

Nursing students' perceptions of inadequate nurse staffing in the clinical learning environment – a systematic narrative review

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ABSTRACT

Aim: The aim of this study was to substantiate the perceptions and experiences of nursing students related to nurse understaffing in the clinical learning environment.

Background: The quality of the clinical learning environment affects students' learning experiences, shapes their thinking about the profession and can influence their choice to stay or leave the profession. Understaffing in the clinical learning environment has an adverse impact on patient safety, quality of care outcomes and mortality. Understaffing has an impact on students' learning by reducing the quality of supervision and mentoring.

Design: A systematic narrative review.

Methods: Databases of Academic Search Premier, MEDLINE, Psychology and Behavioural Sciences, APA PsycINFO, APA PsycArticles, CINAHL, AMED were searched systematically. The review was reported in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines. The reviewers independently conducted study selection, quality appraisal and data extraction. Quality appraisal was performed using the Mixed Methods Appraisal Tool (MMAT). Thematic analysis was used to synthesise the findings.

Results: A total of eight research papers were included. Four themes were identified: inadequate support, feeling unprotected, being seen as a cover for staff shortages on shifts and patients ultimately suffer the consequences of understaffing.

Conclusions: This review revealed that understaffing in the learning environment meant that optimum level of supervision could not be provided, making students feel vulnerable and insecure, students felt unwelcome and used as cover for staff shortages. We recommend further examination of understaffing to inform policy for improvement in student-staff ratio, supervision and facilitation of learning.

1. Introduction

The clinical learning environment is central to nursing students learning skills and applying knowledge in the process of achieving competence in care practices for the purpose of registration (Flott and Linden, 2016). A multitude of factors impact on the clinical learning environment to which the student nurse must adapt to experience a sense of belongingness (Singer et al., 2022), learn and gain mastery of clinical skills, engage in professional socialisation and professional identity formation (Singer et al., 2022), assimilate and integrate interpersonal professional skills and nursing values (Kang et al., 2021), prepare for assessments and achievement of learning outcomes. Critical

to the facilitation of learning is the quality of mentoring and supervision and support from identified nurses, clinical instructors and lecturers (Choi and Yu, 2022).

Increasingly, staff in the clinical learning environment are expected to mentor, supervise and assess students to ensure regulatory standards are met (Mikkonen et al., 2020). The quality of the clinical learning experience is fundamental to the development of clinical nursing competence to meet the registration level competencies and enable transition to autonomous nurse practitioner (Mansutti et al., 2017). However, students transitioning to registered nursing roles have reportedly experienced 'reality shock' when confronted with perceived deficits in their skills and knowledge and found clinical practice

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overwhelming, often characterised by high workload (See et al., 2023), indicative of possible lack of preparation to undertake the registered nurse role.

2. Background

Curricular initiatives to improve the quality of clinical placement and learning environment for undergraduate nurses have often shown that students were satisfied with their clinical placements (Jayasekara et al., 2018) with students' satisfaction with their learning experiences (Shivers et al., 2017). For example, students felt supported by staff, were made to feel welcome and had their expectations met (Luders et al., 2021). They also recognised having supportive instructors (Webster et al., 2016; Canzan et al., 2022) and beneficial supervisory relationship (Bos et al., 2015; Jessee, 2016). In addition, where there was reciprocity in relationship, they felt trusted and valued (Bradbury-Jones et al., 2011). Similarly, students appreciated collaborative working between educational institutions staff and nursing staff in clinical placements (Forber et al., 2016). Acknowledging the complexities involved in supporting students, nursing staff continue to express willingness and commitment to support students and thus, 'doing the right thing' (Anderson et al., 2018; Doyle et al., 2017). When students experience learning opportunities in a facilitative clinical environment, they feel part of the nursing team and are motivated to participate in learning activities to advance their competences in preparation for the professional nurse role.

Reported negative experiences included: not being welcomed, feelings of being unwanted and a burden (Webster et al., 2016); feeling unsupported and being ignored (Canzan et al., 2022); not trusted and unappreciated (Webster et al., 2016); staff attitudes and bullying (Luders et al., 2021); unsupervised or supervised by supervisor with lack of knowledge (Luders et al., 2021; Laugaland et al., 2021); not optimizing learning opportunities or loss providing opportunities to learn (Mamaghani et al., 2018); unsafe environment with missed or unmet care needs, placing patients' safety at risk (Kalankova et al., 2021), errors (Musharyanti et al., 2019) and lack of role models (O'Mara et al., 2014). Where suboptimal practice is observed, students often feel unable to communicate their anxieties and misgivings with nursing staff (Killam et al., 2013). In primary care, students have reported satisfaction with supervisory relationship and pedagogical atmosphere but weak association between motivation and the clinical nursing care environments (Bos et al., 2015). In care home placements students spend more time working with non-registered nurses and felt vulnerable in their role (Laugaland et al., 2021). Negative experiences demotivate students leading to feeling stressed, low-esteem and thoughts of leaving the profession.

3. Nursing staff shortages and understaffing

Clinical placements in nursing education programmes operate under known conditions of national and global nursing shortages which are likely to increase in future (Adams et al., 2021). Terms such as 'shortages of staff', 'understaffing', 'inadequate staff' have been used to denote situations reflecting insufficient number of nurses with the necessary skill-mix to deliver patient care to the required standards of safety and expected clinical outcomes (Glette et al., 2017).

For this review, a distinction is made between 'nursing staff shortages' and 'understaffing'. While 'nursing staff shortages' means more precisely the lack of nurses to deliver care needs of populations, understaffing represents a more accurate understanding of the lack of number of registered nurses for daily shifts cover in the clinical workplace. Glette et al. (2017) put forward terms to denote similar situations where there may not be enough registered nurses to provide care during a shift. Commonly, terms such as 'understaffing', 'lack of nurses', 'staffing insufficiency' and 'inadequate staffing' have been used in the literature (Waring et al., 2018). Glette et al. (2017) defined

understaffing as "a disparity between load of responsibilities/tasks and the possibility to conduct them in a professional manner" (p.1389). Winter et al. (2020) described staff shortages as the relationship between staff ratios and patient satisfaction with nursing care and reported significantly negative relationship between nursing care associated with direct staff shortage measures (perceived nurse shortage, nurse vacancies and nurse turnover). Staffing ratios in nursing remain a serious concern (Haddad et al., 2023).

Understaffing has an impact on patient safety and quality of care outcomes with resultant complications and mortality rates (Aiken et al., 2014). Adverse relationship between understaffing and patient mortality have been reported (Glette et al., 2017). Other studies have reported links between inadequate staffing and adverse events including falls, medication errors, failure to rescue and infection rates (Chang and Mark, 2011) and 'poor quality of basic care' (Glette et al., 2017). The Francis Report (Francis, 2013) in the UK linked understaffing and poor nursing work environments to the catastrophic collapse in the standards of patient care and outcomes in the Mid-Staffordshire Hospitals.

Nurse staffing practices at organisational level in hospitals were shown to account for association between understaffed shifts and increase in workload with increase in mortality (Rocheffort et al., 2020). Additionally, understaffing means that due to the workload and lack of time, care needs were left unmet, with serious consequences for patient outcomes (Senek et al., 2020). The distinction between staff shortages and understaffing needs to be understood in the context of students' experiences in the clinical learning environment. Whilst it is recognised that shortage of nursing staff has an impact on service delivery (Morgan, 2022), understaffed shifts and working practices must be recognised as unsafe and not conducive to students' learning. Shortages of staff or lack of them on shifts affects not just the quality of the students' experiences but are consequential in errors, for example, medication errors (Musharyanti et al., 2019). Staff shortages on shifts also mean increased workload for students and reported and unreported errors. These same clinical placement environments, where understaffing affect patient safety and clinical outcomes, serve as learning environment for student nurses to learn to deliver care to vulnerable patients and become nurses of the future.

3.1. Problem formulation / rationale for this review

Nursing staff shortages and understaffing of clinical services where students are placed for learning experiences have been shown to be both positive and negative experiences. Reports presenting findings of studies where innovative strategies in clinical education have been tested, have shown favourable outcomes promoting the necessary space and opportunities to learn and augment the depth of knowledge application and verification with mentors or clinical instructors in presence. Reported studies have been conducted in predominantly in high-income countries. We undertook this review precisely because the specific issue of understaffing effects on student learning, supervision and assessment has not been studied to the extent that it warrants.

4. Methods

4.1. Aims

The aim of the systematic review was to substantiate the perceptions and experiences of nursing students due to nurse understaffing in the clinical learning environment.

4.2. Research question

What are the perceptions of nursing students of their learning experiences due to inadequate nurse staffing in the clinical learning environment?

4.3. Design

This systematic review was conducted in July 2023 and updated in June 2024 according to the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) (Page et al., 2021). The five-step approach by Cooper (1989) was followed which comprises problem formulation (as described above), literature search, data evaluation, data analysis and presentation (i.e., result).

4.4. Literature search

The University of Greenwich electronic databases of Health Sciences Research combining the databases of Academic Search Premier, MEDLINE, Psychology and Behavioural Sciences, APA PsycINFO, APA PsycArticles, CINAHL Plus with Full Text, AMED was systematically searched. Articles published between January 2000 – June 2024 were included and reviewed based on the Inclusion and Exclusion criteria (Table 1).

4.5. Search terms

The literature search was designed based on the PEO (Population, Exposure and Outcomes) framework (Bettany-Saltikov, 2016). The research question was constructed using the PEO strategy. Both reviewers worked together on the systematic review process. The search strategy comprises a combination of free text terms and Medical Subject headings (MeSH) related to the four components *P: Nursing students; P: Clinical learning environment; E: Inadequate staffing; and O: Perceptions or Experiences*. Search terms were connected using Boolean Operators ‘OR’ and ‘AND’ to identify relevant papers (Table 2; Supplementary File).

4.6. Studies identified

A total of 84 titles were identified in the initial search, including five titles which were hand-searched. After the two reviewers independently screened 71 titles and abstracts, 41 full-text articles remained for retrieval. Thirty-three were excluded because the experiences of inadequate staffing were primarily not reported from nursing student’s perspectives. The remaining eight were included in the review. However, results that aligned with the aim of this review were selected for analysis and synthesis (Fig. 1).

4.7. Data evaluation

The Mixed Methods Appraisal Tool (MMAT) (Hong et al., 2018) was adopted as it helps overcome challenges associated with evaluating the methodological quality of varied study designs. This tool is designed for

Table 1
Inclusion and exclusion criteria.

Criteria	Inclusion	Exclusion
Publication year	Published from 2000 years until present time	Published before 2000
Language	Written in English Language	Written in other languages
Types of participants	Participants are student nurses	Participants are registered nurses and non-Nursing student
Phenomena of interest	Papers are looking into learning experiences in the clinical setting	Articles are not looking at learning experiences in the clinical setting
Context	Learning experiences in the clinical setting	not looking at learning experiences in the clinical setting
Types of studies	Peer-reviewed primary research articles from academic journals (qualitative, quantitative, mixed methods)	Opinion papers, commentary, editorial and review articles

the quality appraisal stage of systematic mixed studies reviews and consists of seven questions. Studies were independently evaluated. The first two are screening questions which ask, ‘Are there clear research questions?’ and ‘Do the collected data allow to address the research questions?’ Responding ‘No’ or ‘Can’t tell’ to one or both questions might indicate that the paper is not an empirical study and thus cannot be appraised using the MMAT. Only one paper (Mbakaya et al., 2020) had a clearly stated research question. The others had clearly stated aims which were all addressed. Therefore, the screening questions were answered “yes”.

The remaining set of five questions in the checklist are specific to different methodological categories of studies to be appraised, with higher scores indicating higher quality studies (Table 3).

4.8. Data extraction

The quality of all the studies was appraised as high. Of the eight included studies, five had qualitative designs while the remaining three had mixed method. Findings from the quantitative components of the three studies with mixed methods design do not have any bearing to the issues being considered in this systematic review. The following information was extracted: author, year of publication, country, research aims, study design, study population, data collection, setting and key findings (Table 4).

4.9. Characteristics of studies

Eight studies were found to meet the inclusion criteria. These studies were conducted in the UK (n = 2) (Galvin et al., 2015; Jack et al., 2018); The Netherland (n = 1) (Bakker et al., 2019); Malawi (n = 2) (Msiska et al., 2013; Mbakaya et al., 2020); South Africa (n = 1) (Carlson et al., 2003); Ghana (n = 1) (Kobekyaa and Naidoo, 2023) and Iran (n = 1) (Rabori et al., 2019). The sample sizes varied from 11 (Bakker et al., 2019) – 46 (Kobekyaa and Naidoo, 2023). One study (Carlson et al., 2003) did not mention the sample size in their study. Seven of the studies were conducted between 2013 – 2023, except one which was conducted in 2003 (Carlson et al., 2003). The focus of this review was on the qualitative components of studies, relevant to the aim of the review. Five studies used qualitative designs; three used mixed methods, with only their qualitative components considered. Five studies used purposive sampling technique, two used convenient method of sampling and one used both convenience and stratified sampling techniques (Table 4). Mbakaya et al (2020) collected data using focus group interviews, Kobekyaa and Naidoo (2023) used combined focus group and one-to-one interviews, Jack et al. (2018) used telephone interviews and the remaining five studies used face-to-face interviews.

4.10. Data synthesis

Following Cooper’s (1989) framework, eight studies were included in the synthesis of findings, but none of their aims was the central issue of our review, so, only those portions of the results including quotations that relate to our aim were included in the synthesis.

First, those portions of the results including quotations that relate to the aim were included for synthesis. For the step-by-step guidance to data synthesis, we have adopted the three stages of thematic synthesis proposed by Thomas and Harden (2008), which includes the coding of text ‘line-by-line’; the development of ‘descriptive themes’; and the generation of ‘analytical themes’. Thomas and Harden (2008) argued that while the development of descriptive themes remains ‘close’ to the primary studies, the analytical themes represent a stage of interpretation whereby the reviewers ‘go beyond’ the primary studies and generate new interpretive constructs, explanations, or hypotheses.

Both reviewers independently carried out these three stages of data synthesis and then presented their findings at the research meeting. They both presented very similar codes and themes. They identified

Table 2
Search Terms conducted in July 2023 and Updated in June 2024 using PEO strategy.

- Search S1 (P): Nursing students OR Student nurse OR Undergraduate student nurses OR synonyms OR pre-registration nursing student OR pre-licensure nurse
- Search S2 (P): Clinical learning environment OR clinical environment OR practicum environment OR placement environment
- Search S3 (E): Inadequate nurse staffing levels OR Nurse understaffing OR nursing shortage OR nurse to patient ratios OR nurse burnout OR nursing workload OR work-related stress OR job satisfaction OR burnout among nurses
- Search S4 (E): Inadequate staffing OR low staffing levels
- Search S5 (E): Staffing ratios OR staffing levels OR staff ratio OR staff levels OR nurse to patient ratios
- Search S6 (E): Staffing levels OR staffing ratio OR lack of staff
- Search S7 (E): Staffing shortage OR nursing shortage OR less staff OR less nurses
- Search S8 (E): Staff shortages OR shortages of staff OR short-staffing OR understaffed
- Search S9 (E): Staffing OR staffing shortages in nursing
- Search S10 (O): Experiences OR perceptions OR attitudes OR views OR feelings OR qualitative OR perspective
- Search S11: Searches S1 AND S2 AND S3 AND S10
- Search S12: Searches S1 AND S2 AND S4 AND S10
- Search S13: Searches S1 AND S2 AND S5 AND S10
- Search S14: Searches S1 AND S2 AND S6 AND S10
- Search S15: Searches S1 AND S2 AND S7 AND S10
- Search S16: Searches S1 AND S2 AND S8 AND S10
- Search S17: Searches S1 AND S2 AND S9 AND S10

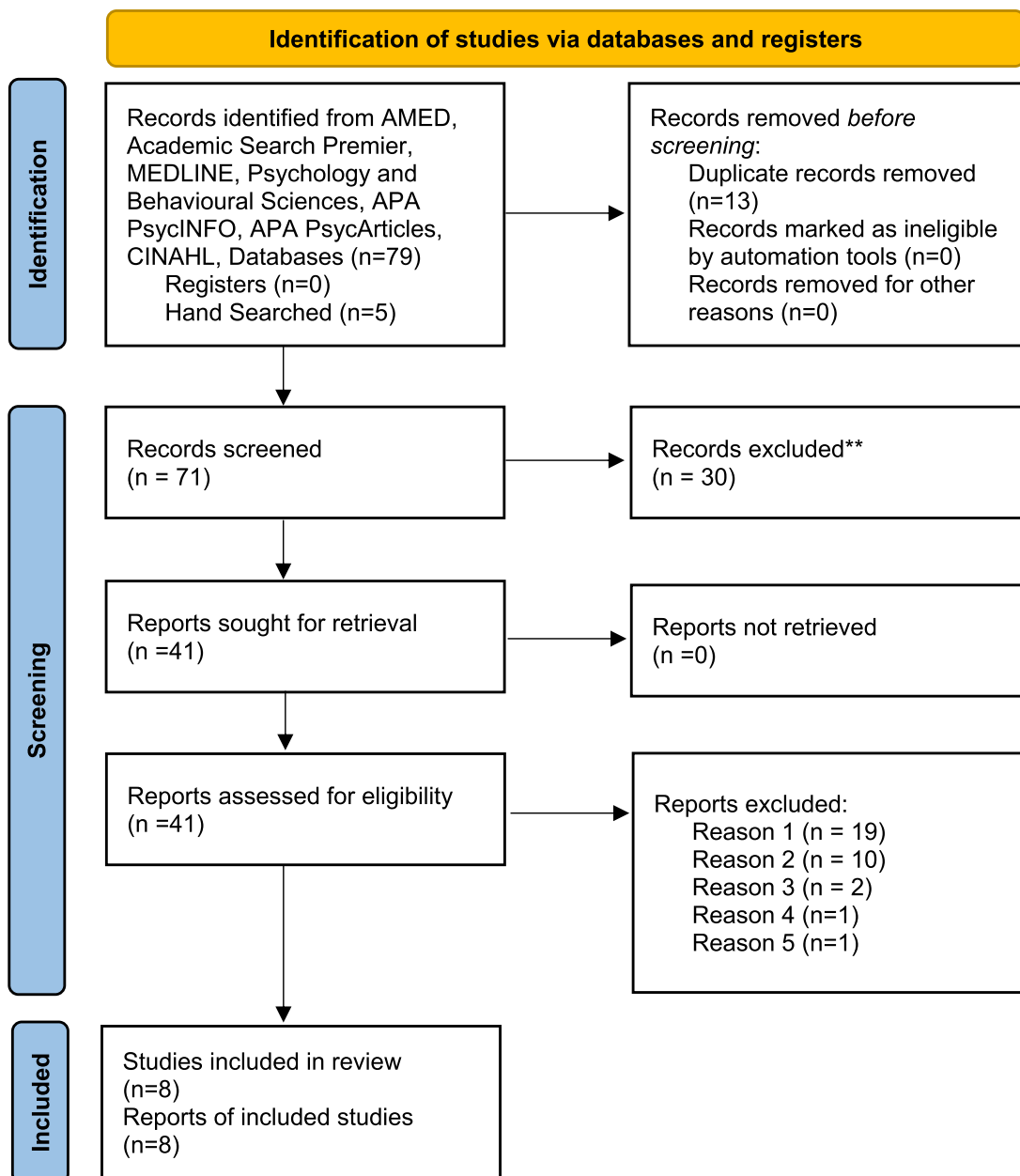


Fig. 1. PRISMA 2020 flow diagram (Page et al., 2021)

Table 3

Critical appraisal of included studies using the mixed methods appraisal tool (MMAT), Version 2018.

Category of study designs: Qualitative research							
Study	S1	S2	Q1	Q2	Q3	Q4	Q5
Kobekyaa and Naidoo (2023)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bakker et al. (2019),	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Carlson et al. (2003)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Galvin et al. (2015)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Msiska et al. (2013)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Category of study designs: Mixed Methods research							
Study	S1	S2	Q1	Q2	Q3	Q4	Q5
Mbakaya et al. (2020).	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Rabori et al. (2019)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Jack et al (2018)	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Y=Yes, N = No, C=Can't tell

Screening questions (for all types)

S1. Are there clear research questions?

S2. Do the collected data allow to address the research questions?

Further appraisal may not be feasible or appropriate when the answer is 'No' or 'Can't tell' to one or both screening questions.

1 Qualitative

1.1. Is the qualitative approach appropriate to answer the research question?

1.2. Are the qualitative data collection methods adequate to address the research question?

1.3. Are the findings adequately derived from the data?

1.4. Is the interpretation of results sufficiently substantiated by data?

1.5. Is there coherence between qualitative data sources, collection, analysis and interpretation?

5.Mixed methods

5.1. Is there an adequate rationale for using a mixed methods design to address the research question?

5.2. Are the different components of the study effectively integrated to answer the research question?

5.3. Are the outputs of the integration of qualitative and quantitative components adequately interpreted?

5.4. Are divergences and inconsistencies between quantitative and qualitative results adequately addressed?

5.5. Do the different components of the study adhere to the quality criteria of each tradition of the methods involved?

patterns that emerged across their sub-themes and themes. They compared the different themes. They recognised similarities and where the researchers had labelled themes differently, they met and openly discussed and clarified the labels and reached agreement.

The quotations from the findings were read and actively searched for meanings and patterns. Coloured highlighters were used to indicate potential patterns and extracts from the data were given codes 'line-by-line' in a systematic fashion across the entire data set (Thomas and Harden, 2008), with similar extracts being given the same code (Robson and McCartan, 2016). All actual data extracts were coded and then similar codes were clustered together into categories. Next, all the different relevant categories were clustered to form a potential theme.

Four main themes and 11 subthemes were identified from reported experiences of nursing students attributable to inadequate nurse staffing in the clinical learning environment. The four themes were: inadequate support; feeling unprotected; being seen as a cover for staff shortages on shifts; and patients ultimately suffer the consequences of understaffing.

4.11. Theme 1: inadequate support

Inadequate support emerged as a direct consequence of inadequate staffing. Inadequate staffing resulted in limited mentoring and teaching, to effectively support students' learning in the clinical learning environment. Three subthemes were identified to classify the findings, namely: unsupervised; delay in the learning process; and failure to achieve learning objectives.

4.12. Subtheme: unsupervised

Students were often left unsupervised in the clinical areas whenever there was shortage of nursing staff, as illustrated by the following quote:

"...Previously, the clinical instructor used to accompany us to the hospitals. But these days, you find that you are allocated somewhere and you are left alone." (Participant, Mbakaya et al., 2020).

Students experienced being left unsupervised when patient care had to be prioritised over student supervision, as stated:

"... they don't supervise us all the time because they are so busy attending to patients and doing other things." (Participant, Kobekyaa and Naidoo, 2023).

In addition to describing being unsupervised as one of the challenges experienced due to understaffing, students highlighted delay in the learning process as another direct consequence of inadequate support.

4.13. Subtheme: delay in the learning process

Students who dropped out in the latter years of their degree programmes attributed attrition as a direct consequence of inadequate staffing in the clinical environment (Bakker et al., 2019). Experiences of lack of supervisory support led students to lose control of their learning process. They maintained that the lack of support in the clinical environment eventually resulted in the non-completion of their nursing programme:

"...But whenever I arrived on the ward, it was all really a case of right, how am I actually going to tackle this?" (Participant, Bakker et al., 2019)

Students described their experiences of losing control of their learning process as a result of being made to do a lot of work in the clinical environment. They highlighted that they learned very little when being made to provide care rather than learning:

"...We have to care for a lot of patients, do a lot of work in the ward and we actually learn little." (Participant quote, Msiska et al., 2013).

This perception appeared to be shared by other students who commented that:

"...The clinical setting as a learning environment to some point does not meet its intended aim because it feels like we are not actually learning, but we are actually working." (Participant, Msiska et al., 2013)

Participants also felt that rather than mentors explaining why tasks are completed in certain ways, they would show students how they are done and then, instruct them to go and complete the tasks:

"...I do feel that due to understaffing on wards it makes it a lot harder for your mentor to actually spend thorough time teaching you..." (Participant, Jack et al., 2018)

In addition to learning very little in the clinical environment when being made to work, students attributed understaffing as cause their failure to achieve their learning objectives.

4.14. Subtheme: failure to achieve learning objectives

Students demonstrated their understanding of the importance of the clinical learning environment as a placement area which provides students with the opportunities to apply their knowledge to practice, learning key nursing skills and achievements of the required competences (Mbakaya, 2020). However, students were being made to provide care rather than observing and learning key skills and consolidating theories and practice, which hindered the achievements of their learning outcomes. For example, inadequate staffing was identified as being responsible for the failure in achieving their learning objectives and

Table 4
Data extraction.

Author, year and country	Research aim	Study design	Sample and sampling	Data collection	Setting	Key findings
Mbakaya et al. (2020) Malawi	To assess the student nurses and midwives' experiences and perception of the clinical learning environment in Malawi	Mixed methods	Nursing students (n = 30) Conventional convenient sampling	Focus group discussions	Students from three nursing and midwifery institutions who were on clinical placements in various hospitals.	<ul style="list-style-type: none"> • A lack of an adequate number of qualified staff in the clinical area affected their clinical learning and experience. • The wards had a shortage of staff, which resulted in inadequate supervision of students. • Previously, the clinical instructor used to accompany students to the hospitals but recently, are left alone, unsupervised. • Due to lack of mentors in the clinical area students are failing to achieve their goals.
Kobekyaa and Naidoo, (2023) Northern Ghana	To describe the experiences of collaborative clinical facilitation among nurse educators, clinical preceptors and final year nursing and midwifery students in Northern Ghana.	Qualitative, descriptive exploratory design	46 participants comprising 16 nurse educators, 10 clinical preceptors, 10 nursing students and 10 midwifery students from Purposively sampled	Focus groups and in-depth interviews	Two nursing and midwifery colleges and an academic hospital.	<ul style="list-style-type: none"> • The shortage of staff emerged as a barrier to collaborative clinical facilitation. • Staff shortages and/or limited clinical preceptors did add to frustrations experienced by students, especially during periods of clinical exam preparation where students felt they required more clinical mentoring and supervision by their clinical preceptors. • Participants felt they did not receive any supervision because nurses were too busy attending to patients and doing other things.
Bakker et al (2019) The Netherlands	To explore nursing students' experiences and reasons that lead to this late dropout.	Exploratory qualitative study	11 former nursing students who dropped out in the third year of their Bachelor's Nursing degree programme Convenience sampling	In-depth face-to-face semi-structured interviews (10 face-to-face interviews were conducted and one interview using Skype)	Two Dutch universities of applied sciences.	<ul style="list-style-type: none"> • Participants felt that as the degree programme progressed, they increasingly felt unable to get a grip on the learning process. • The lack of proper supervisory support and continuity in supervision during the clinical placement contributed to their discontinuation of the nursing degree programme. • Sometimes there was a lack of clinical supervision at Bachelor level, especially in nursing homes where most staff were certified nursing assistants and the supervision was provided remotely. • The lack of a role model and concrete supervision in the workplace led to delays in the learning process and eventually to failing the clinical placement.
Carlson et al. (2003) South Africa	To explore and describe the experiences of first year nursing students related to their exposure to the clinical learning environment	Qualitative, explorative, descriptive, contextual study,	Sample size not mentioned. Random-purposive sampling	Unstructured phenomenological interviews.	Department of Nursing Science, University of Port Elizabeth	<ul style="list-style-type: none"> • Participants experience insecurity in the clinical areas mainly due to staff shortage and time constraints. • On participants first day on placement, they were very short-staffed, resulting in

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Table 4 (continued)

Author, year and country	Research aim	Study design	Sample and sampling	Data collection	Setting	key findings
Galvin et al. (2015) Cardiff, Wales	To explore mental health nursing students' experiences of during training.	Qualitative research	Mental health nursing students (n = 12) Purposive sampling,	Semi-structured one-to-one interviews	Cardiff University, UK.	<p>receiving inadequate orientation to the clinical areas, making it the worst day they have ever had in the hospital so far.</p> <ul style="list-style-type: none"> • A lack of staff on placements made the clinical side of the course more demanding. • Students often felt like they were treated like an extra pair of hands by being used as a member of staff instead of being there to learn. • Participants found placements to be very stressful due to them having low number of staff. • Staffing problems on placements led the students to feel a lack of control. • Students felt vulnerable on placements with staff shortages, especially when patients were having mental health crisis. • Unwelcoming attitudes from staff was perceived as a source of stress, which had an impact on their experience. • Students were often made to feel unwelcome by others in the team due to staff shortage.
Msiska et al. (2013) Malawi	The aim of the study was to explore the students' perceptions of their clinical learning experience, in view of the problems prevalent in the various clinical settings that are used as teaching hospitals.	Hermeneutic phenomenological study	Participants (n = 30) Purposive sampling	Conversational interviews	University nursing college in Malawi	<ul style="list-style-type: none"> • Severe nursing shortage has a negative impact on students' learning resulting in them covering shortage. Qualified staff viewed students as additional nursing staff. • Nurses perceive the students' presence on the wards as a time when they could have some respite, delegating work to students, which hindered the achievement of their learning outcomes. • The nurses did not actually take the students as coming to learn but coming to work • Students had to care for a lot of patients, did a lot of work in the ward and learn little. • Sometimes students prioritise the care of patients over completing their specific objectives. • Participants reported fatigue as a consequence of the excessive workload carried out in the clinical areas. • The clinical setting as a learning environment to some point did not meet its intended aim because students were not actually learning but were actually working.

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Table 4 (continued)

Author, year and country	Research aim	Study design	Sample and sampling	Data collection	Setting	key findings
Rabori et al. (2019) Iran	To explore and to evaluate the nursing students' ethical challenges in the clinical settings in Iran.	Mixed-methods study with an exploratory sequential design.	Iranian nursing students (n = 37) Purposive sampling.	Semi structured, in-depth, face-to-face individual interviews	In the hospital or researcher's office in the college	<ul style="list-style-type: none"> • Students witnessed unsafe practice by nurses. • Patients suffered unmet care needs when the clinical placements were understaffed. • Nurses did not care much for the patients. • Patient care was very poor resulting easily in harm to the patients such as bedsores. • Low levels of care was attributed to nurse shortage.
Jack et al (2018) England	To explore the perceived unfairness experienced by student nurses during their undergraduate clinical placements.	Mixed methods with a descriptive narrative approach	Participants (n = 22) Convenience and stratified sampling technique	Qualitative data derived from both open questions on the survey and from the narratives in the unstructured interviews	Adult and mental health degree nursing pathways, across nine institutions in the North West of England	<ul style="list-style-type: none"> • Students were being used as an extra pair of hands when understaffed. • Understaffing on wards it makes it a lot harder for mentors to actually spend thorough time teaching students.

goals: "We have a shortage of human resource.... we are failing to achieve our goals because of lack of mentors in the clinical area" (Participant, Mbakaya et al., 2020)

This view was corroborated by another student who explained that patient care was often prioritised over the achievements of learning objectives when patients were perceived to be suffering:

"...When you see different patients suffering ... you want to help them first before you complete your specific objectives...So I tend to shift my objectives to the second day and it goes on like that..." (Participant, Msiska et al., 2013)

Students also recognised that understaffing contributed to feeling unprotected.

4.15. Theme 2: feeling unprotected

This theme described students' perceptions of feeling unprotected when the clinical environment was understaffed, putting them in harm's way. Three subthemes were identified: feeling vulnerable; feeling of insecurity; and feeling unwelcome.

4.16. Subtheme: feeling vulnerable

Staff shortages on placements led to students feeling unprotected. Understaffing in mental health clinical environment for example, resulted in staff being unable to manage upset patients, exposing students to unacceptable risks, leaving them feeling vulnerable:

"...There was a patient who at the time was walking around with a pair of scissors and looked quite nasty and just kind of wanted to kill someone...it was things like that made me think 'I'm on this ward, like, there aren't enough staff here, there are loads of really quite upset patients... I felt particularly vulnerable on that placement..." (Participant, Galvin et al., 2015)

Furthermore, students linked understaffing to feeling of insecurity and lack of confidence.

4.17. Subtheme: feeling of insecurity

Students described their first day on placement as the worst day they have ever had in the hospital due to understaffing. This affected their

integration into the team, increased their anxiety, made them to feel insecure and affected their confidence:

"The first day when we arrived, they were very short-staffed and didn't have time to show us around...or where anything was. We were told to get or fetch things and we didn't even know, everyone was so busy, it was the worst day I've ever had in the hospital so far." (Participant, Carlson et al., 2003).

Additionally, students considered the importance of being made to feel welcome in the clinical environment.

4.18. Subtheme: feeling unwelcome

Students highlighted some staff behaviour which were unwelcoming and could be described as unprofessional, resulting in experiences of feeling unwanted and unprotected. Understaffing was identified as the root cause of unwelcoming behaviour towards students, as stated:

"...I turned up to placement one time...my mentor...actually said 'oh no not another student, I really don't want them'...at the end of the placement she actually said to me do I mind giving them bad feedback so they don't need to have students any longer...I think probably because the wards are so busy and most of them have a lack of staff..." (Participant, Galvin et al. (2015)

Students described the situation whereby they were being used as a cover for staff shortages and the challenges they experienced.

4.19. Theme 3: being seen as a cover for staff shortages on shifts

Students stated that they were being used as a cover for staff shortages by being made to provide care rather than learning. Three subthemes were identified namely: extra pair of hands; students seen as respite; and fatigue.

4.20. Subtheme: extra pair of hands

Understaffing on placement made the clinical side of the nursing course more demanding and stressful because students were often being treated like an extra pair of hands on the ward. For instance, typical descriptions included comments such as "...we are there [on placement] to cover shortage." (Participant, Msiska et al., 2013) and "...My last

placement was very stressful due to them having a low number of staff...I felt I was being used as a member of staff instead of being there to learn." (Participant, Galvin et al. (2015).

In a similar vein, participants in Jack et al. (2018) described being used as a member of the ward team and their supernumerary status not being respected. Participants pointed out that a lot of NHS placement areas are understaffed and therefore use students as "a free pair of hands" as commented:

"... particularly you will find that a mentor will be off for a weekend and knowing that they will be short staffed, they will try and put the student on most or all weekends, to help the staff on the floor". (Participant, Jack et al., 2018)

This perception was corroborated by other students who highlighted that the staff did not view students as being on placement to learn but to be made to work:

"...They don't actually take the students as coming to learn but coming to work ... they leave a lot of work for us students..." (Participant, Msiska et al., 2013)

4.21. Subtheme: students seen as respite

Students maintained that nurses perceived the students' presence on the wards created an opportunity for nurses to have some respite and relax, making sure that students did most of the work, as highlighted: "...I see that whenever students go to the clinical areas the staff tend to relax..." (Participant, Msiska et al., 2013)

This highlighted a tendency in the working culture where staff assume that they were entitled to take time out as long as students would deliver care the staff were expected to carry out.

4.22. Subtheme: fatigue

Students revealed that being used as a cover for staff shortages and making them to do a lot of work rather than learning is a huge factor in fatigue and burnout in students:

"...there is so much workload and when knocking off at 5 pm, you end up being very tired because you have worked a lot." (Participant, Msiska et al., 2013)

Fatigue also has an impact on ability to learn and continue with academic work when not on shifts in clinical placements.

4.23. Theme 4: patients ultimately suffer the consequences of understaffing

It was identified that nurses did not view patient safety as a central humanistic nursing value whenever they were understaffed. This theme depicts the perceptions of students that patients ultimately suffer the direct consequences of understaffing and it comprised of two subthemes, namely: unsafe practice; and unmet care needs.

4.24. Subtheme: unsafe practice

Students expressed concerns about the poor quality of care provide to patients in the clinical settings, whenever there was understaffing. Comments such as: "...Patient care is poor and the nurses don't care for the patients. The patients get bedsore easily." (Participant, Rabori et al., 2019), exemplify those concerns.

Students were aware that they are expected to work within the limits of their competence but felt helpless when there was no suitably qualified nurse available to perform some invasive interventions due to understaffing. It was argued that the situation puts patients at risk, as students had to perform such intervention when nurses were unavailable, as stated:

"...We are novices...I cannot insert a good venous catheter for a patient that has a bad venous vein. However, because of the nursing shortage, we have to care for patients." (Participant, Rabori et al., 2019)

4.25. Subtheme: unmet care needs

There was apprehension about the attitudes of staff towards the patients, which resulted in inadequate care, as gathered from the following comments: "...Yesterday my patient wanted to have a visitor, but the head nurse said: no, no, it is forbidden." (Participant, Rabori et al., 2019)

However, one student provided a contrasting view from those who were concerned about the uncaring attitudes of the nurses towards the patients. Student perceived that the nurses did their best to care for the patients, but indicated that increased workload and burnout, which led to unmet patient care were direct consequences of understaffing, as described below:

"Although nurses do their best to care for the patients, the number of the nurses is few and they get tired soon." (Participant, Rabori et al., 2019)

In summary, this theme described the perceptions of students regarding the quality of care provided the nurses when the clinical sites are understaffed. The absence of concerns for patient safety was perceived to be the consequence of understaffing.

5. Discussion

The perceptions of nursing students due to nurse understaffing in the clinical learning environment were described in this systematic review. Eight research articles have been reviewed and four key themes were identified that suggest that nurse understaffing in the clinical environment has detrimental effects on nursing students' learning. Students perceived that they had received inadequate support due to understaffing. While some students perceived they had been left unsupervised, others experienced delay in the learning process or inability to achieve their learning objectives when the clinical environment was understaffed.

An Indonesian study by Musharyanti et al (2019) found that students committed medication errors because they did not receive adequate supervision during medication administration. They described the situation as occurring when the nurses had high workloads, leading them to prioritise patient care over students' supervision. Students in Gregeren et al (2021) emphasized the need for more supervision as this would make them feel secure when performing patient care in a hectic environment. In Norway, Laugaland et al (2021) revealed that in the absence of registered nurses, students worked predominantly with non-registered nurse in care homes, implying that they were receiving inadequate clinical supervision. Rajeswaran (2017) highlights that inadequate clinical supervision in the clinical setting undermines student confidence and learning. Amoo et al (2022) suggested that there should be more supervisors, indicative of different models of supervision and support from clinical instructors and supervisors in the practice settings.

Our review has revealed that understaffing causes delay in the learning process, due to inadequate supervision, often resulting in students having limited educational opportunities (Mamaghani et al, 2018) and insufficient practice opportunities (Mlaba and Emmamaly, 2019). There is often a gap between expectations and the reality of students' experiences in the clinical learning environment (Papathanasiou et al., 2014). Furthermore, it has been highlighted that the theoretical knowledge of nursing underpins the practice, while the practice environment determines the circumstances when the theoretical knowledge is applied (Saifan et al., 2021).

Saifan et al. (2021) intention to raise solutions to close the gap between theory and practice in nursing education in United Arab Emirates

(UAE) revealed that students perceived that the clinical instructor played a vital part in optimizing student-learning experiences in the clinical environment. Similarly, [Ahmed et al. \(2019\)](#) in Egypt highlighted that students perceived that the quality of student-clinical teacher interaction could either facilitate or hinder participants' learning experiences. Based on the findings of our review, it could be argued that in relation to the theory-practice gap, supervision and assessment may be falling well short of the regulatory bodies' standards.

Students also have the fear of not achieving expected learning outcomes and this could be due to low culture of teaching and learning ([O'Mara et al., 2014](#)). The ratio of supervisors to students has an impact on the relationships and learning. Further, in Greece there was a notable gap between the expectations and reality of the clinical learning environment ([Papathanasiou et al., 2014](#)). In part, the learning conditions may be compromised by insufficient competent instructors ([Baraz et al., 2015](#)), by implication exposing students to varying levels of support ([Atakro et al., 2019](#)).

This review revealed that students were made to face challenging and demanding situations with little or no preparation when the clinical environments were understaffed, leaving them feeling vulnerable, insecure and unwelcome. Lack of role models, adverse variations in supervision and assessment practices lead to students feeling vulnerable, stressed and anxious; these challenges affect student learning in clinical placements. When students are feeling unsupported, it heightens their feelings of vulnerability ([Webster et al. 2016](#)) and isolation ([Atakro et al., 2019](#)). When students perceive positive and supportive attitudes from nurses, they feel better motivated ([Doyle et al., 2017](#)).

The nursing student should manage emotions related to clinical placements in a constructive and healthy way to ensure they complete the programme. Feeling insecure can affect self-esteem, resilience and progression on the programme. Feelings of insecurity often result in feeling of being undervalued and isolated ([Atakro et al., 2019](#)). Students' feelings of insecurity also arose from a mismatch between expectation and reality of the learning experiences ([Bakker et al., 2019](#)) and students wishing for a safe environment in which to learn and feel safe.

When nurses leave students feeling they were unwanted ([Webster et al., 2016](#)) or a burden to the staff ([O'Mara et al., 2014](#)), their sense of belongingness and socialisation into professional values and beliefs can be affected by a sense of not being welcomed in the clinical learning environment. [Singer et al. \(2022\)](#) recognized the importance of belongingness in the clinical learning environment. According to [Doyle et al. \(2017\)](#) students felt successful when valued, supported and welcomed.

The review found that students felt they were being used as extra pair of hands when understaffed. [Jack et al. \(2018\)](#) participants reported being ignored by mentors or were used as an 'extra pair of hands', having their supernumerary status disregarded. Students' experiences of providing respite for the nurses from heavy workload, with nurses feeling relief from overwhelming workload. This situation can lead to students doing repetitive routine-oriented tasks, thereby limiting their capabilities to learn in a meaningful way due to a lack of planned approach. So, the staff become opportunistic in 'taking a break' from the persistent and overwhelming tasks of caring for patients during long shifts and in the process, expose students to unsupervised practice.

Nursing is physically and mentally strenuous, demanding, with heavier workloads due to inadequate or understaffing. [Jessee \(2016\)](#) suggest that the difficulties confronted in the role itself and the social hierarchies serve to perpetuate the stressful and tiring environment, which consistently makes staff fatigued. The students themselves go through the similar emotions becoming physically and mentally fatigued due to demands of academic work and clinical placement experiences ([Hwang and Kim, 2022](#)).

Direct and indirect consequences of understaffing lead to unsafe practice and unmet patient care needs as summed up in this review. Understaffing and increased workload have been shown to be associated with risks of multiple organ failure in patients ([Jansson et al., 2020](#)).

According to [Rochefort et al. \(2020\)](#) unsafe environments had negative impact on students' learning, had consequences for observing and learning in settings that did not provide support. Similarly, [Slemon et al \(2020\)](#) reported that witnessing unsafe practice in clinical placement deterred students from continuing a career in nursing.

[Killam et al \(2013\)](#) examined first year nursing students' viewpoints about compromised clinical safety and revealed a typology of four discrete viewpoints of unsafe clinical situations, which included an overwhelming sense of inner discomfort, practicing contrary to conventions, lacking in professional integrity and disharmonizing relations. [Killam et al \(2013\)](#) emphasized that safety is compromised by intense distress and marked by violations of professional integrity and standards. [Levett-Jones et al \(2009\)](#) maintained that adaptation of unprofessional or poor practices is a means of students attempting to "fit in" with the team. According to [Killam et al \(2013\)](#) undergraduate nursing students must uphold patient safety as a professional and moral obligation across all clinical learning experiences.

[Gibbon and Crane \(2018\)](#) explored students' professionalization and exposure to unmet care needs and found that students who were aware of missed care experienced low job satisfaction but were pragmatic in their acceptance of missed care. The prevalence of phenomenon and negative impact on patient outcomes is not uncommon in clinical practice ([Kalankova et al., 2021](#)). Therefore, nursing students exposed to practices where care is not met need further support and guidance.

6. Implications for practice and policy

Professional bodies and regulations such as the [Nursing and Midwifery Council \(2018\)](#) in the United Kingdom advised students to ensure that they are appropriately supervised when they are asked to carry out a task and to carry out any task unsupervised only if they feel they have the knowledge and skills to do so safely and effectively. Nursing students are often left unsupervised, a recurring phenomenon, as highlighted in this review.

Students' practice may be unsafe because of limited guidance and supervision which may result in lack of professional integrity. Students learn good practice in simulated environment in the universities, however, during placement they are exposed to practices which undermine the level of learning which enables students to become safe and competent practitioners. It is suggested that policy makers implement safe staffing levels.

It is implied that students may not be adequately prepared for transition or moving from students to registered nurses if they experienced significant delay in the learning process, failure to achieve learning objectives and were unable to bridge the theory-practice gap, due to inadequate staffing. We argue that new graduands who were not adequately prepared to move from students to nurses may experience feelings of transition shock. [Christensen et al \(2016\)](#) described transition shock or Imposter Phenomena as being sometimes associated with moving from student to Registered Nurse, leading to the feelings of self-doubt and insecurity especially with the increased expectations and responsibilities that registration brings.

7. Recommendations

The evidence suggests that there is a strong need for more primary research studies on the direct effects of understaffing on students learning and experiences in the clinical learning environment. A scoping review may be appropriate in any future review exploring understaffing and its effect on student learning.

Students are exposed to experiences which are not optimal or learning to become professionals with integrity in the practice. Students might be already accepting of practices resulting in unmet care needs and substandard care. They are exposed to learning from bad practice and becoming socialised into norms that compromise safe care practice in providing care to vulnerable people. There is nothing as ideal

environment, however, student learning experiences should be planned, protected, promoted as professional.

To achieve acceptable quality of supervision and mentorship, we recommend that registered nurses who are mentoring students should be allocated fewer patients during their shifts to enable meaningful learning facilitation to meet planned learning outcomes.

The evidence shows that there is lack of supervision when there is inadequate number of nurses on shifts against the number of students working alongside them. This emphasises the need for more nurses to ensure a higher staff-student ratio where students are adequately supervised, thus, increasing their feeling of security when performing patient care in a hectic environment.

8. Limitations

We were extrapolating or drawing inferences from studies that did not have as their main objectives or aims the investigation of understaffing and its impact on student learning. As a result, when doing the search, there might have been studies which were not included or were excluded in the final articles reviewed.

The review did not explore the nursing program regulations of the countries where the included eight studies were carried out. The regulations of the nursing education programmes were not discussed in detail by the studies reviewed, therefore, it was not possible to make any analyses of any differences or similarities between regulations across countries. However, this would be of interest for comparison purposes and could be an objective for further research.

9. Conclusion

To date, there has been no research addressing the effect of understaffing on students learning and experiences in the clinical environment. Several studies assessing or evaluation the impact of understaffing on nurse satisfaction, patient mortality, missed nursing and failure to rescue were deemed relevant.

The findings of this review suggest that there remains much to be considered on the impact of understaffing in clinical learning environment where students are being placed for learning clinical and non-clinical skills and application of knowledge of nursing care. Among the many challenges faced by nursing undergraduates, learning in clinical environment already compromised due to shortages of staff affects the quality of learning and professionalism. Clinical placements need to be adequately staffed, monitored and supported by the institutions with competent staff to supervise, mentor and assess nursing students.

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CRedit authorship contribution statement

Dr Dave Sookhoo: Writing – review & editing, Writing – original draft, Project administration, Methodology, Formal analysis, Data curation, Conceptualization. **Titilayo Olufunke Oshodi:** Writing – review & editing, Writing – original draft, Project administration, Methodology, Formal analysis, Data curation, Conceptualization.

Declaration of Competing Interest

The authors have nothing to declare.

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Appendix A. Supporting information

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