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Research article

Student nurses' experiences of workplace violence: A mixed methods systematic review and meta-analysis

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ABSTRACT

Objectives: To identify the prevalence of student-directed violence on clinical placement and description of their related experience during clinical placements.
Design: Mixed methods systematic review and meta-analysis conducted following Joanna Briggs Institute guidelines and reported according to Preferred Reporting of Systematic Reviews and Meta-Analyses (PRISMA) guidelines.
Data sources: CINAHL, Embase, Medline, Proquest, PsycINFO and Google Scholar.
Review methods: Included studies were peer reviewed, published primary studies where pre-registration nursing students were surveyed about their experiences of physical, verbal, or sexual aggression, bullying or racism during clinical placement. Studies were quality assessed but not excluded based on the result. A convergent segregated approach to synthesis and integration was undertaken. Prevalence data were extracted and pooled using both random and quality effects models; separate analyses were conducted by violence type, source, and region. Qualitative data were thematically analysed.
Results: 14,894 student nurses from 42 studies were included across the meta-analyses. There was substantial heterogeneity in the included data. Pooled prevalence rates ranged from racism 12.2 % to bullying 58.2 %. Bullying (38.8 %) and physical aggression (10.2 %) were most perpetrated by nurses whereas sexual aggression was perpetrated mostly by patients (64.2 %) and physicians (18.6 %). Qualitative findings identified students' descriptions of reasons for, effects of, strategies for dealing with and higher education establishments' responsibilities with regards to workplace violence.
Conclusions: Student nurses commonly experience violence during their clinical placements. Given the potential debilitating physical and psychological sequelae of all forms of violence then this study further emphasises the need to use multiple strategies to prevent violence and to better equip student nurses to manage potentially violent incidents, their responses to violence, and to whistle blow or report when they are subject to violence.

1. Introduction

Health professionals are at higher than average risk of workplace violence (Health and Safety Executive, 2019), and nurses are most at risk of sustaining injuries as a result (US Bureau of Labor Statistics, 2018). Workplace violence is defined as 'any act or threat of physical violence, harassment, intimidation, or other threatening disruptive behavior' that occurs within the workplace (OSHA, ND). It is most frequently reported as perpetrated by patients and to a lesser extent their families and visitors according to recent reviews (Giménez Lozano et al., 2021; Mento et al., 2020), and is most common in psychiatric, emergency and older adult settings (Mento et al., 2020). The reported prevalence of physical

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violence against nurses in psychiatric settings ranges from 2.3 to 88.4 % whilst verbal violence ranges from 7.8 % to 89.4 % (Jang et al., 2022). Similar rates may be seen in emergency settings; a meta-analysis found that 77 % of emergency staff had experienced workplace violence (Aljohani et al., 2021).

Nursing staff have long been considered a high-risk occupation group due to the nature of their work, including factors like hands-on care of patients and suboptimal clinical environments (Havaei, 2021; Ming et al., 2019; The Canadian Federation of Nurses Unions, 2017). Many known risk factors for violence are commonly present among hospital attendees including substance use, stress, pain, cognitive impairment and altered mental state (Occupational Safety and Health Administration, 2016).

Whilst the evidence outlined above indicates that nursing staff experience workplace violence (e.g. see Liu et al., 2019), the research on pre-registration nursing students' experiences is more limited. There are, however, many reasons why it is important to explore the experiences of students. Attrition during training is costly in economic and other resource terms (Waters, 2006), and, for some students at least, workplace violence is a contributing factor. Students are not immune to workplace violence and may be more vulnerable due to their inexperience (Hopkins et al., 2018). This mixed methods review is the first to identify the severity and scale of the global prevalence of all types of workplace violence, herein referred to as 'violence', experienced by student nurses and is supplemented by a thematic synthesis of students' reported experiences.

2. Methods

2.1. Aim

The aim of this review was to identify the prevalence of student-directed violence and to describe related experiences during clinical placements. We are taking a broad definition of workplace violence to include physical, sexual and verbal violence as well as bullying, incivility and horizontal violence; this is consistent with the World Health Organization's definition (Krug et al., 2002).

2.2. Design

We conducted a mixed method systematic review and meta-analysis, following Joanna Briggs Institute mixed methods systematic review guidelines (Lizarondo et al., 2020) and reported according to the Preferred Reporting Items for Systematic Reviews and Meta-Analysis 2020 (PRISMA2020) guidelines (Page et al., 2021). No protocol was registered.

2.3. Search strategy

The research question for this review was developed using the Population, Exposure, Outcome, Setting (PEOS) framework: What is the prevalence (outcome) of workplace violence (exposure) towards nursing students (population) during clinical placements (setting)?

Search terms were based on the population (student nurses), exposure (workplace violence) and setting (clinical placement), using a combination of MeSH headings and keywords, combined with Boolean operators (AND, OR). Full search strategy is provided in Supplementary Table 1, and the MELINE search is detailed in supplementary data. Database searching was conducted in April 2022 using CINAHL, Embase, MEDLINE, ProQuest and PsycINFO. Searches were limited to English-language and published since 2000. Additional hand searching of the reference lists of included papers and relevant literature reviews were conducted, alongside supplementary searching using Google Scholar.

2.4. Study selection

After removal of duplicates, titles and abstracts were independently screened by two reviewers. Full text papers were retrieved and assessed independently by two reviewers against predetermined eligibility (peer-reviewed, published, primary research studies of the prevalence and/or experience of workplace violence against preregistration nurses whilst on clinical placement) criteria. Disagreements were discussed and resolved between the authors.

2.5. Risk of bias

Risk of bias in prevalence studies was assessed independently by two reviewers using the Joanna Briggs Institute (JBI) critical appraisal checklist for prevalence studies (JBI, 2017). Minimum acceptable sample size was calculated using the following formula:

$$n = \frac{\mathrm{Z2P(1-P)}}{d2}$$

where n = sample size, Z = Z statistic for level of confidence, P = expected prevalence and d = precision (Naing et al., 2006). We set a 95 % confidence level; we set prevalence at 10 %, and 5 % precision, giving a minimum adequate sample size of 138. We calculated a more stringent sample size based on an expected prevalence of 5 %, with 2 % precision, to identify studies that could more accurately calculate smaller prevalence, giving a minimum good sample size of 456. A response rate of 60 % or higher was deemed adequate. The critical appraisal was scored; an item response of yes or good sample size scored 1, a response of partially or adequate sample size scored 0.5, and a response of no or unable to tell was given 0, giving a maximum quality score of 9. No studies were excluded based on quality; studies were weighted by quality in the meta-analyses.

The quality of the qualitative and mixed methods studies was appraised using the Mixed Methods Appraisal Tool (Hong et al., 2019) independently by two reviewers. Studies were not excluded based on quality but the information was used to assess the robustness of the synthesis (Ryan, 2013).

2.6. Publication bias

Funnel plots were visually inspected and Egger's tests were used to assess the publication bias for each outcome for which there were $n \geq 10$ study results (physical, verbal, sexual, bullying). When asymmetric funnel plots indicated publication bias, we used the trim and fill method to quantify the impact of publication bias on results. It is recommended that funnel plot analysis is not conducted when the number of studies is <10 (Page et al., 2022).

2.7. Data extraction, synthesis and integration

The following data were extracted by one reviewer where available: country, year, design, data collection and analysis, sample size, response rate, rates of violence by type (frequency and/or percentage), source of violence, key findings, and for the qualitative studies only, implications for practice and identified limitations.

A convergent segregated approach to synthesis and integration was undertaken, with prevalence and qualitative data being analysed separately (Lizarondo et al., 2020). Meta-analyses were conducted with MetaXL version 5.3 using the process described by Barendregt et al. (2013); full details and resulting forest plots are reported in supplementary data. Thematic synthesis of the data from qualitative studies, and the qualitative elements of mixed methods studies was undertaken, following the stages described by Braun and Clarke (2022). The findings for the meta-analysis and thematic synthesis were configured according to the JBI method for mixed methods systematic reviews (Lizarondo

et al., 2020). This involved findings being juxtaposed and organised into a line of argument to produce an overall configured analysis. Where configuration was not possible the findings are presented in narrative form.

3. Results

3.1. Search outcome

Database searching identified 543 records, which included 100 Google Scholar records. A further 26 records were identified from hand searching. Removal of duplicates and non-English language papers resulted in 379 records for screening, see Fig. 1. In total 136 full texts were assessed for eligibility, and of these 65 did not meet the eligibility criteria, leaving 71 studies included in this review.

3.2. Study characteristics – prevalence studies

The included studies were conducted in the Anglo region ($n = 17$), followed by the Middle East ($n = 9$), Confucian Asia ($n = 8$) and Southern Asia ($n = 4$), with two studies each in Latin Europe and Sub-Saharan Africa, and one in Germanic Europe, see Table 1. Two studies were from countries not identified in Globe. The majority of studies explored a single type of violence ($n = 26$), mostly bullying ($n = 15$), but also sexual ($n = 7$), verbal ($n = 3$) and physical violence ($n = 1$). The remaining studies explored multiple aggressive behaviours. There were 15,973 participants across all studies. Sample size ranged from 40 to 1539 and most of the participants were female (49 % to 100 %), although not all studies reported the gender of participants.

3.3. Study characteristics – qualitative/mixed method studies

The qualitative and mixed methods studies in this review came from the UK ($n = 6$), Australia and the US ($n = 5$ each), Iran and South Korea (n = 3 each), and one each from Ghana, Hong Kong, Indonesia, New Zealand, South Africa and Turkey, see Table 2. One study was set in Germany and the Netherlands and one was in Australia and the UK. Most studies ($n = 19$) focused on bullying or ($n = 2$) bullying and harassment; of these 17 focused on staff behaviours whilst the other three also included patients' behaviour. Four studies focused wholly on patient behaviours in respect of any violence (n = 1), sexual violence (n = 1), verbal and physical (n = 1) and violence by patients with schizophrenia

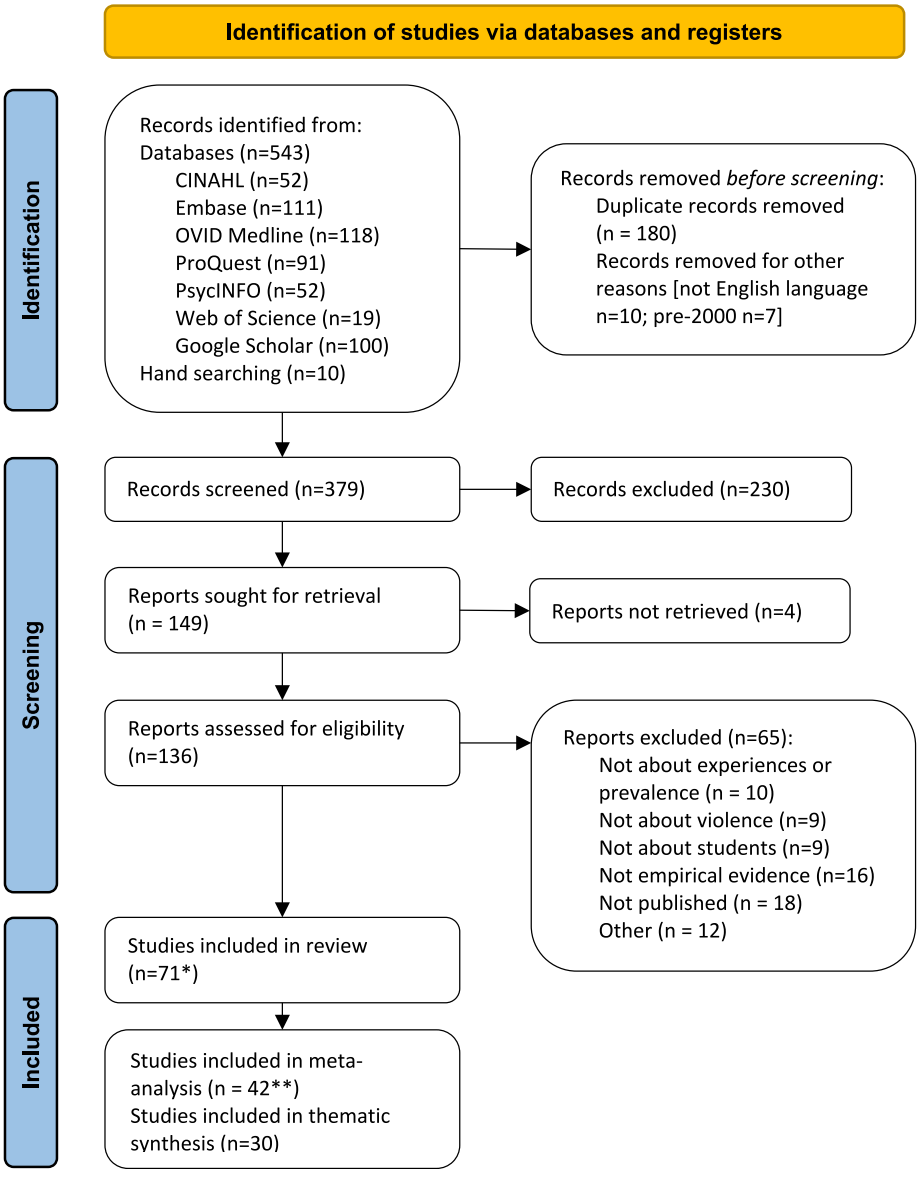

Fig. 1. Flow diagram of study selection.

Table 1
Study characteristics – prevalence studies.

Citation	Country (GLOBE region)	Data collection[a]	Sample size	Response rate (%)	Females (%)	Type of aggression[b]	Quality score
Bronner et al. (2003)	Israel (Latin Europe)	Bespoke questionnaire	206	No data (ND)	ND	S	2.5
Celik and Bayraktar (2004)	Turkey (Middle East)	Bespoke questionnaire	225	63.2	ND	B; P; S; V	5.5
Foster et al. (2004)	New Zealand (Anglo)	Bespoke questionnaire	40	53	90	B	3.0
Stevenson et al. (2006)	UK (Anglo)	Adapted from Quine (2001)	313	78.3	ND	B	5.5
Longo (2007)	USA (Anglo)	Bespoke questionnaire	47	60	80.9	B; P	3.5
Ferns and Meerabeau (2008)	UK (Anglo)	Bespoke questionnaire	114	73	79.8	V	5.5
Cogin and Fish (2009)	USA (Anglo)	Questionnaire from Fitzgerald et al. (1995)	251	ND	ND	S	4.5
Ferns and Meerabeau (2009)	UK (Anglo)	Bespoke questionnaire	114	73	79.8	V	5.5
Hinchberger (2009)	USA (Anglo)	Modified MCHS	126	72.8	ND	B; P; V	5.5
Çelebioğlu et al. (2010)	Turkey (Middle East)	Bespoke questionnaire	380	ND	ND	P; S; V	5.5
Aghajanloo et al. (2011)	Iran (Southern Asia)	Bespoke questionnaire	180	ND	72.2	P; V	4.0
Cooper et al. (2011)	USA (Anglo)	BNEQ; NAQ	665	64.1	73.4	B	6.5
Lee et al. (2011)	Korea (Confucian Asia)	Bespoke questionnaire (SHC)	542	ND	100	S	5.5
Magnavita and Heponiemi (2011)	Italy (Latin Europe)	VIF and SAQ	346	ND	78.5	P; S; V	6.0
Clarke et al. (2012)	Canada (Anglo)	Questionnaire from Stevenson et al. (2006)	674	58	82.8	B; P; R; V	7.0
Ünal et al. (2012)	Turkey (Middle East)	Bespoke questionnaire	274	ND	89.4	B	6.0
Arulogun et al. (2013)	Nigeria (Sub-Saharan Africa)	Bespoke questionnaire	291	ND	78.8	S	6.0
Palaz (2013)	Turkey (Middle East)	NAQ	374	92		B	5.5
Hopkins et al. (2014)	Australia (Anglo)	Bespoke questionnaire	154	74	57.8	P; V	5.5
Timm (2014)	China (Confucian Asia)	Bespoke questionnaire	186	ND	49	B	4.5
Kassem (2015)	Egypt (Middle East)	BNEQ	338	ND	81.4	B	7.0
Bilgin et al. (2016)	Turkey (Middle East)	Bespoke questionnaire	1539	69	91.2	P; S; V	7.0
Karatas et al. (2017)	Turkey (Middle East)	Bespoke questionnaire	202	88.5	49.5	B; P; V	6.0
Tee et al. (2016)	UK (Anglo)	SEBDCP	657	ND	88.3	B; P; R; S; V	6.0
Budden et al. (2017)	Australia (Anglo)	SEBDCP	888	ND	89	B; P; R; S; V	7.0
Engelbrecht et al. (2017)	South Africa (Sub-Saharan Africa)	BNEQ	676	46	79	B	5.5
O'Connell et al. (2017)	Canada (Anglo)	Bespoke questionnaire	116	50.2	ND	P	4.0
Ren and Kim (2017)	China (Confucian Asia)	NAQ	366	ND	96.2	B	6.0
Fathi et al. (2018)	Iran (Southern Asia)	Adapted from (International Labour Office et al., 2002)	87	51.7	72.9	P; S; V	6.5
Gaihre et al. (2018)	Nepal (Not in GLOBE)	SHC	232	100	100	S	6.0
Minton et al. (2018)	New Zealand (Anglo)	SEBDCP	296	4	96.6	B	5.5
Samadzadeh and Aghamohammadi (2018)	Iran (Southern Asia)	Bespoke questionnaire	150	ND	53.3	P; R; S; V	7.5
Vingers (2018)	USA (Anglo)	BNEQ	107	3.2	87	B	5.0
Cheung et al. (2019)	Hong Kong (Confucian Asia)	Bespoke questionnaire	1017	78.1	70.4	B	5.5
Tian et al. (2019)	China (Confucian Asia)	Bespoke questionnaire	486	92.8	93.4	B	7.5
Chang et al. (2020)	China (Confucian Asia)	Questionnaire from Chao et al. (2004)	310	84.5	86.9	S	6.0
Eyi and Eyi (2020)	Turkey (Middle East)	Bespoke questionnaire	140	100	86.9	P; V	5.0
Fang et al. (2020)	Taiwan (Confucian Asia)	Adapted from Stevenson et al. (2006) and Clarke et al. (2012)	200	100	92	B	7.5
Shdaifat et al. (2020)	Saudi Arabia (Not in GLOBE)	VAQ	54	ND	64.8	V	6.0
Shen et al. (2020)	China (Confucian Asia)	UBCNE	220	93.5	91.2	B	7.0
Tollstern Landin et al. (2020)	UK (Anglo)	Bespoke questionnaire	100	100	ND	S	4.5
Üzar-Özçetin et al. (2020)	Turkey (Middle East)	SEBDCP	1216	81	93.5	B; V	7.0
Bakker et al. (2021)	The Netherlands (Germanic Europe)	COPSOQ II	711	93	ND	B; WV	7.5
Hallett et al. (2021)	UK (Anglo)	SEVAS adapted from Hopkins et al. (2014)	129	7.5	93	P; S; V	5.5
Waryam Singh Malhi et al. (2021)	Malaysia (Southern Asia)	SHC	234	96.2	100	S	7.0

[a] BNEQ: Bullying in Nurse Education Questionnaire (Cooper et al., 2011); COPSOQ II: Copenhagen Psychosocial Questionnaire (Pejtersen et al., 2009); Modified MCHS: Metropolitan Chicago Healthcare Survey (Metropolitan Chicago Healthcare Council, 1995); NAQ: Negative Acts Questionnaire (Einarsen et al., 1994); SEBDCP: Student Experience of Bullying During Clinical Placement (Hewett, 2010); SEVAS: Students' Experiences of Violence and Aggression Survey (Hallett et al., 2021); SHC: Sexual Harassment Checklist (Lee et al., 2011); UBCNE: Uncivil Behaviour in Clinical Nurse Education (Anthony et al., 2014); VAQ: Verbal Abuse Questionnaire (Manderino and Berkey, 1997); VIF: Violent Incident Form (Arnetz, 1998).

[b] B: Bullying; P: Physical; R: Racism; S: Sexual; V: Verbal/non-physical; WV: Workplace violence.

(n = 1). The remaining studies explored verbal aggression from anyone (n = 1) and all types of violence perpetrated by anyone (n = 2).

The qualitative studies (n = 23) collected data with interviews (n = 8), focus groups (n = 7), interviews and focus groups (n = 1), surveys (n = 4), reflective diaries (n = 1), written narratives (n = 1) and exploration of critical incidents. The mixed methods studies (n = 7) mostly collected data with surveys (n = 4), survey and focus groups (n = 1) and survey and interviews (n = 1); one only reported on the qualitative element. Sample size of qualitative and mixed methods studies ranged from 12 to 398; the largest interview sample size was 56. Where data were provided the number of focus groups ranged from five to ten.

Table 2
Study characteristics – qualitative studies.

Citation Country	Aim	Type of research Philosophy/Design	Setting	Data collection Data analysis	Participants Inclusion criteria	Type of aggression Perpetrator	Key findings	Implications for practice	Limitations identified by authors	MMAT %
Fisher (2002) Australia	To identify and explore critical incidents	Qualitative	Large metropolitan university	Critical incident reflections Not described	260 critical incidents 2nd year mental health clinical practicum	Verbal, physical Patients	Incidents involving actual and threatened violence and verbal abuse dominated the incidents		Convenience sampling could bias responses	93
Randle (2003) UK	To explore students' self-esteem and how their experiences of preregistration education influenced its development over the period of the programme	Qualitative Grounded theory	Pre-registration nursing programme	Unstructured interviews Thematic analysis	56 at start, 39 at end All fields of nursing	Bullying Staff	Nurse power over students Nurse power over patients	Eradication of negative institutionalised behaviours, such as focusing on routines and procedures. Reforming the context in which bullies operate.	None identified	100
Lash et al. (2006) Turkey	To ascertain the presence, sources, and kinds of verbal abuse encountered by third- and fourth-year Turkish nursing and midwifery students during their clinical rotations	Qualitative Phenomenological	No information	Focus group interviews Colaizzi's steps for phenomenological analysis	66 participants, all female 3rd/4th year students	Verbal Anyone	Experiences of verbal abuse Perceptions of the effects of verbal abuse Ways of coping with verbal abuse Recommendations to prevent and effectively respond to verbal abuse			100
Stevenson et al. (2006) UK	To identify the frequency and types of workplace bullying in clinical placement	Mixed methods Cross-sectional	School of Nursing	Survey Not described	313, 287 female All fields of nursing, 2nd-4th year	Bullying Staff	Who was bullying Age and bullying Gender and bullying Taking no action against the bully Coping strategies	Creating an organisational culture that actively encourages reporting of bullying.	None identified	12
Curtis et al. (2007) Australia	To investigate nursing students' experiences of horizontal violence	Qualitative Cross-sectional	1 university	Survey Thematic content analysis	152 (61 % response rate), 136 female	Bullying Staff and students	Humiliation and lack of respect Powerlessness and becoming invisible The hierarchical nature of horizontal violence Coping strategies Future employment choices		None identified	79
Hoel et al. (2007) UK	To explore nursing students' experiences and perceptions of negative behaviour and bullying in clinical placement	Qualitative	2 universities and participants accessed via ads in nursing magazines	Focus groups and 1:1 interviews Content analysis	48 students (10 focus groups and 2 interviews)	Bullying Staff	Many students felt exploited, ignored or were made to feel unwelcome.		None identified	93
Nau et al. (2007) Germany	To gain insight into how nursing students experience patient aggression.	Qualitative	2 universities (1 in Germany, 1 in the Netherlands)	Semi-structured interviews Thematic analysis	12 students, 10 female At least 6 months placement experience	Any Patients	Antecedents and control of aggression Interpretation of what is happening Dealing with the aggressive patient Coping with	Students should be prepared for patient aggression.	Researcher also staff in the school so responses may not be totally frank. Single school of nursing	100

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Table 2 (*continued*)

Citation Country	Aim	Type of research Philosophy/Design	Setting	Data collection Data analysis	Participants Inclusion criteria	Type of aggression Perpetrator	Key findings	Implications for practice	Limitations identified by authors	MMAT %
							perceived stress Organisational issues			
Thomas and Burk (2009) USA	To expand understanding of vertical violence experienced by junior nursing students	Qualitative Phenomenology	Public state university	Written narratives Content analysis	221 narratives Junior students	Bullying Staff	Pejorative, unfair treatment of students Violation of patient rights			100
Anthony and Yastik (2011) USA	To explore student experienced with perceived incivility in the clinical setting	Qualitative	Private university	Focus groups Line-by-line analysis	21 students, 81 female	Bullying Staff	Reported by RQ	Call for more education around incivility and for the closer alignment to codes of conduct and preparation for practice.	Small sample Single university	86
Cooper et al. (2011) USA	To describe the types, sources, and frequency of bullying behaviours encountered by nursing students in their final year of nursing education	Mixed methods Cross-sectional	20 nursing schools	BNEQ (Cooper et al., 2009) Qualitative analysis not described	113 (64.1 % response rate), 488 female Students who had experienced incivility	Bullying Anyone	Power struggles Powerlessness			35
Jackson et al. (2011) Australia	To explore students' experiences of negative behaviours in the clinical environment to identify strategies they used to manage and resist such behaviours.	Qualitative	Large university	Survey with open-ended questions Content analysis	105, 91 female Undergraduate nursing students	Bullying Staff	Confronted by contradiction: students as 'Other' Organisational aggression as a legitimating device Resisting 'othering': securig a legitimate identity as a student		None identified	93
Nikbakht-Nasrabadi et al. (2012) Iran	To investigate nursing students' perspective of their rights in clinical evaluation	Qualitative		Semi-structured interviews Thematic analysis	13, 8 female Not stated	Bullying Staff	4 themes: Unawareness of own rights Unfair evaluation Unreasonable expectations Unstructured evaluation	Focus on evaluation and performance.	Geographically localised and small-scale	100
Timm (2014) UK	To determine the extent to which undergraduate medical students experience (and/or witness) bullying and harassment during their first year on full-time placements and to compare with new General Medical Council (GMC) evidence on bullying and harassment of doctors in training	Mixed methods Cross-sectional	1 university	Survey Not described	186 nursing students (and 123 medical students)	Bullying Staff	Accounts of bullying and harassment.	Medical schools and colleges need to recognise bullying and harassment.	None identified	29
Lekalakala-Mokgele and Caka (2015)	described pupil enrolled nurses' experiences of facilitative and obstructive factors in military and	Qualitative Explorative, descriptive	Military and public health clinical settings	Focus groups Henning's four step method	19 students in 3 focus groups Pupil enrolled nurses	All Anyone	Factors obstructive to learning: Non-acceptance by staff	Clinical staff should be made aware of the impact that condescending	Small sample.	100

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Table 2 (*continued*)

Citation Country	Aim	Type of research Philosophy/Design	Setting	Data collection Data analysis	Participants Inclusion criteria	Type of aggression Perpetrator	Key findings	Implications for practice	Limitations identified by authors	MMAT %
South Africa	public health clinical learning settings						Wearing military uniform in public health settings Workplace violence	remarks may have on students' learning. PEN should not be compelled to wear military uniform in public hospitals Policies on managing violence in the clinical setting should be developed, with particular attention given to how it may affect students.		
Wallace et al. (2015) USA	To understand what causes nursing student stress in the clinical setting	Mixed methods Cross-sectional	1 university	Survey Not described for qualitative data	65 students, 61 female Junior and senior students	Bullying Staff	Instructor behaviours perceived by students as causing the most stress	Instructors should provide a safe environment for students and patients; students should be treated respectfully.	None identified	50
Erawati (2016) Indonesia	to explore the nursing student barriers in for caring schizophrenia patients with violence risk	Qualitative Phenomenology	Clinical placement in one psychiatric hospital	Reflective diary and semi-structured interviews Content analysis	22, 19 female Experience of caring for someone with schizophrenia and violence risk	Violence Patients with schizophrenia	Emotions Personal experience Inadequate communication skills		Can't make quantitative predictions	100
Smith (2016) USA	To describe the experiences of bullying encountered by nursing students in the clinical setting	Qualitative Phenomenological	4 college campuses	Focus groups Colaizzi's steps for phenomenological analysis	8 focus groups Not stated	Bullying Staff	Bullying behaviours Rationale for bullying Response to bullying Recommendations to address bullying	The use of simulation technology to prepare students. Discussions about how bullying behaviours are a direct violation of the ANA (2015) Code of Ethics.	Only one aspect of bullying experiences (nurses in clinical settings). Veracity of experiences not validated. Convenience sampling, thus limited generalisability.	100
Courtney-Pratt et al., 2018 Australia	To explore students experiences of bullying in clinical and academic settings, the strategies used to negotiate bullying and recommendations for empowering future students	Qualitative	1 university	Semi-structured interviews Directed content analysis	29 students, 27 female 1st to 3rd year	Bullying Anyone	Experience of being bullied in clinical and academic settings Impact of the experience on students Strategies students used to "make sense of" the bullying Recommendations from students on how to prepare for, and manage bullying	Identifies possible strategies to cope with bullying, peer support and debriefing including placement preparation to 'make sense of bullying to prepare students.		93
Rafati et al. (2017) Iran	To explore nursing students' experiences of incivility and received	Qualitative	Not stated	Semi-structured interviews Content analysis	18 undergraduate nursing students,	Bullying Anyone	4 themes: Incivility and support received from nurses	Nurse education should identify and augment support	One setting and small numbers so not generalisable.	100

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Table 2 (*continued*)

Citation Country	Aim	Type of research Philosophy/Design	Setting	Data collection Data analysis	Participants Inclusion criteria	Type of aggression Perpetrator	Key findings	Implications for practice	Limitations identified by authors	MMAT %
	support in the clinical setting				2 faculty, 2 nurses Not stated		Incivility and support received from faculty and their families Incivility and support received from patients Incivility and support received from peers	resources for students.		
Birks et al. (2018) Australia	To describe bullying and harassment experienced by Australian nursing students whilst on clinical placement	Qualitative Cross-sectional	All nursing education establishment in Australia	SEBDP Inductive thematic analysis	398, 350 female Baccalaureate nursing/ nusing-midwifery	Bullying Anyone	Manifestations of bullying and harassament The perpetrators Consequences and impacts		Self-reported and subjective Positive experiences not sought	79
Hyun et al. (2018) South Korea	What are the incivility experiences of nursing students during their nursing education? In what context do nursing students experience incivility during their education?	Qualitative Exploratory	3 universities	Focus groups Qualitative content analysis	Not stated	Bullying Clinical instructors and preceptors	Student non-adherence to classroom standards; Faculty nonadherence to classroom standards Lack of helping-trusting relationships with peers Lack of dedication to teaching and learning in the clinical setting Inappropriate use of technology	Educators should be aware of the importance of providing feedback civilly, providing a supportive a protective environment to enhance student learning.	All female participants. Researchers preconceptions may have affected the results.	100
Jack et al. (2018) UK	To explore the perceived unfairness experienced by student nurses during their undergraduate clinical placements.	Mixed methods	Northwest England	Surveys/ interviews Descriptive statistics/ framework analysis	Survey: 1425 Interviews: 22 Pre-registration nursing students	Bullying Staff	A free pair of hands' 'I felt ignored and very unsupported' 'It's important to have a strong mentor' 'All they do is oppress themselves'		None identified	71
Kim et al. (2018) South Korea	To describe nursing students' experience of sexual harassment during clinical practicum	Qualitative IPA	Clinical practice in general hospitals	In-depth interviews 'Data analysis'	13, 11 female Junior/senior students who had experienced sexual harassment	Sexual Anyone	12 themes: Unprepared to respond Lack of education Unsure about when behaviour crosses the line Power differential for nursing students Balancing self-preservation with obligation to patients Shame Feeling responsible for not being able to prevent the harassment Impact on patient	The need for clinical placement preparation and preparing students for potential sexual harassment. How to balance self-preservation with obligations to patients.	None identified	100

(*continued on next page*)

Table 2 (*continued*)

Citation Country	Aim	Type of research Philosophy/Design	Setting	Data collection Data analysis	Participants Inclusion criteria	Type of aggression Perpetrator	Key findings	Implications for practice	Limitations identified by authors	MMAT %
							care Fear of what might have happened Fear of repercussions Long term impact Peer support			
Mamaghani et al. (2018) Iran	To explain the experiences of Iranian nursing students regarding their clinical learning environment	Qualitative	Nursing and midwifery facility	Semi-structured interviews Content analysis	21, 12 female Undergraduate nursing students	Bullying Staff	Educational confusion Absence of evaluation procedures Limited educational opportunities Inappropriate interactions with nursing staff Bullying culture Discrimination	Discusses impact on professional attitude. Differentiates between academic instructors on placement and non-academic/external instructors.	Lack of cultural diversity in the participants	100
Ahn and Choi (2019) South Korea	To comprehensively and thoroughly examine the specific phenomena and implications of incivility experienced by nursing students during clinical practicum	Qualitative Hermeneutical philosophy	1 nursing college	Focus groups Content analysis	32 students, 26 female, 6 focus groups Senior year	Bullying Staff	5 themes: Lack of respect Lack of role models Excessive demands Hostile behaviour Mean behaviour	The promotion of a positive learning environment. Empowerment of students should be part of the educational programme to prepare students	None identified	100
Minton and Birks (2019) New Zealand	To present the experiences described by nursing students regarding the nature and extent of bullying during clinical placements	Mixed methods Cross-sectional	All nursing schools in New Zealand	Survey Coding and grouping into themes	296 students, 286 female 1st-3rd year	Bullying Mostly staff	3 themes: Manifestation of bullying and harassment The perpetrators Consequences and impact	Students need to be empowered. The Duluth Model may be a helpful framework. Students needs opportunities to develop skills in resilience, assertiveness and emotional intelligence.	Small response rate. Positive experiences may not be portrayed.	100
Amoo et al. (2021) Ghana	To describe the various bullying behaviours experienced by nursing students and their effects during clinical placement in the Central Region of Ghana	Qualitative Phenomenological descriptive	1 university 1 training college	Focus groups Content analysis	30 students, 20 female Students who had experienced bullying	Bullying Staff	2 themes: Bullying behaviours Effects of bullying			100
Hallett et al. (2021) UK	To identify the prevalence of aggression experienced by nursing students whilst on clinical placement in one UK city, and rates and experiences of reporting of aggression	Mixed methods Convergent	2 universities in 1 city	Qualitative element: focus groups IPA	36 students, 32 females, 5 focus groups Students who had experienced at least one clinical placement	All Anyone	Ubiquitousness 'You don't know what you are doing?' 'Deal with it yourself' Racism Bullying Compassion		Single UK city Low response rate	88

(*continued on next page*)

Table 2 (*continued*)

Citation Country	Aim	Type of research Philosophy/Design	Setting	Data collection Data analysis	Participants Inclusion criteria	Type of aggression Perpetrator	Key findings	Implications for practice	Limitations identified by authors	MMAT %
Jack et al. (2021) Australia and UK	first, to explore nursing students' experiences and perspectives of reporting poor care and second, examine the process by which they raised concerns.	Mixed methods (only qualitative element reported in this paper)	1 Australian university, 2 UK universities	Qualitative element: Semi-structured interviews Constant comparison approach	14 students, all female No details	Reporting	Bullying Patient advocacy Lack of empathy Poor care	Providing students with the skills to challenge poor practice. Supportive environment for students to avoid a culture of silence and collusion being perpetrated.	None identified	100
Su et al. (2021) Hong Kong	To explore the experiences of baccalaureate nursing students in gaining competencies to deliver compassionate care during their clinical practice year	Qualitative Descriptive	1 university college	Interviews Thematic analysis	22 participants, all female Final year nurses	All Anyone	Verbal abuse from patients Abuse from nurses	None specific to violence	Only participants from baccalaureate nursing programmes. No practicum experiences in primary or rural health care settings. Only females.	100

IPA: SEBDP.

3.4. Study quality

Quality of the prevalence studies varied; the lowest achieved a score of 2.5 compared with four that achieved the highest scores (7.5), see Table 1 and Supplementary Table 2. No study achieved the highest possible score of 9. No study addressed non-response bias; the four studies where data analysis was conducted with sufficient coverage of the identified sample had 100 % response rates. Most studies ($n = 28$) achieved an adequate response rate of >60 %; 10 studies achieved a response rate of <60 % and 6 did not state a response rate or provided insufficient information for a response rate to be calculated.

All the qualitative studies were deemed of high quality when assessed using the MMAT, see Table 3 and Supplementary Table 3. The quality of the mixed methods studies was more variable; only two studies provided adequate detail of the integration between the quantitative and qualitative elements (Hallett et al., 2021; Jack et al., 2018).

3.5. Publication bias

Egger's tests indicated no evidence for significant publication bias for physical violence ($P = 0.31$ 95 % CI -8.80, 13.64), sexual violence ($P = 0.39$ 95 % CI -7.96, 19.45), and bullying ($P = 0.93$ 95 % CI -18.51, 16.92), see supplementary data. However, significant publication bias was indicated for verbal aggression ($P = 0.01$, 95 % CI3.38, 21.46). Visual inspection of the funnel plot for verbal aggression exposure suggested a tendency for larger proportions of positive cases in small to medium sized samples.

3.6. Findings

3.6.1. Overall prevalence by type of violence

It was not possible to extract comparable prevalence data from three studies, so they were not included in the meta-analyses (Cooper et al., 2011; Eyi and Eyi, 2020; Ünal et al., 2012). The total number of unique participants across all meta-analyses were 14,894; individual analyses ranged from 118 to 7628.

The highest prevalence outcome was bullying (RE: 59 %; QE: 58 %), see Table 3. Racism and physical violence were the least reported (RE: 15.6 %; QE: 12.2 % and RE: 18.1 %; QE: 15.5 %). Racism data came from four studies conducted in four different countries (Australia, Canada, Iran and the UK), with the highest rates reported in Iran.

Most qualitative studies aimed to explore students' experiences of bullying (70 %). Students spoke about the culture of bullying that was present in nursing (Curtis et al., 2007; Jack et al., 2018). Participants in four studies described experiences of discrimination from staff in the form of racism (Birks et al., 2018; Cooper et al., 2011; Jack et al., 2018; Jackson et al., 2011) and homophobia (Birks et al., 2018) and racism; these studies examined experiences from the participants based in the Anglosphere (Australia, UK, USA). Participants in one UK study also described how students experienced racism from patients (Hallett et al., 2021).

Table 3
Prevalence of violence by type.

Type of violence	Samples *n*	Student nurses *n*	RE Rate (95 % CI)	QE Rate (95 % CI)	Range %[a]
Any	7	5242	38.3 (22.0–55.9)	39.9 (20.3–61.1)	3.5–60.9
Verbal/ non-physical	17	6922	56.2 (44.7–67.4)	43.7 (28.3–59.6)	28.0–100
Physical	18	7628	16.5 (9.1–25.5)	15.5 (6.2–27.6)	2.1–67.4
Sexual	17	6448	26.1 (15.5–38.3)	21.06 (8.4–37.2)	1.1–90.8
Bullying	19	6470	59.3 (43.7–74.0)	58.2 (39.2–76.1)	7.3–96.2
Racism	4	2369	15.6 (7.1–26.4)	12.2 (4.3–23.2)	6.1–40.7

[a] Percentage of student nurses who recorded violence by total sample.

3.6.2. Source of violence by type

As shown in Table 4 there was considerable variation in data about the reported perpetrators of different types of violence. Patients were most frequently reported as perpetrators of verbal, physical and sexual violence whereas nurses themselves were the most frequently reported perpetrators of bullying. Bullying was also perpetrated by other students and clinical tutors, neither of whom were implicated in performing any other types of violence. Prevalence of sexual violence perpetrated by nurses was low compared with doctors who were reportedly responsible for 1 in 5 incidents.

Quantitative findings were partly mirrored by a UK mixed methods study where all participants identified that physical violence came from patients, whilst sexual violence and bullying originated from staff (Hallett et al., 2021). Despite this, few participants in qualitative studies described physical violence from either staff or patients. Two accounts were of nurse-perpetrated assault (Courtney-Pratt et al., 2018; Mamaghani et al., 2018). First, a nurse who 'grabbed me by the arm, spun me out of the room and pushed me back down the corridor' (Courtney-Pratt et al., 2018 p.4) whilst a second described being 'physically assaulted by a high-ranking [military] member' (Lekalakala-Mokgele and Caka, 2015 p.5). Participants only identified physical violence by patients in two studies (Erawati, 2016; Hallett et al., 2021). In contradiction with the findings from Hallett et al. (2021), there were more descriptions of sexual violence from patients (Fisher, 2002; Kim et al., 2018; Lash et al., 2006; Rafati et al., 2017).

Many participants described the verbal abuse that they experienced, mostly commonly being shouted at by nurses (Amoo et al., 2021; Birks et al., 2018; Jack et al., 2018; Rafati et al., 2017), being insulted by terms including 'stupid' and 'incompetent' (Birks et al., 2018; Courtney-Pratt et al., 2018; Hyun et al., 2018), or being subjected to rudeness and sarcasm (Ahn and Choi, 2019; Courtney-Pratt et al., 2018; Jack et al., 2018; Jackson et al., 2011; Smith, 2016). Students also described patients who were verbally abusive (Foster et al., 2004) or who used obscene language (Fisher, 2002; Lekalakala-Mokgele and Caka, 2015), and disrespectful (Ahn and Choi, 2019; Amoo et al., 2021; Curtis et al., 2007; Rafati et al., 2017).

Analysis revealed 'othering' as a theme captured by the qualitative data that may be subsumed in the quantitative data under the catch-all term of bullying. Participants described experiences with staff that made them feel like outsiders, for example by being told to have lunch or to sit apart from the regular staff (Anthony et al., 2014; Birks et al., 2018; Curtis et al., 2007). They were reportedly ignored or neglected by regular ward staff (Amoo et al., 2021; Birks et al., 2018; Courtney-Pratt et al., 2018; Curtis et al., 2007; Jack et al., 2018; Jack et al., 2021; Jackson et al., 2011; Minton and Birks, 2019; Rafati et al., 2017; Randle, 2003; Smith, 2016; Su et al., 2021; Thomas and Burk, 2009) or made to feel like they were in the way (Anthony et al., 2014). The way staff spoke to students was perceived as treating them as stupid (Amoo et al., 2021; Anthony et al., 2014; Birks et al., 2018; Randle, 2003; Smith, 2016; Su et al., 2021), condescending (Birks et al., 2018; Courtney-Pratt et al., 2018; Jackson et al., 2011) or belittling (Amoo et al., 2021; Birks et al., 2018; Curtis et al., 2007; Rafati et al., 2017; Randle, 2003; Smith, 2016; Timm, 2014).

3.6.3. Cultural region

The only regions with enough studies to be included in the analyses (≥3 studies per region) were Anglo, Confucian China, Middle East and Southern Asia, see Table 5. All the studies in the Southern Asian region were from Iran. The prevalence of verbal aggression was consistent across regions.

Table 4
Mean percent of violence exposure by source and type of violence.

Source	Samples *n*	Student nurses *n*	Incidents *n*[a]	RE Rate (95 % CI)	QE Rate (95 % CI)	Range %[b]
Any (total $n = 1425$)						
Nurse	3	1207	2104	22.2 (10.5–36.6)	32.4 (12.5–56.0)	10.4–35.1
Doctor	3	1207	2104	10.0 (3.0–20.0)	14.9 (2.9–32.5)	0–18.3
Verbal/non-physical (total $n = 3217$)						
Nurse	7	1564	862	22.5 (13.1–33.4)	20.6 (11.2–32.0)	6.4–40.7
Doctor	3	785	459	21.2 (11.6–32.5)	24.3 (13.3–37.2)	11.9–31.6
Patient	6	1169	713	24.3 (13.3–37.2)	46.5 (33.8–59.4)	24.5–75.9
Relatives/visitors	6	1169	713	46.5 (33.8–59.4)	50.8 (31.4–70.1)	0.0–61.8
Physical (total $n = 1285$)						
Nurse	5	1285	141	9.4 (2.8–18.9)	10.2 (2.9–20.6)	0.0–20.0
Patient	4	905	133	10.1 (2.9–20.5)	7.0 (0.0–19.8)	23.1–94.1
Relatives/visitors	3	725	118	7.0 (0.0–19.8)	7.0 (0.0–19.8)	0–3.7
Sexual (total $n = 1058$)						
Nurse	3	516	370	0.5 (0.0–1.3)	0.5 (0.0–1.3)	0.0–0.4
Doctor	4	1058	469	19.1 (8.0–33.2)	18.6 (6.3–34.9)	5.1–37.5
Patient	3	1058	469	67.4 (27.6–97.5)	64.2 (20.4–98.2)	32.5–94.9
Bullying (total $n = 4340$)						
Nurse	10	4340	5678	38.8 (26.4–52.0)	26.1 (9.6–46.7)	14.9–88.9
Student nurse	8	3766	5333	9.0 (2.1–19.3)	6.3 (0.0–16.5)	0.6–23.4
Doctor	6	2588	4125	9.0 (4.4–15.0)	5.8 (0.7–14.4)	2.8–27.5
Clinical tutor	6	3048	4584	21.0 (7.6–38.1)	12.9 (0.0–33.2)	0.8–83.5
Patient	4	2210	3958	13.4 (10.1–17.1)	12.2 (8.2–16.8)	9.0–21.0
Relatives/visitors	3	1836	3734	5.7 (3.2–8.8)	6.6 (3.3–10.7)	2.3–8.3

[a] Some participants recorded incidents by more than one perpetrator.
[b] Percentage of total incidents by perpetrator.

Table 5
Mean percent of violence by region and type of violence.

Source	Samples *n*	Student nurses *n*	Incidents *n*	RE Rate (95 % CI)	QE Rate (95 % CI)	Range %[a]
Verbal/non-physical (total sample $n = 5376$)						
Anglo	6	2613	982	56.5 (37.8–74.3)	61.6 (34.9–85.2)	28.0–98.7
Middle East	4	2346	1110	66.5 (44.9–85.1)	61.8 (39.4–82.0)	38.6–100
Southern Asia	3	417	229	56.5 (34.0–77.8)	59.8 (36.4–81.2)	39.4–73.3
Physical (total sample $n = 5425$)						
Anglo	8	2755	449	16.2 (8.6–25.5)	12.6 (4.2–24.1)	2.1–53.8
Middle East	4	2346	178	8.5 (1.4–19.5)	6.9 (0.0–19.9)	2.1–33.2
Southern Asia	3	417	33	6.7 (2.3–13.1)	7.5 (2.6–14.3)	2.3–12.7
Sexual (total sample $n = 2144$)						
Middle East	3	2144	343	16.3 (0.0–45.3)	14.5 (0.0–49.0)	2.1–53.3
Bullying (total sample $n = 4897$)						
Anglo	8	2491	1466	56.5 (37.8–74.3)	61.6 (34.9–85.2)	20.6–90.0
Confucian China	4	1267	844	70.3 (40.0–93.9)	70.4 (39.2–94.5)	51.2–96.2
Middle East	4	1139	700	66.5 (44.9–85.1)	61.8 (39.4–82.0)	38.8–83.1
Racism (total sample $n = 2219$)						
Anglo	3	2219	249	10.0 (4.7–16.8)	10.5 (5.0–17.6)	6.1–16.4

[a] Percentage of student nurses who recorded violence by total sample.

Table 6
Mean percent of reporting.

Type of violence	Samples *n*	Student nurses *n*	Incidents *n*	RE Rate (95 % CI)	QE Rate (95 % CI)	Range %[a]
Verbal/non-physical	3	1170	357	63.6 (17.8–98.9)	42.0 (0.0–93.1)	14.2–62.7
Bullying	4	1005	550	43.2 (7.2–83.2)	33.7 (0.0–77.5)	11.6–96.0

[a] Percentage of student nurses who reported the incident by number of incidents.

3.6.4. Reporting

Of the studies that provided data on whether students reported incidents or not, two thirds of bullying incidents were reported compared with just over half of physical violence and two in five incidents of verbal aggression, Table 6. However, bullying had the widest range of reporting (11.6–96.0; Longo, 2007; Tian et al., 2019).

Students' qualitative accounts of reporting incidents provide some insight into the rates of reporting identified by the prevalence data. Participants provided many reasons for not reporting incidents, most frequently that even if they do report things nothing changes (Cooper et al., 2011; Courtney-Pratt et al., 2018; Hallett et al., 2021; Kim et al., 2018). Students were at times reluctant to report poor practice for fear of reprisals (Birks et al., 2018; Curtis et al., 2007) or because they believed that staff would 'stick with each other' (Cooper et al., 2011; Courtney-Pratt et al., 2018). Students also felt that when harassment and abuse is ubiquitous there is no point in reporting it (Hallett et al., 2021) and in one instance, when a student did report an incident, they were told to 'take it on the chin' (Birks et al., 2018 p.49).

3.6.5. Reasons for workplace violence

Participants perceived many reasons for workplace violence. One theme reported across studies described violence, and specifically staff-perpetrated bullying, as being functional. Participants in the Ghanaian study provided justification for anger from staff either because the student might make a mistake that could cause patient harm or because students 'deserve to be disciplined' to keep them on their toes (Amoo et al., 2021 p.7). Similarly, participants in a UK study defended staff behaviours, arguing that they were trying to help the students and that harm was unintentional (Hoel et al., 2007). In many instances, staff seemed to use bullying behaviours to 'maintain the pecking order' (Curtis et al., 2007; Hoel et al., 2007; Lash et al., 2006; Minton and Birks, 2019). Some students believed that mistreatment occurred because their first language was not English (Birks et al., 2018; Jack et al., 2018; Jackson et al., 2011). Elsewhere, bullying was normalised: one US participant described bullying as a rite of passage: "'I can't wait until it's my turn and I get to pass it down." You create that kind of [bullying] culture.' (Smith, 2016 p.508). Similarly, students in Iran reported that they were bullied and subsequently interacted with junior students and nursing aides, i.e. those lower than them in the hierarchy, in similar ways (Mamaghani et al., 2018).

The characteristics of nursing staff could lead to negative behaviours, namely that nursing is a 'bitchy profession' (Curtis et al., 2007) and that staff were either angry (Anthony et al., 2014; Courtney-Pratt et al., 2018; Smith, 2016), overworked (Smith, 2016) or burnt-out (Anthony et al., 2014; Smith, 2016). Tying in with the culture of bullying, few studies explored the perceived reasons for patient violence, but where they did participants appeared to be more sympathetic, attributing them to age, dementia (Hallett et al., 2021) or illness (Lash et al., 2006):

> Georgia (FG1): I know when you got scratched in your first ever placement, do you remember? [Hilda: yeah, that was fun] and that was the dementia lady, the first-ever placement and you were like, what?! She was scratched to pieces by this lady that had dementia. Hilda: She was really lovely though!! [they laugh] (Hallett et al., 2021 p.4)

3.6.6. Effects of workplace violence

The effects of workplace violence were wide-ranging and varied by the type of behaviours experienced. Participants identified many emotional responses; students reported fear in response to patient physical violence (Erawati, 2016; Kim et al., 2018) and sexual violence (Kim et al., 2018). Shame and psychological trauma expressed after incidents of sexual harassment by students in South Korea (Kim et al., 2018). Anxiety and panic attacks, were experienced after sexual violence (Kim et al., 2018) and bullying (Courtney-Pratt et al., 2018), Verbal abuse and bullying were linked to students feeling hopeless (Lash et al., 2006) or powerless (Birks et al., 2018; Cooper et al., 2011), or losing confidence (Amoo et al., 2021; Birks et al., 2018; Courtney-Pratt et al., 2018; Foster et al., 2004; Mamaghani et al., 2018; Minton and Birks, 2019; Smith, 2016) or self-esteem (Nau et al., 2007). Some students felt that bullying made them afraid to learn (Amoo et al., 2021; Courtney-Pratt et al., 2018), and affected patient care by causing them to make mistakes (Amoo et al., 2021). Students could be surprised by sexual advances from patients (Fisher, 2002; Kim et al., 2018; Lash et al., 2006), and it could also affect patient care, with students describing how they avoided certain patients (Kim et al., 2018; Lash et al., 2006; Rafati et al., 2017). Bullying led many students to question whether they had chosen the right profession (Amoo et al., 2021; Birks et al., 2018; Curtis et al., 2007; Jack et al., 2018; Randle, 2003; Smith, 2016) wanting to quit (Cooper et al., 2011; Courtney-Pratt et al., 2018; Mamaghani et al., 2018), or at least not returning to a specific placement either as a student (Courtney-Pratt et al., 2018; Smith, 2016) or for future employment (Curtis et al., 2007).

3.6.7. Dealing with workplace violence

Students described seeking support from peers in response to violence (Kim et al., 2018; Nau et al., 2007) and bullying (Courtney-Pratt et al., 2018; Lash et al., 2006; Stevenson et al., 2006). Peer support provided an opportunity to share experiences with people who understood and to share tips on how to resolve issues. Some students also sought support from teaching staff (Nau et al., 2007) or through counselling (Courtney-Pratt et al., 2018). Students reportedly dealt with bullying by ignoring it (Curtis et al., 2007; Smith, 2016) and focusing on work (Curtis et al., 2007). Students also developed personal strategies including emotional distancing (Nau et al., 2007), developing a thick skin (Curtis et al., 2007), remaining calm (Lash et al., 2006) and becoming more assertive (Hoel et al., 2007). Some of this appeared to come with experience as exemplified by a Turkish student who said

> 'When I see verbal abuse coming, I become neither defensive nor do I start an argument. I remain calm and have the person focus on the issue. This makes the person start communicating. I feel good with this type of outcome.' (Lash et al., 2006 p.401).

However, some students felt like they did not know how to respond to patient verbal aggression (Fisher, 2002; Foster et al., 2004; Kim et al., 2018) and physical violence (Erawati, 2016).

3.6.8. Higher education responsibilities

Many students believed that their education programme should involve more realistic preparation for the real-world clinical environment (Anthony et al., 2014; Courtney-Pratt et al., 2018), conflict resolution training (Courtney-Pratt et al., 2018), or strategies for responding to harassment (Birks et al., 2018; Kim et al., 2018). Students in Australia also wanted to know how they could report incidents as well as what their rights were (Courtney-Pratt et al., 2018). Finally, students in the US thought that clinical areas should have more information about the roles and responsibilities of students (Anthony et al., 2014).

4. Discussion

Whilst considerable attention has been given to nurses' experiences of workplace violence, and rightly so, the experience of student nurses has received less attention. More than any single primary study the current review demonstrates that workplace violence towards student nurses in all of its multiple guises is a worldwide problem. Our meta-analyses included prevalence data from almost 15,000 student nurses. Additionally, the thematic synthesis included experiential data from over 1000 student nurses and provides considerable insight into student nurses' lived experience of and responses to violence. A picture emerges of a profession whose newest recruits are enculturated at an early stage in their career into poor working environments and to have low expectations about change. Rates of bullying are high and is described by

some students as part of the culture of nursing. A smaller, but not insignificant proportion of students also experienced verbal, physical and sexual aggression, and discrimination in the forms of racism and homophobia. The impact depended to some extent on the perpetrator; violence from nurses had a negative impact on the students emotionally and psychologically, whilst students were more sympathetic towards patients who were violent.

Despite rates of racism and physical violence being relatively low, our findings suggest that up to 15 % of student nurses may still experience these during their pre-registration clinical placements. Furthermore, more than one in five students may experience some form of sexual violence and around half will experience verbal aggression. Bullying appears to be the most prevalent type of violence, with around two thirds of students experiencing it at some point in their training. Given the potential severity of physical and psychological damage caused by all forms of violence (Lanctôt and Guay, 2014; Pihl-Thingvad et al., 2019; Shorey and Wong, 2021) this suggests that strategies are required to reduce violence on clinical placement in general including equipping student nurses with skills to de-escalate potentially violent situations. Additionally, as this review has identified, we need to better equip student nurses to manage their responses to violence and to provide resources to support student nurses who are subject to violence. Furthermore, student nurses should be well-informed regarding what is acceptable behaviour from the healthcare professionals they will encounter during clinical placement and supported to report behaviours that are not acceptable. To achieve this, more effective programmes and interventions are required to support whistleblowing among students (Pohjanoksa et al., 2019).

Troublingly, across the studies, a quarter of nursing students were subject to sexual violence, and this, for some, caused them to experience shame. The behaviours varied widely, from unwanted comments to attempted rape and it is of considerable concern. We know that female nurses are at increased risk of sexual harassment compared with their male colleagues (Lu et al., 2020). When considering that, globally, 90 % of nurses are female (World Health Organization, 2020) compared with about half of all physicians (OECD, 2021), and that sexual violence is commonly perpetrated by males against females, it is perhaps unsurprising that doctors were more likely to perpetrate sexual violence than nurses. Some studies have reported that female nurses are more likely to be sexually harassed by patients, their relatives and colleagues than their male counterparts (Boafo et al., 2016; Magnavita and Heponiemi, 2011), although a recent meta-analysis found the reverse to be true (Lu et al., 2020). Either way, sexual violence can increase stress and job dissatisfaction whilst negatively impacting quality of care and efficiency (Lu et al., 2020). Whilst it is important to raise awareness among nursing students and educate on appropriate responses to sexual violence it is far more important that perpetrators are held to account. Bagenal and Baxter (2022) purport that sexual misconduct among male-dominated medical professions is enabled by the tolerance of sexism that is part of workplace culture; men accused of sexual misconduct in medical professions are rarely held to account.

As with sexual violence, nurses were also least likely to be the perpetrators of verbal or physical violence. They were, however, the most likely source of bullying. This adds weight to the argument that 'nurses eat their young' (Meissner, 1986; Randle, 2003; Wilson, 2016). Moreover, bullying was the only type of aggression that implicated other student nurses. According to Spector et al. (2014) around one in five nurses had experienced bullying behaviours in the past six months, rising to almost half in the past year, and 70 % at some point in their career. The bullying that student nurses and those at the beginning of their careers experience may feed in to a culture of tolerating bullying through processes of organisational socialisation (Kang, 2018). There have been calls to introduce interventions to develop student resilience within nursing curricula (Courtney-Pratt et al., 2018); whilst this is laudable, it does not address the root of the problem. Zero tolerance campaigns have been largely ineffective (Hanley and O'Rourke, 2016), but it is important for nursing leaders and managers to cultivate positive workplace environments to reduce the possibility of bullying behaviours taking root (Cleary et al., 2010). This review has shown that workplace violence can impact students' learning opportunities. Clinical learning is a fundamental aspect of pre-registration nursing education {Nyoni, 2021 #8471} and has been described as the most important factor in developing reflective and evidence-based nurses {Birks, 2017 #8472}. Clinical placement provides the opportunity to consolidate learning; if students feel unable to fully participate in the learning environment, due to staff of patient violence, they are missing out on valuable learning opportunities. Moreover, students learn from the healthcare professionals within clinical settings. As shown in this review, this may, in part, be how bullying cultures perpetuate; when students experience bullying, this becomes the norm, and as they progress in their careers they continue the bullying behaviours.

Patient care is also affected by workplace violence. Negative staff behaviours can cause students to doubt their abilities and cause them to make mistakes in patient care, and fear of patient behaviours leads to students avoiding certain situations, thus not providing the care they are expected to provide. Similarly, workplace violence has been shown to reduce nurses' productivity, and their ability to provide safe and competent care {Kowalenko, 2013 #8473} as well as negatively impacting patient safety {McNamara, 2010 #8474}. In many countries students are supernumerary, but clinical environments are increasingly understaffed and underfunded, meaning that students play an important role in patient care {Hill, 2020 #8475}. Therefore, students must be supported to provide safe and competent care.

According to this review many incidents are reported, 64 % and 43 % of incidents of verbal/non-physical aggression and bullying respectively. A survey of nurses in five European countries found that nurses reported 66 % of physical violence to a senior staff member and only 31 % of non-physical aggression (Babiarczyk et al., 2019). This suggests that the level of reporting among student nurses could be higher than that of their registered counterparts. However, a significant number of incidents experienced by students still go unreported, and there is currently insufficient evidence to understand students' reporting behaviours in respect of physical or sexual violence. The barriers to reporting that nurses describe, such as accepting aggressive behaviour as inevitable and a lack of support from peers or superiors (Sato et al., 2013), are likely to also prevent student nurses from reporting. Students may be reticent to report bullying for fear of repercussions from clinical staff who may be responsible for ensuring that students complete their placement (Courtney-Pratt et al., 2018), which is also why students are reluctant to raise concerns about poor quality patient care (Milligan et al., 2017). Additionally, student nurses, like their registered counterparts, identify that even if they do report violence nothing will be done (Tee et al., 2016).

4.1. Strengths and limitations

This is the first review that has attempted to bring together the extant global literature on students' experiences of workplace violence and includes the experiences of over 13,000 student nurses. One limitation is in the way violence is reported. There is much overlap between different types of aggression, e.g., bullying, racism and verbal aggression, and so what one study describes as bullying, another might describe as verbal. This means that the findings relating to specific types of aggression should be viewed with caution. Finally, there was not enough data to separately analyse when violence was experienced, i.e., in the past six months, year etc. However, because student nurses are only students for a finite period, usually three to four years, it is safe to assume that all violence would have occurred within this timeframe.

5. Conclusions

Student nurses are the future of the nursing profession and should be

nurtured to develop their skills and practice. Experience of workplace violence is incompatible with this aim and further innovative efforts are required to reduce it and to maximise the capacity of nursing students to deal with it. It is especially concerning that bullying is reported by almost 60 % of student nurses and even more so that the main perpetrators are reportedly nurses. This demonstrates the need to act on many different fronts to enable a safe learning space. Student nurses themselves can articulate what higher education institutions should do, including providing training and strategies to manage workplace violence, and supporting students to know their rights and how to report incidents. The current study should act as a clarion call for educators and clinicians across the world to unite in finding solutions.

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Appendix A. Supplementary data

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