, 2019; Tuticci et al., 2018; Warren et al., 2015). However, trying to avoid attending dialogue during simulation debriefing emerged as one strategy among students (Abelsson and Bisholt, 2017). The hiding was caused by discomfort related to unfamiliar peers, lack of knowledge, or clinical skills, and the students responded with silence or with decreased engagement when they did not know how to handle the situation (Abelsson and Bisholt, 2017; Arveklev et al., 2018). When students felt exposed in learning situations, they also avoided giving other students feedback, and learning opportunities were lost because of the vulnerability students experienced (Arveklev et al., 2018; Coleman and Willis, 2015; Poorman et al., 2002).

Studies have shown that preparing students for first-time clinical experience using simulation is associated with lower stress and anxiety levels along with positive effects on students' self-development including feelings, emotions, and attitudes (Del Blanco et al., 2017; Sokolowski et al., 2014). Conversely, other studies were unable to detect any effect of prebriefing activities on junior students' anxiety, self-confidence, or clinical judgement (Ball, 2018; Coram, 2015). Correspondingly, providing feedback on knowledge and practical skill assessment to improve levels of self-confidence in basic skills (N = 67), included no change in knowledge after 4 months (Aoyama et al., 2013).

3.3. The significance of peers or faculty tutors/mentors

Eight studies have described the use of student pairs: A peer-mentoring programme (N = 44), reduced stress and increasing self-esteem in junior students (Frank et al., 2018). Similarly, a peer-mentoring programme during clinical practice (N = 37), was associated with decreased situation-specific anxiety compared with the control (Walker and Verklan, 2016). Another study (N = 22) (Bullard and Adler, 2010) reported that a 10-week peer-mentoring course improved adjustment and satisfaction with choosing the profession. However, five other studies were unable to detect any differences in favour of peer-mentoring programmes compared to control (Brannagan et al., 2013; Hughes et al., 2003; Li et al., 2011; McNulty et al., 2018; Stewart et al., 2018). Interestingly, Brannagan et al. (2013) (N = 179) found that the use of peer tutors did not decrease anxiety in first-year students. Students found it easier to be tutored by instructors than by peers. In three other studies, peer learning was found to be preferential, both inside and outside of the classroom (Black et al., 2017; Redmond et al., 2018), reducing anxiety in practice situations (Walker and Verklan, 2016). However, some students found it challenging to work with their peers (Redmond et al., 2018).

Students consistently expressed motivation for learning new skills, improving their knowledge, and testing their new skills with peers (Arveklev et al., 2018; Austria et al., 2011; Coleman and Willis, 2015; Gerrard and Billington, 2014; Lombardo et al., 2017; Rogan et al., 2006;

Sprengel and Job, 2004). Having a peer provided students with a sense of not being alone and supported by an equal who understood their common situation, sharing identical responsibilities and expectations (Abelsson and Bisholt, 2017; Aldridge and Hummel, 2019; Austria et al., 2011; Friesen and Anderson, 2003; Glass and Walter, 2000; Rogan et al., 2006; Shaw et al., 2015; Sprengel and Job, 2004; Tower et al., 2015; Tutticci et al., 2018; van der Riet et al., 2015). Peers influence could constitute a socialisation process with both academical and social benefits (Friesen and Anderson, 2003).

When mentors normalised the student experience and offered emotional support to meet their needs, a relaxed, safe, and supportive environment was created that allowed for decreased stress (Candela et al., 2004; Cox-Davenport, 2017; Edwards, 2017; Knowlton, 2017; Lombardo et al., 2017; van der Riet et al., 2015).

3.4. Preparing students for challenging situations

Reflective thinking to enhance clinical decision making was promoted in a programme focusing on problem-based learning (N = 130). Biweekly sessions with an instructor during a clinical paediatric course were deemed to be moderately effective (Al-Kloub et al., 2014). Similarly, a metacognitive intervention (i.e. concept mapping, N = 61), facilitating reflective thinking, induced improved learning (Arvidsson et al., 2008). However, a 2-week clinic preparatory programme demonstrated no between-group difference in anxiety (Baksi et al., 2017).

Students' self-confidence in their nursing overall competence, comprising knowledge, skills, and competence (described in international curricula (European Parliament Council, 2008)), was endorsed by complementary and alternative medicine (CAM) approaches to attention diversion: relaxation techniques, mindfulness, stress management, and mind-body techniques. These approaches appear to relieve stress and maintain psychological stability and well-being in educational contexts (Mathad et al., 2017; Patterson et al., 2013; Ratanasiripong et al., 2015; Song and Lindquist, 2015). Results suggest that approaches based on cognitive behavioural therapy (CBT) to promote reflective thinking/cognitive restructuring are frequently included in educational programmes. Accordingly, a 10-session CBT-based group intervention (N = 117) for stress management improved self-esteem and confidence up to 1 year compared to the control (Terp et al., 2019). A study of an 8-week group positive psychotherapy (PPT)-programme (N = 76) was found to be effective in reducing depression and improving self-confidence (Guo et al., 2017), consistent with the results from a 4-week programme for senior students (Kim et al., 2015). Leggett et al. (2010) and Collins (2005) compared attendees versus controls in a stress management programme, respectively, and found evidence for differences between groups, and Leggett et al. (2010) found lower depression levels in the intervention group at 4 months follow-up. Another study (McCarthy et al., 2018a) (N = 166) found improved coping skills post-intervention in students attending 14 psycho-educational sessions. A small study (N = 15) assessing a supportive Facebook group over 7 weeks (Gell et al., 2015) found no significant relationships between Facebook engagement and perceived stress. Gross et al. (2018) (N = 57) assessed the impact of SMS messages on senior students' state anxiety and health-promoting behaviours in a 10-week RCT, but no differences between groups for anxiety, stress, or interpersonal relations were found. Another technology tool was used to enhance learning of clinical skills using webcams, video, and smartphones (Aldridge and Hummel, 2019), or advice shared on social media platforms such as Facebook or text messages (Boath et al., 2016; Tower et al., 2015). To communicate (e.g., Facebook group) or meeting with other students experiencing similar problems appeared to be an important source of support (Rogan et al., 2006; Tower et al., 2015).

A student-centred wrapping approach, including humour, was described as an important learning enabler providing a connection for students that enhanced their ability to function as a team in demanding

clinical settings (Friesen and Anderson, 2003). However, it is important that the stress is acknowledged (Austria et al., 2011; Edwards, 2017; Friesen and Anderson, 2003; Knowlton, 2017; Rogan et al., 2006).

Nursing self-confidence was frequently promoted through reflection on personal experiences with academic studies or clinical practice situations. The students were encouraged to reflect in both writing (Abelsson and Bisholt, 2017; Coleman and Willis, 2015; Edwards, 2017) or verbally in groups (Arveklev et al., 2018; Knowlton, 2017; Poorman et al., 2002; Shaw et al., 2015; Tutticci et al., 2018). The use of learning contracts in the final year, and/or academic guidance and support during the programme were described as vital (Bailey and Tuohy, 2009; Cech et al., 2011; Chan, 2016; Choi, 2019; Edwards, 2017; Knowlton, 2017; Kolanko, 2003; Tower et al., 2015; Wood et al., 2016). The overall goal and motivation were to support the students' future role as nurses and to be able to adapt and use their skills to understand and take care of the patient's needs (Arveklev et al., 2018; Coleman and Willis, 2015; Edwards, 2017; Rogan et al., 2006; van der Riet et al., 2015).

3.5. Success criteria involve attention from faculty

Some obstacles to academic progress were identified, such as negative feedback in unsafe environment (Abelsson and Bisholt, 2017; Poorman et al., 2002), inconsistency in given support (Coleman and Willis, 2015), lack of resources to meet student needs (Lombardo et al., 2017), and favouring of selected students (Poorman et al., 2002). Success criteria were associated with educators embracing a student centred wrapping approach, including encouragement, engagement, and support (Aldridge and Hummel, 2019). The essential qualities of a good educator emerging across the included studies were being genuine (Cech et al., 2011) transparent, prepared (Arveklev et al., 2018; Butzclaff et al., 2018), able to establish a relaxed atmosphere (Chan, 2016; Choi, 2019), passionate, empathetic, culturally competent, appreciative of diversity (Choi, 2019), spending time, being present, and giving attention to the students (Poorman et al., 2002). Additionally, asking and listening to student's experiences (Tutticci et al., 2018) and presenting a well-structured nursing programme (van der Riet et al., 2015) are optimal approaches and suggested as best practice education.

3.6. Methodological quality

Following the CERQual approach (Lewin et al., 2015), the review findings are a reasonable representation of the range of research related to enhancing students' perceived experience in nursing programmes, indicating trustworthiness. There were moderate to substantial concerns related to overall methodological quality. The coherence and adequacy of the review findings appear to be of minor concern, as the included studies provided rich data highlighting students' experiences across different study designs. There were moderate concerns about relevance, lacking studies focusing on populations that were more diverse.

Across the quantitative studies, the methodological quality varied (Appendix 2). For the randomised controlled trials (RCTs), the randomisation and blinding procedures were poorly described or lacking. For the quasi-experimental studies, the lack of methodological quality was tied to no control group or unclear reporting of potential participants' differences in compared groups. Thirty-one studies (47%) used a validated generic tool, and 16 studies (24%) used study-developed measures for assessment. The most frequently utilised validated tools were the State-Trait Anxiety Scale (STAI), The Perceived Stress Scale (PSS), both used in eight studies, and the General Self-Efficacy Scale (GES), which was used in four studies (Appendix 3).

Across the qualitative studies, there were partialities related to transparency, unclear reporting of whether the participants' voices were adequately represented in the results and congruity between the philosophical perspective and the methodology. In 17 of 30 qualitative studies, the researcher's viewpoints and/or influence on the results were not reported.

4. Discussion

This integrated review of 66 primary research studies provides a comprehensive overview of teaching tools used to enhance students' perceived experiences in undergraduate nursing programmes. The body of literature, both qualitative and quantitative, identified important components from all parts of the programme emphasising interactional patterns between students and the educator. Educators utilising a student-centred wrapping approach, adopting active ingredients that promote personal development and not only knowledge, are intentional and promising. The utility of student centred, strategic activities that support the students' nurse identity and self-confidence were described across the included studies. The findings promote different forms of oral or written reflections shared individually or in groups, with support provided by peers or academic advisors. Efforts to reduce stress and anxiety, improve self-confidence in learning skills, and make clinical decisions are pivotal for a good learning environment and enhanced academic success. Compellingly, success factors vary across the various studies, and there seems to be no general agreement among nursing educators regarding critical success factors. However, findings suggest that the alliance and interactions between students and educators are intertwined, and a supportive educator was described as a key factor to ease the experiences of a complex learning environment while being a student.

The necessity of early interventions is supported by other research recommending helping students manage academic stress early in the educational programme (Turner and McCarthy, 2017). Our findings suggest that students were encouraged to participate in interventions emphasising coping strategies to manage stress and anxiety, such as mindfulness, CBT-based interventions, or psycho-educational sessions. The increased focus on exploring the efficacy of these interventions is promising, as earlier review studies have found a lack of intervention studies (McCarthy et al., 2018b). Junior students were the main target of the research identified. Given the complexity of the educational context and students exposed to stressful learning situations, particularly in the first year, coping interventions introduced in the first year of the studies could be efficient. Findings emphasise that students need to learn to adapt these coping strategies in various settings, such as clinical practice or group sessions. However, we identified a lack of focus on second year students. Simultaneously, our qualitative findings underline that the curriculum and corresponding clinical practice continuously evolve and increase in complexity through the programmes. Educators need to be aware of the importance of incorporating these strategies at all levels (Ewertsson et al., 2017).

Peer learning is suggested to help students manage complex clinical situations. Our results indicate that the term "peer learning" covers a wide range of different activities, such as educating in smaller groups, discussions, pairing students from the same level, and mentoring arrangements with more experienced students. The term is used to describe relationships in the context of teaching and learning (Topping, 2005). However, peer learning administered by educators, as a spinoff, could produce informal learning effects that are not intended (Havnes, 2008), and peer learning could be of benefit in both informal and formal clinical context (Carey et al., 2018). Interestingly, our results suggest that peer learning does not necessarily decrease the levels of stress in learning areas (Brannagan et al., 2013; Li et al., 2011; McNulty et al., 2018; Sprengel and Job, 2004; Stewart et al., 2018). Havnes et al. (2016) suggested a distinction between peer interaction and peer learning, as the educator must arrange for certain conditions to handle the planned outcome. Preparing for peer learning requires careful planning, distinct aims, and giving students roles with clearly described expectations of

what to obtain in the situation (Topping, 2005). Still, the educator will be necessary for the process of metacognition, developing self-esteem and motivation, and preparing for resilience when the learning environments is less optimal. In peer learning, the roles could be defined, undefined, or may shift during the learning experience. However, it is important to prepare and follow-up peer tutors, not only in clinical knowledge and skills, but also in pedagogical knowledge and skills (Bjørk et al., 2015; Brannagan et al., 2013). Additionally, educators are recommended to listen to each student's experiences (Tutticci et al., 2018) as an optimal entry to a student-centred wrapping approach; however, this might be challenging when educators have many students in their portfolios.

Integrative reviews could rigorously collate, examine, and synthesise the evidence from both quantitative and qualitative research data (Munn et al., 2018). While the findings suggest that there is a growing interest in promoting evidence-based approaches in nursing education, we should consider the limitations of our integrated review. The research identified was performed in distinctive contexts, and the evidence is tightly connected to the organisations of the current programme and the culture (Kvernbekk and Jarning, 2019). The different institutional contexts with different philosophies, self-understandings, funding, internal management, and relationship to the public may indicate that particular strategies are likely to be more appropriate in some contexts rather than others (Terhart, 2017). Small studies comprising junior and/or senior students indicate a lack of attention on second-year students. The overall methodological quality was moderate. The outcomes and the assessment tools were diverse, including generic questionnaires not validated for the aimed population. The sustainability of educational approaches is unclear, as most studies had a cross-sectional or pre-post design. Studies related to the clinical context were excluded, potentially overlooking further details to inform educational strategies. Despite these limitations, our findings clearly identify the necessity of a variety of approaches and learning tools related to establishing relationships between students and educators to help students work effectively in a complex and dynamic educational context.

5. Conclusion

Our review of comprehensive material indicates that we should identify study situations and vulnerable periods through nursing education, where faculty tutors should pay particular attention to the students' learning experiences. Student preparation for complex learning situations and affirmative guidance in specific situations is required. In our review, we identified some tools that can help attend to students' experiences through their education.

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CRedit authorship contribution statement

Astrid Torbjørnsen: Conceptualization, Methodology, Formal analysis, Investigation, Writing - original draft, Writing - review & editing. **Elisabeth Hessevaagbakke:** Formal analysis, Investigation, Writing - original draft, Writing - review & editing. **Ellen Karine Grov:** Investigation, Writing - review & editing, Supervision. **Ann Kristin Bjørnnes:** Conceptualization, Methodology, Formal analysis, Investigation, Writing - original draft, Writing - review & editing, Supervision.

Conflict of Interest

None.

Ethical approval details

Not applicable.

Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at [doi:10.1016/j.nepr.2021.103038](https://doi.org/10.1016/j.nepr.2021.103038).

References

- Abelsson, A., Bisholt, B., 2017. Nurse students learning acute care by simulation – focus on observation and debriefing. *Nurse Educ. Pract.* 24, 6–13. <https://doi.org/10.1016/j.nepr.2017.03.001>.
- Aldridge, M.D., Hummel, F., 2019. Nursing students' perceptions of skills learning: a phenomenological study. *Nurse Educ.* 44 (3), 170–174. <https://doi.org/10.1097/nne.0000000000000569>.
- Al-Kloub, M.I., Salameh, T.N., Froelicher, E.S., 2014. Nursing students evaluation of problem based learning and the impact of culture on the learning process and outcomes: a pilot project. *Nurse Educ. Pract.* 14 (2), 142–147. <https://doi.org/10.1016/j.nepr.2013.06.013>.
- Aoyama, M., Tamura, Y., Ishikawa, Y., Yada, M., Miyawaki, I., 2013. Confidence-weighted testing: a descriptive study of Japanese nursing students. *Nurs. Health Sci.* 15 (4), 504–509. <https://doi.org/10.1111/nhs.12066>.
- Arveklev, S.H., Berg, L., Wigert, H., Morrison-Helme, M., Lepp, M., 2018. Nursing students experiences of learning about nursing through drama. *Nurse Educ. Pract.* 28, 60–65. <https://doi.org/10.1016/j.nepr.2017.09.007>.
- Arvidsson, B., Skärsäter, I., Fridlund, B., Svensson, M.-L., Baigi, A., 2008. Effects of process-oriented group supervision as reported by nursing students- a pilot study. *Vård Nord.* 28 (1), 26–29. <https://doi.org/10.1177/010740830802800107>.
- Austria, M., Doig, A.K., Baraki, K., Hardin, P., Richards, D., 2011. Collaborative Learning Using Nursing Student Dyads in the Clinical Setting: Experiences and Perceptions of Students and Patients. ProQuest Dissertations Publishing.
- Bailey, M.E., Tuohy, D., 2009. Student nurses' experiences of using a learning contract as a method of assessment. *Nurse Educ. Today* 29 (7), 758–762. <https://doi.org/10.1016/j.nedt.2009.03.012>.
- Baksi, A., Gumus, F., Zengin, L., 2017. Effectiveness of the preparatory clinical education on nursing students anxiety: a randomized controlled trail. *Int. J. Caring Sci.* 10 (2), 1003–1012.
- Ball, S., 2018. Effect of Augmented Reality on Anxiety in Prelicensure Nursing Students. Walden University.
- Beanlands, H., McCay, E., Fredericks, S., Newman, K., Rose, D., Santa Mina, E., Aiello, A., 2019. Decreasing stress and supporting emotional well-being among senior nursing students: a pilot test of an evidence-based intervention. *Nurse Educ. Today* 76, 222–227.
- Bjørk, I.T., Christiansen, B., Havnes, A., Hessevaagbakke, E.E., 2015. Exploring the black box of practical skill learning in the clinical skills center.
- Black, A., Casterline, G.L., Barbee, K., Pfaff, M., 2017. Effect of a Student Success Program on the Academic Success of First Semester Junior BSN Students. ProQuest Dissertations Publishing.
- Boath, E., Jinks, A., Thomas, N., Thompson, R., Evans, J., O'Connell, P., Taylor, L., 2016. Don't go with the 'FLO' - a student mobile texting service to enhance nursing student retention. *Nurse Educ. Today* 45, 80–86. <https://doi.org/10.1016/j.nedt.2016.06.019>.
- Brannagan, K.B., Dellinger, A., Thomas, J., Mitchell, D., Lewis-Trabeaux, S., Dupre, S., 2013. Impact of peer teaching on nursing students: perceptions of learning environment, self-efficacy, and knowledge. *Nurse Educ. Today* 33 (11), 1440–1447. <https://doi.org/10.1016/j.nedt.2012.11.018>.
- Bullard, G., Adler, K., 2010. The Impact of Peer Mentoring on Student Nurses. ProQuest Dissertations Publishing.
- Butzlaff, A., Gaylle, D., O'Leary Kelley, C., 2018. Student self-evaluation after nursing examinations: that's a wrap. *Nurse Educ.* 43 (4), 187–190. <https://doi.org/10.1097/nne.0000000000000534>.
- Candela, L.L., Kowalski, S., Cyrkiel, D., Warner, D., 2004. Meeting the at-risk challenge: empowering nursing students through mentoring. *Article 24 Int. J. Nurs. Educ. Scholarsh.* 1. <https://doi.org/10.2202/1548-923x.1075>.
- Carey, M.C., Kent, B., Latour, J.M., 2018. Experiences of undergraduate nursing students in peer assisted learning in clinical practice: a qualitative systematic review. *JBI Database Syst. Rev. Implement. Rep.* 16 (5), 1190–1219.
- Catton, H., 2020. Nursing in the COVID-19 pandemic and beyond: protecting, saving, supporting and honouring nurses. *Int. Nurs. Rev.* 67 (2), 157–159. (<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7361934/pdf/INR-67-157.pdf>).
- Cech, E.A., Metz, A.M., Babcock, T., Smith, J.L., 2011. Caring for our own: the role of institutionalized support structures in Native American nursing student success. *J. Nurs. Educ.* 50 (9), 524–531. <https://doi.org/10.3928/01484834-20110517-01>.
- Chan, Z.C., 2016. A qualitative study of freshmen's and academic advisors' perspectives on academic advising in nursing. *Nurse Educ. Pract.* 18, 23–29. <https://doi.org/10.1016/j.nepr.2016.02.010>.
- Choi, L.L.S., 2019. Highlights from an English-as-an-additional-language nursing support program. *Nurs. Educ. Perspect.* 41, 124–125. <https://doi.org/10.1097/01.nep.0000000000000458>.
- Coleman, D., Willis, D.S., 2015. Reflective writing: the student nurse's perspective on reflective writing and poetry writing. *Nurse Educ. Today* 35 (7), 906–911. <https://doi.org/10.1016/j.nedt.2015.02.018>.
- Collins, A.M., 2005. Effects of Two Stress Management Interventions on Student Nurses' Perceived Stress and General Self-efficacy. Wayne State University.
- Coram, C.L., 2015. The effect of expert role modeling on anxiety/self-confidence and clinical judgment in novice nursing students.
- Cox-Davenport, R.A., 2017. "The five-minute check-in" intervention to ease the transition into professional education: a descriptive analysis. *Nurse Educ. Today* 50, 25–28. <https://doi.org/10.1016/j.nedt.2016.12.014>.
- Del Blanco, A., Torrente, J., Fernandez-Manjon, B., Ruiz, P., Giner, M., 2017. Using a videogame to facilitate nursing and medical students' first visit to the operating theatre. A randomized controlled trial. *Nurse Educ. Today* 55, 45–53. <https://doi.org/10.1016/j.nedt.2017.04.026>.
- Dwyer, P.A., Revell, S.M.H., 2014. Preparing students for the emotional challenges of nursing: an integrative review. *J. Nurs. Educ.* 54 (1), 7–12.
- Edwards, S., 2017. What nursing students reveal about and learn from mentors when using stories of clinical practice. *Nurs. Manag.* 23 (10), 32–39. <https://doi.org/10.7748/nm.2017.e1530>.
- European Association for Quality Assurance in Higher Education, 2015. Standards and guidelines for quality assurance in the European Higher Education Area (ESG), ENQA Brussels.
- European Parliament Council, 2008. Recommendation of the European Parliament and of the Council of 23 April 2008 on the establishment of the European Qualifications Framework for lifelong learning. *Off. J. Eur. Union Not. C* 111, 1–4, 20.
- Ewertsson, M., Bagga-Gupta, S., Allvin, R., Blomberg, K., 2017. Tensions in learning professional identities—nursing students' narratives and participation in practical skills during their clinical practice: an ethnographic study. *BMC Nurs.* 16 (1), 48.
- Frank, B., Saarinen, H., Lundeen, T., Montplaisir, L., Strom, T., 2018. Development and Implementation of a Peer Mentoring Program for Undergraduate Student Nurses. ProQuest Dissertations Publishing.
- Friesen, P., Anderson, M.S., 2003. The Role of Peer-Group Interactions in the Initial Socialization of Junior Students into Baccalaureate Nursing Education. ProQuest Dissertations Publishing.
- Gell, S., Miller, C., Bequette, L., Marlow, S., 2015. Exploring the Relationship between Perceived Stress and Facebook Groups among Nursing Students. ProQuest Dissertations Publishing.
- Gerrard, S., Billington, J., 2014. The perceived benefits of belonging to an extra curricular group within a pre-registration nursing course. *Nurse Educ. Pract.* 14 (3), 253–258. <https://doi.org/10.1016/j.nepr.2013.11.002>.
- Glass, N., Walter, R., 2000. An experience of peer mentoring with student nurses: enhancement of personal and professional growth. *J. Nurs. Educ.* 39 (4), 155–160.
- Gross, M., Shellenbarger, T.C., Chunta, K., Gerwick, M., 2018. The Impact of Text Messages on Anxiety and Health-Promoting Behaviors among Baccalaureate Nursing Students: A Mixed Methods Approach. ProQuest Dissertations Publishing.
- Guo, Y.F., Zhang, X., Plummer, V., Lam, L., Cross, W., Zhang, J.P., 2017. Positive psychotherapy for depression and self-efficacy in undergraduate nursing students: a randomized, controlled trial. *Int. J. Ment. Health Nurs.* 26 (4), 375–383. <https://doi.org/10.1111/inm.12255>.
- Hatlevik, I.K.R., 2014. Meningsfulle sammenhenger. En studie av sammenhenger mellom læring på ulike arenaer og utvikling av ulike aspekter ved profesjonell kompetanse hos studenter i sykepleier-, lærer- og sosialarbeiderutdanningene. Høgskolen i Oslo og Akershus.
- Havnes, A., 2008. Peer-mediated learning beyond the curriculum. *Stud. High. Educ.* 33 (2), 193–204.
- Havnes, A., Christiansen, B., Bjørk, I.T., Hessevaagbakke, E., 2016. Peer learning in higher education: patterns of talk and interaction in skills centre simulation. *Learn. Cult. Soc. Interact.* 8, 75–87.
- Hughes, L.C., Romick, P., Sandor, M.K., Phillips, C.A., Glaister, J., Levy, K., Rock, J., 2003. Evaluation of an informal peer group experience on baccalaureate nursing students' emotional well-being and professional socialization. *J. Prof. Nurs.* 19 (1), 38–48. <https://doi.org/10.1053/jpnu.2003.9>.
- Joanna Briggs Institute, 2019. Joanna Briggs Institute Reviewers' Manual: 2017 Edition. The Joanna Briggs Institute, Australia.
- Kim, M.A., Kim, J., Kim, E.J., 2015. Effects of rational emotive behavior therapy for senior nursing students on coping strategies and self-efficacy. *Nurse Educ. Today* 35 (3), 456–460. <https://doi.org/10.1016/j.nedt.2014.11.013>.
- Knowlton, M., 2017. Student perceptions of stressors and the value of coaching in a baccalaureate nursing articulation program. *Nurs. Educ. Perspect.* 38 (5), 277–278. <https://doi.org/10.1097/01.nep.0000000000000170>.
- Kolanko, K.M., 2003. A collective case study of nursing students with learning disabilities. *Nurs. Educ. Perspect.* 24 (5), 251–256.
- Kvernbekk, T., 2019. Practitioner tales: possible roles for research evidence in practice. *Educ. Res. Eval.* 25 (1–2), 25–42. <https://doi.org/10.1080/13803611.2019.1617988>.
- Kvernbekk, T., Jarning, H., 2019. Mapping: coming to grips with educational landscapes. *Eur. Educ. Res. J.* 18 (5), 559–575. <https://doi.org/10.1177/1474904119840181>.
- Leggett, D., Kumpfer, K.K., Clayton, M.F., Allen, K., Graham, J., Maughan, D., 2010. Effectiveness of a Brief Stress Reduction Intervention for Nursing Students in Reducing Physiological Stress Indicators and Improving Well-being and Mental Health. ProQuest Dissertations Publishing.
- Lewin, S., Glenton, C., Munthe-Kaas, H., Carlsen, B., Colvin, C.J., Gülmezoglu, M., Rashidian, A., 2015. Using qualitative evidence in decision making for health and

- social interventions: an approach to assess confidence in findings from qualitative evidence syntheses (GRADE-CERQual). *PLoS Med.* 12 (10), e1001895.
- Li, H.C., Wang, L.S., Lin, Y.H., Lee, I., 2011. The effect of a peer-mentoring strategy on student nurse stress reduction in clinical practice. *Int. Nurs. Rev.* 58 (2), 203–210. <https://doi.org/10.1111/j.1466-7657.2010.00839.x>.
- Lombardo, C., Wong, C., Sanzone, L., Filion, F., Tsimicalis, A., 2017. Exploring Mentees' perceptions of an undergraduate nurse peer mentorship program. *J. Nurs. Educ.* 56 (4), 227–230. <https://doi.org/10.3928/01484834-20170323-07>.
- Mathad, M.D., Pradhan, B., Sasidharan, R.K., 2017. Effect of yoga on psychological functioning of nursing students: a randomized wait list control trial. *J. Clin. Diagn. Res.* 11 (5), Kc01–Kc05. <https://doi.org/10.7860/jcdr/2017/26517.9833>.
- McCarthy, B., Trace, A., O'Donovan, M., O'Regan, P., Brady-Nevin, C., O'Shea, M., Murphy, M., 2018. Coping with stressful events: a pre-post-test of a psycho-educational intervention for undergraduate nursing and midwifery students. *Nurse Educ. Today* 61, 273–280. <https://doi.org/10.1016/j.nedt.2017.11.034>.
- McCarthy, B., Trace, A., O'Donovan, M., Brady-Nevin, C., Murphy, M., O'Shea, M., O'Regan, P., 2018. Nursing and midwifery students' stress and coping during their undergraduate education programmes: an integrative review. *Nurse Educ. Today* 61, 197–209.
- McNulty, K., Preisman, K.A., Carlson, D., McMahon, S., 2018. The Effects of Peer Mentoring on the Stress Levels of Nursing Students. ProQuest Dissertations Publishing.
- Moher, D., Shamseer, L., Clarke, M., Ghersi, D., Liberati, A., Petticrew, M., Stewart, L.A., 2015. Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. *Syst. Rev.* 4 (1), 1.
- Munn, Z., Stern, C., Aromataris, E., Lockwood, C., Jordan, Z., 2018. What kind of systematic review should I conduct? A proposed typology and guidance for systematic reviewers in the medical and health sciences. *BMC Med. Res. Methodol.* 18 (1), 5. (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5761190/pdf/12874_2017_Article_468.pdf).
- OECD, 2019. Health at a Glance 2019.
- Patterson, S., Repede, E., Hodge, M.A., Walker, V., 2013. The Effect of Emotional Freedom Technique on Stress and Anxiety in Nursing Students. ProQuest Dissertations Publishing.
- Poorman, S.G., Webb, C.A., Mastorovich, M.L., 2002. Students' stories: how faculty help and hinder students at risk. *Nurse Educ.* 27 (3), 126–131. <https://doi.org/10.1097/00006223-200205000-00010>.
- Pulido-Martos, M., Augusto-Landa, J.M., Lopez-Zafra, E., 2012. Sources of stress in nursing students: a systematic review of quantitative studies. *Int. Nurs. Rev.* 59 (1), 15–25.
- Ratanasiripong, P., Park, J.F., Ratanasiripong, N., Kathalae, D., 2015. Stress and anxiety management in nursing students: biofeedback and mindfulness meditation. *J. Nurs. Educ.* 54 (9), 520–524. doi:10.3928/01484834-20150814-07.
- Redmond, C., Davies, C., Halligan, P., Joye, R., Carroll, L., Frawley, T., 2018. Nursing and midwifery students' perception of learning enablers and gains in the first semester of their BSc programmes: a cross sectional study. *Nurse Educ. Today* 65, 242–249. <https://doi.org/10.1016/j.nedt.2018.03.010>.
- Rogan, F., San Miguel, C., Brown, D., Kilstoff, K., 2006. 'You find yourself.' Perceptions of nursing students from non-English speaking backgrounds of the effect of an intensive language support program on their oral clinical communication skills. *Contemp. Nurse* 23 (1), 72–86. <https://doi.org/10.5172/conu.2006.23.1.72>.
- Shaw, J., Mitchell, C., Del Fabbro, L., 2015. Group work: facilitating the learning of international and domestic undergraduate nursing students. *Educ. Health* 28 (2), 124–129. <https://doi.org/10.4103/1357-6283.170123>.
- Sokolowski, D., Bronner, J., Akin Palmer, J., Howell, C., 2014. Human Patient Simulation: An Educational Approach Toward Reduction of Stress and Anxiety Among Nursing Students Preparing for the First Clinical. ProQuest Dissertations Publishing.
- Song, Y., Lindquist, R., 2015. Effects of mindfulness-based stress reduction on depression, anxiety, stress and mindfulness in Korean nursing students. *Nurse Educ. Today* 35 (1), 86–90. <https://doi.org/10.1016/j.nedt.2014.06.010>.
- Sprengel, A.D., Job, L., 2004. Reducing student anxiety by using clinical peer mentoring with beginning nursing students. *Nurse Educ.* 29 (6), 246–250. <https://doi.org/10.1097/00006223-200411000-00010>.
- Stewart, P., Greene, D., Coke, S., 2018. Effects of a peer evaluation technique on nursing students' anxiety levels. *Nurse Educ.* 43 (4), 219–222. <https://doi.org/10.1097/nne.0000000000000474>.
- Taylor, D.C., Hamdy, H., 2013. Adult learning theories: implications for learning and teaching in medical education: AMEE Guide No. 83. *Med. Teach.* 35 (11), e1561–e1572.
- Terhart, E., 2017. Interdisciplinary research on education and its disciplines: processes of change and lines of conflict in unstable academic expert cultures: Germany as an example. *Eur. Educ. Res. J.* 16(6), 921–936. <https://doi.org/10.1177/1474904116681798>.
- Terp, U., Hjarthag, F., Bisholt, B., 2019. Effects of a cognitive behavioral-based stress management program on stress management competency, self-efficacy and self-esteem experienced by nursing students. *Nurse Educ.* 44 (1), E1–E5. <https://doi.org/10.1097/nne.0000000000000492>.
- Topping, K.J., 2005. Trends in peer learning. *Educ. Psychol.* 25 (6), 631–645.
- Tower, M., Blacklock, E., Watson, B., Heffernan, C., Tronoff, G., 2015. Using social media as a strategy to address 'sophomore slump' in second year nursing students: a qualitative study. *Nurse Educ. Today* 35 (11), 1130–1134. <https://doi.org/10.1016/j.nedt.2015.06.011>.
- Turner, K., McCarthy, V.L., 2017. Stress and anxiety among nursing students: a review of intervention strategies in literature between 2009 and 2015. *Nurse Educ. Pract.* 22, 21–29.
- Tutticci, N., Ryan, M., Coyer, F., Lewis, P.A., 2018. Collaborative facilitation of debrief after high-fidelity simulation and its implications for reflective thinking: student experiences. *Stud. High. Educ.* 43 (9), 1654–1667. <https://doi.org/10.1080/03075079.2017.1281238>.
- Vaismoradi, M., Turunen, H., Bondas, T., 2013. Content analysis and thematic analysis: implications for conducting a qualitative descriptive study. *Nurs. Health Sci.* 15 (3), 398–405.
- van der Riet, P., Rossiter, R., Kirby, D., Dluzewska, T., Harmon, C., 2015. Piloting a stress management and mindfulness program for undergraduate nursing students: student feedback and lessons learned. *Nurse Educ. Today* 35 (1), 44–49. <https://doi.org/10.1016/j.nedt.2014.05.003>.
- Veritas Health Innovation, 2017. Covidence Systematic Review Software. Veritas Health Innovation Melbourne, VIC.
- Walker, D., Verklan, T., 2016. Peer mentoring during practicum to reduce anxiety in first-semester nursing students. *J. Nurs. Educ.* 55 (11), 651–654. <https://doi.org/10.3928/01484834-20161011-08>.
- Warren, M., Rome, C., Miller, C., Jones-Sutton, A., Parker, J., 2015. The Impact of Simulation-Based Learning Experience on Student Satisfaction, Perceived Self-Confidence, and Anxiety. ProQuest Dissertations Publishing.
- Whittemore, R., Knaf, K., 2005. The integrative review: updated methodology. *J. Adv. Nurs.* 52 (5), 546–553 (Retrieved from). (<https://onlinelibrary.wiley.com/doi/pdf/10.1111/j.1365-2648.2005.03621.x>).
- Wood, D., Gray-Ganter, G., Bailey, R., 2016. Pre-commencement interviews to support transition and retention of first year undergraduate students. *Stud. Success* 7 (2), 21–31. <https://doi.org/10.5204/ssj.v7i2.338>.
- World Health Organization, 2020. Nursing and midwifery. (<https://www.who.int/news-room/fact-sheets/detail/nursing-and-midwifery>).