Which violence against women educational strategies are effective for pre-qualifying healthcare students? A systematic review

Sammut, Dana; Bradbury-Jones, Caroline

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Background

Gender-based violence (GBV) is a broad term describing behaviors that cause harm to individuals for reasons associated with gender (Bloom, 2008). While both men and women can be victims of GBV, women are disproportionately affected (World Health Organization (WHO), 2013). Internationally, the forms of GBV most widely reported and studied are intimate partner violence (IPV) and sexual violence, with estimates suggesting that 35% of women worldwide have experienced either or both during their lifetime (WHO, 2013). Women suffer both short- and long-term "exacerbated consequences" when compared with male GBV victims, including reduced ability to work and raise a family (United Nations Statistics Division (UNSD), 2015), complications with pregnancy and childbirth, and increased risk of alcohol misuse, depression and suicide (WHO, 2013). For these reasons, this review concentrates exclusively on violence against women (VAW).

While there is debate about the efficacy of routine screening for IPV, it remains essential for clinicians to have the skills and confidence to ask and address the issue competently in practice, regardless of whether or not abuse has been disclosed. In a meta-analysis of qualitative studies, Feder, Hutson, Ramsay, & Taket (2006) found that women largely felt inquiry about IPV to be appropriate when the issue was approached sensitively by healthcare professionals. Moreover, Leung, Phillips, Bryant, and Hegarty (2018) found that physicians' perceived 'readiness' and 'preparedness' were multifaceted concepts with an important bearing on their perceived role to intervene in IPV. Through early detection of abuse (as well as identifying those at greater risk), healthcare professionals are well placed to make referrals and/or facilitate the implementation of evidence-based interventions appropriate to the context (O'Doherty, Taket, Valpied, and Hegarty, 2016).

Regional differences are significant, with some parts of the world experiencing a higher concentration of specific violence forms. For example, the practice of female genital mutilation/cutting (FGM/C) is known to be more concentrated in 29 countries across Africa and the Middle East, with more than 125 million females believed to be currently affected (United Nations Children's Fund, 2013). Similarly, attitudes towards IPV vary considerably across countries and cultures, with levels of women's acceptance varying from 3% in parts of Europe to 92% in Guinea (UNSD, 2015). Within Europe, it is noteworthy that legal definitions of GBV vary between countries, with some forms of VAW yet to be criminalized in certain European Union member states (European Commission, 2016). Discrepancies in approaches to GBV also exist among U.S. states, with a variety of intervention programs continuing in some states despite minimal evidence to support their effectiveness (Langhinrichsen-Rohling, 2010). These regional differences highlight the importance of conducting research with an international perspective to ensure that educational efforts are comprehensive.

A number of studies have identified lack of GBV educational strategies as being a problem, for both pre-qualifying (Doran & Hutchinson, 2017; Valpied, Aprico, Clewett, & Hegarty, 2017) and post-qualifying health professionals (Crombie, Hooker, & Reisenhofer, 2016; Sprague, Madden, Simunovic, Godin, Pham, & Bhandari, 2012). The term 'qualifying' here refers to ability to practice professionally in line with legal requirements (i.e. education, training, registration with professional body). Other studies report that despite having received some formal education and training, qualified practitioners continue to demonstrate poor GBV knowledge and identification rates (Haist, Wilson, Lineberry, & Griffith, 2007; Hinderliter, Doughty, Delaney, Pitula, & Campbell, 2003). Notably, in the study by Hinderliter *et al.* (2003), this was despite self-reported improved confidence among surveyed participants following their IPV education programs, suggesting that feelings of competence do not always

align with objective outcome improvements. On the other hand, practitioners' perceptions of their own knowledge and abilities are undoubtedly an important factor for response to GBV. Authors have noted that lack of confidence in one's own ability to recognize and address GBV is a common concern among students (Bradbury-Jones & Broadhurst, 2015) and qualified practitioners (Taylor, Bradbury-Jones, Kroll, & Duncan, 2013), likely linking to poorer rates of GBV recognition.

Previous literature reviews have been conducted with a similar focus of interest to our study, although none were equal in scope (i.e. including multiple forms of GBV, various pre-professional disciplines and an international focus). However, their findings are relevant and complement many conclusions drawn here. For example, Crombie, Hooker and Reisenhofer's (2016) scoping review of nursing and midwifery IPV education provided insights into gaps in the literature which needed exploring, including the need for rigorous evaluation of existing education programs. Hamberger's (2007) review of IPV curricula for medical students in the U.S. made similar recommendations for research. Sawyer, Coles, Williams, and Williams (2016) produced a systematic review examining the effects of several IPV education programs for both pre- and post-qualifying allied health professionals. The authors concluded that there was an overall positive association between IPV education and improvements in knowledge, attitudes, skills and behaviors, although it was noted that findings were limited by the overall quality of included studies. The latter review differs from ours in that it asked *whether* IPV educational interventions are effective, with less attention given to *how*. Additionally, its sole focus on IPV, inclusion of qualified populations and exclusion of medical students distinguishes it from the present review, with only three of its 18 included studies matching those shortlisted for inclusion here.

To our knowledge, there have been no comparative studies of pre-qualifying GBV educational strategies across multiple healthcare disciplines. It is important, however, that educational interventions are developed in line with the best available evidence to maximize their impact and efficacy. It is essential that students are competent to recognize and address GBV before qualifying, given the significant health impacts of VAW (WHO, 2013).

Review Method

Aim and Design

This review aimed to identify, collate and critique existing evidence about educational strategies on GBV for pre-qualifying healthcare students, with a view to ascertaining best practice in this subject area and informing future pre-qualifying training programs. A systematic literature review was conducted to synthesize findings from quantitative, qualitative and mixed methods primary research studies, to ensure that all relevant data relating to the research question could be captured (Grant & Booth, 2009). Inclusion of quantitative and qualitative studies allowed for consideration of a wider variety of outcome measures, including both objectively measured and self-reported results, and resulted in a wider pool of data from which to draw conclusions. We therefore use the word 'effectiveness' to encompass a variety of criteria (summarized under 'measured outcomes' column in Table 3).

Search Strategy

A computerized search of six databases was undertaken: Medline, PsychINFO, Embase, CINAHL, Applied Social Sciences Index and Abstracts (ASSIA), and Nursing & Allied Health Database. Searches were conducted between September 2017 and July 2018. PICO criteria (Population, Intervention, Comparison and Outcomes) were determined in advance to facilitate a systematic approach and to ensure articles were selected appropriately (Table 1). Searches were conducted using a combination of keywords and Medical Subject Headings (MeSH) to

allow greater sensitivity in the search strategy. Boolean operators and truncation were used to broaden and/or narrow the search appropriately. A summary of the search terms is included in Table 2. Finally, a review of the reference lists of all key articles identified was undertaken, in order to find any further potential papers for inclusion.

[Insert Tables 1 and 2 about here]

Inclusion and Exclusion Criteria

To meet this review's aims, only studies discussing and/or evaluating a GBV-related education intervention were included. Sample populations had to be students on a pre-qualifying healthcare course or degree. No date restriction was applied to searches. Exclusion criteria included studies with only a partial focus on the education intervention; studies focusing on violence against men and/or children (including adolescents), as well as non-gender-specific elder abuse; unpublished and non-peer-reviewed research; studies not published in English; and non-empirical or secondary research (including reviews, editorials, opinions and discussion papers).

Quality Assessment Method

Following selection, the quality of all included studies was evaluated. Appraisal tools were selected according to study design and purpose so that methodologies would be assessed appropriately (Whittemore & Knafl, 2005). A BestBETs (2012) tool for appraising educational interventions was used for all quantitative and mixed-methods studies, as it allowed for consideration of both quantitative and qualitative criteria. However, as this tool was considerably more quantitative-focused, a Critical Appraisal Skills Programme (CASP, 2017) checklist (recommended by Ciliska, Thomas, & Buffett; 2008) was used to appraise the single qualitative study shortlisted for inclusion.

Meade and Richardson (1997) describe the process of assigning numerical quality scores to individual studies as "arbitrary and unscientific" (p. 535). Instead, they suggest that the merits and limitations of each study should be presented clearly in the review write-up, so that readers can judge for themselves the usefulness of each. This approach was adopted here, with an additional summary of methodological rigor and data relevance for each paper, as proposed by Tranter, Irvine and Collins (2011) (adapted from Whittemore & Knafl, 2005). Whittemore and Knafl (2005) also suggest that each study's quality should be considered in a "meaningful way" (p. 550): for example, if discrepancies in findings may be reasonably attributed to poor methodology. As this can only be determined later on in the review process, no studies were excluded from data analysis on the basis of quality alone.

Data Extraction and Synthesis

A data extraction table was created using subheadings which helped to summarize the studies in a meaningful way, capturing information as it related to the research question (Table 3). Statistical meta-analysis was initially attempted for the quantitative studies, but due to the heterogeneity of study designs and outcome measures, a meaningful statistical summation would not have been possible. Therefore, a narrative summary and thematic synthesis of the studies' findings was undertaken. This was an inductive process, with themes emerging from the data. Themes and coding strategies were cross-checked between two authors to maximize rigor. The Cochrane Consumers and Communication Review Group (2013) guidelines for narrative synthesis were followed to ensure robustness within this process.

Results

Search Outcome and Characteristics of Included Studies

A total of 488 studies were retrieved from searches after duplicates were removed. These were screened against the PICO criteria and excluded first by title (n = 320) and then by abstract (n

= 113), leaving 55 for full-text review. Of these, 38 were excluded for not meeting the inclusion criteria, leaving 17 studies in total. This process is outlined in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram (Figure 1) (Moher, Liberati, Tetzlaff, Altman, & The PRISMA Group, 2009). [Insert Figure 1 here]

Of the 17 studies, 14 were conducted in the USA, and one each in Canada, Australia and Ireland. All 17 studies were focused on IPV/domestic violence (DV), general interpersonal or sexual violence. There was no discussion of FGM/C, forced marriage, honor violence or human trafficking within any of the studies. This is discussed further in the present review's limitations. Thirteen used a quantitative design, three used a mixed methods approach and one used a qualitative phenomenological design.

Of the four studies that collected qualitative data, two explored results thematically (Helton & Evans, 2001; Pomeroy, Parrish, Bost, Cowlagi, Cook, & Stepura, 2011) and two used open-ended questions to collect students' feedback and opinions regarding the intervention (Cerulli, Nichols-Hadeed, Raimondi, Stone, & Cerulli, 2015; Smith, Wight, & Homer, 2017). The studies each describe the effects of a GBV-related education intervention, and the majority reported a significant improvement (where applicable) in the measured outcomes post-intervention. Four themes were identified following synthesis: (1) Learning Mechanism, (2) Focus of Learning, (3) Duration of Course and (4) Gender of the Audience.

[Insert Table 3 about here]

Quality of Included Studies

The included studies varied in design and quality (see Table 4 and Table 5). All except one presented their aims and outcomes clearly; the quality of the study by Heron, Hassani, Houry, Quest, and Ander (2010) was compromised due to lack of clarity. Only two papers used a RCT study design (Danley, Gansky, Chow, & Gerbert, 2004; Edwardsen, Morse, & Frankel, 2006).

The majority of included studies used quasi-experimental pretest-posttest designs, which can pose threats to internal and external validity. For example, if both pretest and posttest utilize the same assessment instrument, posttest results may be skewed by the participants' familiarity with the content being assessed (Knapp, 2016).

Participant and assessor blinding was only discussed in three studies (Edwardsen, Morse, & Frankel, 2006; Elman, Hooks, Tabak, Regehr, & Freeman, 2004; Pomeroy *et al.*, 2013). If not discussed, it was assumed that blinding did not take place. One study (Heron *et al.*, 2010) mentioned blinding within its abstract, but failed to discuss further within the write-up, and so was rated 'unclear' for this criterion. Moreover, only one study (Milone, Burg, Duerson, Hagen, & Pauly, 2009) provided evidence of sample size estimation.

Seven studies (Elman *et al*., 2004; Ernst, Houry, Nick, & Weiss, 1998; Ernst, Houry, Weiss, & Szerlip, 2000; Haase, Short, Chapman, & Dersch, 1999; Heron *et al.*, 2010; Jonassen, Pugnaire, Mazor, Regan, Jacobson, Gammon, Doepel, & Cohen, 1999; Pomeroy *et al.*, 2013) included some level of delay between intervention and posttest. There is mixed evidence regarding the significance of delaying posttest, with some authors suggesting that delays provide greater evidence of learning retention (Schmitt, 2010) and others finding no significant difference between immediate and delayed posttest results (Loyens, Jones, Mikkers, & van Gog, 2015). Nevertheless, four included papers (Danley *et al.*, 2004; Edwardsen, Morse, & Frankel, 2006; McAndrew, Pierre, & Kojanis, 2014; Milone *et al.*, 2010) made reference to their short follow-up time when discussing the limitations of their studies.

[Insert Tables 4 and 5 about here]

Theme 1: Learning Mechanism

This theme considers the ways in which learning is delivered to students, primarily exploring the outcomes of didactic and interactive approaches. For the purposes of this discussion,

didactic refers to passive learning, while *interactive* refers to any educational methods requiring active engagement from the students. The latter includes strategies involving standardized patients (SPs), role play, group discussion or even interactive online tutorials.

Buranosky, Hess, McNeil, Aiken, and Chang's (2012) study of 279 medical students, which featured various teaching forms, found that interactive activities had a greater impact than didactic methods for improving measured outcomes. Specifically, two of the post-intervention outcomes (IPV-related awareness and support for universal screening) were significantly improved ($p < 0.001$ for both) for students who elected to undertake additional experiential training, while results showed no significant improvement for those who participated in core (didactic) activities alone. However, it is worth noting that as the experiential activities were optional, this group's improvement may be partly attributable to greater overall interest in the subject. Nevertheless, other studies drew similar conclusions. Milone *et al.* (2010) found that there was no statistically significant difference between medical students (n = 102) who had and had not attended a voluntary didactic lecture (all participants had subsequently attended a mandatory SP encounter), again suggesting a limited effect from the didactic intervention. Similarly, Pomeroy *et al*.'s (2011) study on 63 social work students featured two intervention groups (one interactive and one didactic) and one control group. This study found that while the didactic group demonstrated increased knowledge post-intervention, the interactive group showed greater understanding of how knowledge could be integrated in practice.

Helton and Evans (2001), who collected qualitative data from 18 nursing students, emphasized the importance of practical experiences for the students. One student commented: "Going to court really brought to life the amazingly large number of women out there being abused," while another stated: "[The practical experiences] got us out of the textbook comfort zone and into the domestic violence war zone the clients face." In Cerulli *et al*.'s (2015) mixed methods

study, pharmacy students (n = 237) reported that they would prefer a more interactive session – offering suggestions such as small-group discussion and opportunities to interact with mock patients – to the didactic session they attended.

One study which did not conform to this theme was that of Smith, Wight, and Homer (2017), which saw midwifery students give feedback following an all-day workshop. Despite commenting that both didactic and interactive activities had been useful, the aspect of the workshop cited as 'most useful' was an authentic practice video (44% of 102 students) which had no interactive component. However, a continuing theme was that students wanted their learning to be practice-focused rather than simply theoretical (discussed in theme 2).

Overall, interactive approaches to teaching students about GBV/VAW seemed more effective.

Theme 2: Focus of Learning

This theme discusses students' preferences and outcomes relating to the focus of their learning – specifically, whether learning was practice-focused or mainly theoretical in content. While this idea links closely with the discussion of *learning mechanism*, there are subtle differences requiring separate attention. For example, as highlighted by Smith, Wight, and Homer's (2017) study, didactic activities (such as a video screening) can still be practice-focused, demonstrating real-life scenarios and focusing on how knowledge and skills can be *applied*. This idea was echoed in Cerulli *et al.*'s (2015) study, where the majority of lecture content was focused on communicating factual evidence (e.g. IPV prevalence rates), with less attention given to how this information related to practice. In their qualitative feedback, students indicated that they would have liked more profession-specific content, including discussion of pharmacists' professional liability and legal obligations when intervening with IPV in practice.

In the study by Edwardsen, Morse, and Frankel (2006), the educational intervention (delivered to both the intervention and control group) featured two hours of didactic and interactive IPV education, including introduction to a mnemonic for facilitating clinical interviews. The intervention group was then provided with a pocket-sized card describing the mnemonic and additional guidance for use in practice, which was later used in a facilitated discussion before the posttest. While there was no difference in overall content covered by the intervention and control group, this modest practice-focused intervention produced consistently improved results in the intervention group compared with the control. However, the improvement was only statistically significant in two of the seven assessed criteria. Hence, because both groups received a similar education program, the difference in preparedness between the intervention and control group was not as considerable as those studies whose control groups received no GBV-related education at all.

Elman *et al.* (2004) raised the issue of transfer of learning – that is, whether improved knowledge and testing scores will translate into better GBV identification in practice. In their objective structured clinical examination (OSCE), medical students (n = 110) were more likely to enquire about GBV in the scenario with a more obvious transfer context (i.e. the prenatal patient, as pregnancy had been highlighted as a risk factor for abuse during the theoretical learning session). The educational intervention tested in this study could certainly be called practice-focused, as all students were given the opportunity to interact with a SP following the seminar. However, the authors argue that the lower rates of enquiry about GBV for the elderly musculoskeletal patient could partly be attributed to the fact that the case presented no obvious transfer from the seminar.

Contrary to the above, the study by Heron *et al.* (2010) found that participation in a SP OSCE did not improve medical students' (n = 41) self-reported comfort levels to care for IPV victims,

despite this being a clear practice-focused learning opportunity. The authors offered no explanation for this negative finding. Notably, this study was of questionable quality (see Table 4) and its findings should be interpreted with caution.

This theme primarily highlights that practice-focused interventions with a clear transfer context were received more favorably by students.

Theme 3: Duration of Course

Courses ranged in duration from a 15-minute multimedia tutorial (Danley *et al.*, 2004) to a 40-hour experiential program (Buranosky *et al.*, 2012). Two studies (Danley *et al.*, 2004; McAndrew, Pierre & Kojanis, 2014) evaluating brief (≤1 hour) computer-based tutorials found that while knowledge scores were significantly improved post-intervention, attitudes and opinion scales were much less so ($p < 0.05$ in only two out of eight items in both studies). Within Danley *et al.*'s (2004) study, two attitudinal questions were consistently non-significant in terms of differences between the control and intervention groups ("There are specific things I can do to help" and "[I] believe I can recognize and help"), suggesting that self-efficacy in particular was difficult to alter. In contrast, the two significantly improved opinions in the study by McAndrew, Pierre and Kojanis (2014) were perceived self-efficacy and perceived impact of constraints (reverse scored), both suggesting an improvement in the students' belief in their ability to effect change. Nevertheless, overall opinions and attitudes were much less significantly improved than knowledge within both studies.

Jonassen *et al.* (1999), who compared two medical student cohorts receiving the same intervention over different lengths of time, found that the longer intervention (lasting 3.5 days) (n = 67 students) produced sustained improvements in all three assessed domains (knowledge, attitudes and skills) at 6-month follow-up. In contrast, the cohort receiving the 2-day course (n = 77 students) maintained only their skills after 6 months. Notably, the students on the shorter

course rated its duration more favorably. However, in Cerulli *et al.*'s study pharmacy students' feedback on a 1.5-hour didactic lecture overwhelmingly advised that the session was not long enough to thoroughly cover the content. Many students suggested that while the content was informative, the lecture did not adequately prepare them to address IPV in practice, with one individual commenting: "I'm not sure how much this lecture could help us 'spot' one [IPV victim]". This refers back to theme 2: *focus of learning*.

Overall, while all studies discussed within this theme reported positive outcomes to some extent, it seems that students' attitudes were more effectively altered following longer courses.

Theme 4: Gender of the Audience

Four studies (Buranosky *et al.*, 2012; Ernst *et al.*, 1998; Ernst, *et al.*, 2000; Milone *et al.*, 2009) identified a gendered difference in knowledge scores and attitudes of participants, with females consistently outperforming males. Further, in the qualitative study by Helton and Evans (2001) nursing students (n = 18) were more likely to identify with victims of the same gender as themselves. Kennedy, Vellinga, Bonner, Stewart, and McGrath (2013) discussed the literature evidence for the gendered difference in male and female rape myth acceptance, although their own study did not analyze demographic data so as to maintain participant anonymity.

The study on dental students (n = 65) by Everett, Kingsley, Demopoulos, Herschaft, Lamun, Moonie, Bungum, and Chino (2012) found that female participants were statistically more likely (p = 0.008) to have received previous IPV education in comparison with male participants, although the study provided no discussion of demographic data in the results (i.e. relationship between gender and changes in students' awareness and professional beliefs). However, the reason for this imbalance may be reflected in Haase *et al.*'s (1999) study, where women were disproportionately interested in undertaking the elective on DV (67% of students on the elective were female, despite comprising only 44% of the cohort (n = 115 medical

students); $p = 0.002$). The elective was found to significantly impact knowledge of resources ($p = 0.000$) and improve identification of DV victims ($p = 0.04$). However, after using two-way ANOVA (analysis of variance) the authors concluded that the difference in scores between the DV-educated and non-educated groups was not attributable to gender. The authors provided no basic data in their report, and it is unclear whether they used ANOVA testing within the intervention group itself to factor out the gender effect. It is therefore impossible to deduce whether females outperformed males in this study. Similarly, the study by Danley *et al.* (2004) found there was no statistically significant difference in the scores of male and female participants (n = 174). There is no explanation for this finding and it may simply reflect the baseline knowledge and attitudes of the study's sample.

These findings make it difficult to draw conclusions about the overall effect of audience gender across the studies. However, the fact that gendered differences were noted or addressed within so many papers meant we could not reasonably exclude these points from thematic analysis.

Discussion

This review was conducted to identify best educational practices in GBV for pre-qualifying healthcare students. The reviewed educational strategies varied in structure and content, and assessed numerous outcomes to identify post-learning changes and improvements. Narrative synthesis of the 17 studies generated four themes: *learning mechanism*; *focus of learning*; *duration of course*; and *gender of the audience*. Figure 2 shows a visual representation of these themes. This depiction groups the first three themes together for being 'intrinsic' to the educational program (i.e. inherent aspects which can be manipulated by educators), while the final 'extrinsic' theme is not related to the programs' structure or content. [Insert Figure 2 here]

The first theme, *learning mechanism*, discussed the relative effect sizes of interactive and didactic intervention strategies. Overall, interactive approaches to learning yielded better

results than did didactic. This theme echoes other literature findings on the subject of continuing medical education in qualified physicians (Bloom, 2005; Mansouri & Lockyer, 2007) and other health professionals (O'Brien, Freemantle, Oxman, Wolf, Davis, & Herrin, 2001). However, much of this previous research has measured 'effectiveness' in relation to improved performance in clinical settings and improved patient outcomes (Forsetlund, Bjørndal, Rashidian, Jamtvedt, O'Brien, Wolf, Davis, Odgaard-Jensen, & Oxman, 2009). These outcomes are not possible to measure in student populations, and as discussed within the second theme, *focus of learning*, improved test scores might not always translate into better practice. Supporting this idea, a qualitative study by Bradbury-Jones and Broadhurst (2015) reports that students themselves often foresee difficulties in linking theory with practice, which again highlights the importance of a more practice-focused approach. Similarly, a quasi-experimental study by Kripke, Steele, O'Brien, and Novack (1998) assessed the knowledge, skills and attitudes of 55 medical residents before, immediately after and again at 6-months following a DV workshop. Despite sustained improvements in all three domains at 6-month follow-up, no improvement was observed in the residents' actual screening behaviors or DV identification rates. The authors argued that creating long-term behavior change should be the next goal for GBV educators (Kripke *et al.*, 1998).

Natan, Khater, Ighbariyea, and Herbet (2016) suggested that behavioral change theories such as the Theory of Planned Behaviour (TPB) (developed by Ajzen, 1991) can be used to predict students' intention to screen for DV. According to the TPB, a number of variables underlie individuals' intentions to perform an action, including behavioral attitudes, normative beliefs and perceived behavioral control (Ajzen, 1991). Extrapolating from this, it could be argued that these variables ought to be measured at baseline in future study samples, so that educational interventions can be developed to target and alter those variables which will predict intention to act (Nelson, Cook & Ingram, 2013). However, even if successful, improvements

in intended behaviors may still fail to amount to improvements in practice. These arguments suggest that the outcomes which are measurable in student populations (objective knowledge, self-reported preparedness, perceived ability to effect change, etc.) are less valid than outcomes measurable in qualified populations (increased rates of identification, referral to outside agencies, etc.). That said, the former group of outcomes undoubtedly has a demonstrable effect on *likelihood* of competently performing the latter tasks in practice, and their value must not be discounted. Future researchers may wish to explore the effects of incorporating principles of behavior change into GBV education to help ensure learning evolves into effective practice.

No theoretical consistencies were noted among the papers contributing to this review.

Another theme, *duration of course*, suggested that longer interventions are more effective at altering students' opinions and attitudes. This theme mirrors the findings of a 69-study meta-analysis by Anderson and Whiston (2005), which looked at the effectiveness of various university-level sexual assault education programs. Anderson and Whiston (2005) argue that multiple in-depth sessions produce better outcomes than single-session programs, consistent with findings from later studies (Mansouri & Lockyer, 2007; Marinopoulos, Dorman, Ratanawongsa, Wilson, Ashar, Magaziner, Miller, Thomas, Prokopowicz, Qayyum, & Bass, 2007). This argument also echoes Buranosky *et al.*'s (2012) findings, where outcome improvements correlated with participation in additional training activities, leading the authors to conclude that "once is not enough" (p. 1192).

This is not to say that brief single-session interventions are ineffective. Only four studies included in this review (Buranosky *et al.*, 2012; Haase *et al.*, 1999; Helton & Evans, 2001; Jonassen *et al.*, 1999) featured interventions with multiple sessions taking place over the course of more than one day, yet all except one study (Heron *et al.*, 2010) reported positive findings to some degree. However, based on the trends found in this review and other larger studies, it

seems that longer multifaceted interventions are more effective for producing sustained improvements, particularly in attitudinal outcomes.

The final theme, *gender of the audience*, discussed the trend of gendered differences in students' baseline and post-intervention knowledge and attitudes toward GBV, with females frequently outperforming males. There is a wealth of literature supporting the idea that female healthcare students are less accepting of common rape myths and more positive in their attitudes toward victims of sexual violence (Anderson & Quinn, 2009; Sivagnanam, Bairy, & D'Souza, 2005). However, there is debate surrounding the applicability of this information in educational settings. For example, Brecklin and Forde's (2001) 45-study meta-analysis concluded that rape education programs are more effective (here referring to improved attitudinal outcomes) when delivered in single-gender settings. Conversely, Anderson and Whiston's (2005) 69-study meta-analysis reported very mixed findings on this same topic, with women and men statistically performing better in mixed-gender groups for the majority of measures. One exception to this was the finding that females in single-gender groups showed more positive behavioral intentions, although this conclusion was drawn from the results of only four studies (Anderson & Whiston, 2005). This was also a key difference between these two meta-analyses, with Brecklin and Forde (2001) looking only at attitudinal changes, while Anderson and Whiston (2005) further addressed knowledge and behavioral indices. Behavioral indices are arguably more important in this discussion, as improved performance in practice (both intended and actual) is the main goal of these educational strategies.

These mixed findings suggest that more research is needed before conclusions can be drawn about the effectiveness of single- versus mixed-gender audiences in GBV education. That said, educators should still consider the possibility that male practitioners may encounter specific barriers in practice to which females will be less susceptible (for example, female victims may

feel more reluctant to disclose information to male professionals) (Hester, Williamson, Regan, Coulter, Chantler, Gangoli, Davenport, & Green, 2012). Therefore, while the subject of audience gender itself cannot be conclusively settled, the gendered issues practitioners may encounter should not be overlooked.

Limitations

There are some methodological limitations to this study. First, limited human resources and time constraints meant that certain content and study types were systematically excluded during screening. This included non-peer-reviewed and unpublished research. It is generally accepted that published studies are more likely to report significant findings (Cook & Therrien, 2017), and by excluding unpublished research the present review may have drawn biased conclusions. It was also beyond the scope of this review to draw on every aspect of learning theory, meaning many pertinent academic perspectives were omitted. This is discussed further under recommendations for future research. Second, statistical meta-analysis was not possible in this review, nor moderation analysis. However, narrative analysis allowed trends to be identified and offered the additional advantage of inclusion of qualitative data.

The studies contributing to this review's analysis were themselves of varying quality, which could potentially compromise the soundness of conclusions drawn here. Further, the generalizability of this review's results is impacted due to its failure to include studies discussing many wider forms of GBV (honor violence, FGM/C, etc.), which may be partly attributable to the exclusion of non-English language studies. As discussed earlier, some forms of GBV are more culturally driven than others and may therefore be discussed to a greater extent in non-English language journals. That said, a recent European-focused mapping review and synthesis by Bradbury-Jones, Appleton, Clark, and Paavilainen (2017) found that IPV and sexual abuse are the GBV forms that receive the majority of literature attention, consistent with

findings here. While these two forms likely represent the largest global GBV burden, it was disappointing that no other forms featured in this review. Inclusion of studies from non-English-speaking parts of the world could have provided a useful basis for discussion of cultural variation in GBV teaching and learning.

Recommendations for Educational Practice and Future Research

Educators should take heed of the present review's findings when designing and implementing GBV-focused learning programs. The visual summary of themes (Figure 2) may be useful in the development of future curricula as a summary of aspects of which to be mindful. A key recommendation for future research is to incorporate a focus on wider learning theory – for example, Kolb's (1984) cycle of experiential learning; Honey and Mumford's (1986) learning styles; and McGill and Beaty's (1995) action learning approach. These theoretical approaches could offer a valuable framework upon which to base future educational strategies, incorporating a focus on internal cognitive processes in addition to the external educational factors considered here. Research and education programs should also strive to give greater attention to the wider forms of GBV.

The U.S. is taking steps locally and federally to recognize freedom from domestic violence as a human right (Cornell University, 2018). However, government policy can only go so far in bringing about actual change to healthcare practice. Since the introduction of the Affordable Care Act (ACA) in 2012, which mandates insurance coverage of IPV screening and counselling, U.S. clinicians have continued to demonstrate inadequate screening practices, with many reporting lack of confidence as a significant barrier (Tavrow, Bloom, and Withers, 2017). Chapin, Coleman, and Varner (2011) note that hospitals and other healthcare institutions are often left to design and implement their own policies governing specific practices, yet this too can result in inconsistencies from one organization to another. By introducing effective

GBV educational strategies at pre-qualifying level, these problems can be addressed at the earliest opportunity in healthcare practitioners' careers.

Conclusion

To date, this is the first internationally-focused literature review to combine evidence on the subject of GBV educational strategies for pre-qualifying healthcare students. Findings suggest that interactive and practice-focused learning interventions produce the best results (i.e. knowledge scores, self-reported comfort and confidence, etc.) and that courses of longer duration are more effective in instilling attitudinal change. Future research should consider the gendered differences in GBV learning and whether these differences have an impact on practice. Global efforts to improve outcomes for GBV victims must begin by ensuring healthcare providers receive adequate training *before* they enter professional practice. Despite its limitations, findings from this review make a valuable contribution to knowledge on the subject of GBV learning and offer practical guidance to educators developing future curricula.

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POPULATION	Pre-qualifying healthcare students (nurses, midwives, doctors, dentists, physiotherapists, occupational therapists, radiographers, dieticians, podiatrists, paramedics, orthoptists, prosthetists/orthotists, social workers, speech and language therapists, pharmacists, and any other allied health professionals).
INTERVENTION	Any female-focused GBV education intervention or training program for identified population (including intimate partner violence or abuse, domestic violence or abuse, spouse violence or abuse, battered women, family violence or abuse, rape, human trafficking, sexual violence or abuse, female genital mutilation/cutting or female circumcision, forced marriage, honor crimes and honor killings).
COMPARISON	Any or none.
OUTCOMES	Self-reported or objectively measured improvement relating to the subject of GBV (including knowledge, attitudes, beliefs and confidence in practice).

Table 1: PICO Criteria

POPULATION		PHENOMENON OF INTEREST	INTERVENTION
Medic* student*	Speech and language therap* student*	Gender-based violence	Educat*
Nurs* student*	SALT student*	Gender violence	Simulation training
Dentist* student*	Speech therap* student*	Gender abuse	Training
Dental student*	Paramedic* student*	Intimate partner violence	Learning
Pharmac* student*	Orthopti* student*	Domestic violence	Standardi?ed patient*
Midwifery student*	Prostheti* student*	Spous* abuse	Program* evaluation
Student midwives	Orthoti* student*	Battered women	Lecture*
Occupational therap* student*	Social work* student*	Family violence	
Physiotherap* student*	Podiatr* student*	Family abuse	
Physical therap* student*	Allied health student*	Rape	
Radiograph* student*	Health care student*	Human trafficking	
Dietetic* student*	Healthcare student*	Sexual abuse	
Dieti?ian* student*		Sexual violence	
		Female circumcision	
		Female genital mutilation	
		Female genital cutting	
		FGM	
		Forced marriage*	
		Hono?r killing*	
		Hono?r crime*	

Table 2: Summary of Search Terms

Table 3: Summary of Included Studies

Author (year) and country	Aim	Study design and data collection	Sample	Educational intervention	Measured outcomes	Summary of findings
Buranosky *et al*. (2012) *USA*	To assess how various types and amounts of IPV education for medical students affected knowledge and attitudes.	Correlational study design. Survey instrument consisting of demographic questions plus 25 items about education, knowledge and attitudes concerning IPV.	279 medical students from first- to fourth-year of study. Gender ratio: 45% male, 52% female.	Various teaching forms: core didactic training delivered in lectures (first year) and small group sessions during clerkships (third year). Additional elective experiential programs included 40-hour training in local emergency department, and volunteer work at a local IPV shelter clinic.	• IPV-related knowledge (objectively measured). • IPV-related awareness (self-reported). • Comfort in screening for IPV (self-reported). • Support of universal screening for IPV (self-reported). • Attitude regarding importance of interventions for IPV (self-reported).	• Higher knowledge scores were obtained by female students and those with a history of IPV. • Knowledge scores increased with each additional year of study. • Knowledge scores increased with participation in increased number of core or experiential activities. • Participation in experiential activities was more significant a factor in improving students' self-reported attitudes than was participation in core (didactic) activities.
Cerulli *et al*. (2015) *USA*	To evaluate an IPV didactic session adapted for pharmacy students and describe student quantitative and qualitative feedback on the session.	Mixed methods; posttest-only design, with quantitative and qualitative data measurements. Questionnaire used to collect data.	237 pharmacy students, year of study not specified. Gender ratio: Not specified.	1.5-hour evidence-based IPV lecture.	• Students' opinions and feedback regarding the educational intervention were collected.	• Students expressed the belief that their ability to recognize IPV had improved as a result of the lecture. • In qualitative feedback, students advised that course content should relate more specifically to pharmacy. • Students felt that 1.5 hours was not enough time to cover the material thoroughly, and indicated a wish for more interactive content (e.g. role-play with mock patients).
Danley *et al*. (2004) *USA*	To evaluate the impact of a brief, interactive multimedia tutorial designed to prepare dentists to recognize and respond to DV.	RCT using three study groups in a modified Solomon four-group design: a pretest and posttest experimental group; a posttest only group; and a two-test control group. Data was collected through Likert-style questions via computer.	174 subjects, of which 161 were dental students† (the remaining 13 were faculty members). Students from second- to fourth-year of study were recruited. Gender ratio: 53% male, 47% female.	One-time interactive multimedia tutorial featuring actors, where subjects are asked to interact with a virtual patient. Participation required between 15 and 25 minutes.	• Knowledge and attitudes about DV were assessed on the basis of four main criteria (Asking, Validating, Documenting, Referring; AVDR) (self-reported). • Beliefs about own knowledge of DV-related concepts (self-reported). • Attitudes about other related aspects of DV (self-reported).	• After the tutorial, both experimental groups demonstrated significant improvements in knowledge and attitudes in all four AVDR criteria as compared with the control group. • The two experimental groups did not differ significantly from each other, suggesting that improvements could not be attributed to a testing effect. • Regarding attitudes about 'other related aspects of DV', only 2 out of 8 posttest scores for both intervention groups were significantly different from control group scores.

Edwardsen, Morse and Frankel (2006) *USA*	To determine if a teaching module with a mnemonic improves IPV interviewing skills among medical students.	Prospective randomized trial with intervention and control group. A video-taped competency-based evaluation using SPs was used to assess the intervention results. A posttest questionnaire was also given to assess perceived usefulness of the mnemonic.	43 first-year medical students (43% of cohort). Gender ratio: Not specified.	1-hour didactic IPV presentation, followed by 1-hour faculty-facilitated small-group discussion featuring SPs for practice of interviewing skills. Intervention group attended additional training session prior to small-group discussion which involved structured discussion on use of the mnemonic.	• Perceived usefulness of the mnemonic (self-reported). • Ability to discern a history of abuse during interaction with SP (objectively measured).	• The intervention group perceived the mnemonic to be more useful than did the control group. • The intervention group consistently outperformed the control group during evaluation. However, of the seven criteria assessed, only two offered a statistically significant group difference.
Elman *et al*. (2004) *Canada*	To examine the effect of unannounced SPs in the clinical setting as a teaching strategy for medical students on the subject of family violence.	Quasi-experimental study design with intervention and control group. Intervention outcomes were assessed during end-of-rotation OSCE.	110 third-year medical students (61% of cohort). Gender ratio: Not specified.	Interactive 2-hour seminar, including opportunity to practice management of a SP. The intervention group was assigned to receive a similar interaction during clinical rotation; they were unaware the 'patient' was an actor until after the encounter.	• Frequency with which students inquired about family violence during end-of-rotation OSCE (objectively measured).	• There was a statistically significant increase in frequency of inquiring about family violence by students in the intervention group. • The improvement was more pronounced in the group of students interacting with a prenatal SP case, as compared with the musculoskeletal SP case group, possibly due to the more obvious transfer context of the former.
Ernst *et al.* (1998) *USA*	To determine knowledge about DV, the effectiveness of formal instruction about DV, and the prevalence of DV in a first-year medical school class.	One-group pretest-posttest study design. Confidential and anonymous written survey used to collect data; this was completed once before and one month after the intervention. The Index of Spouse Abuse (ISA) was administered once only (pretest) to determine baseline levels of abuse among the group.	141 first-year medical students participated in both pre- and posttest. Gender ratio: 49% male, 50% female (NB. One student not accounted for).	Series of lectures (3 hours in total) about DV including demonstration of mock patient. Lectures covered historical perspective of DV, current laws, risk factors, victimization processes, screening tools (including ISA), and barriers and facilitators to identification in practice.	• Actual knowledge (objectively measured). • Actual personal history of DV (objectively measured by ISA). • Perceived personal history of DV (self-reported).	• Students' knowledge was significantly increased for specific facts (3 out of 14) following the intervention. • Statistically significant differences in responses to specific questions (3 out of 14 in posttest) were observed between male and female students, with females outperforming males in all 3 questions. • After the intervention, more students identified themselves as having experienced DV. However, there were discrepancies between the students' actual and perceived levels of personal experience of DV.

Ernst *et al*. (2000) *USA*	To evaluate the long-term effectiveness (LTE) and long-term retention (LTR) of formal instruction about DV.	Longitudinal one-group pretest-posttest study design. General knowledge survey on DV used to collect data; this was given before, one month after, and 2 years after the formal instruction.	104 medical students (70% of those who received the intervention participated in this 2-year follow-up). The students were first-year at the time of the intervention. Gender ratio: 51% male, 49% female.	A series of lectures about DV, including a demonstration with a mock patient being seen for DV-related injuries. This educational session was approximately 3 hours in length.	• Information learned and retained (LTE and LTR) (objectively measured). • Information learned but forgotten (neither LTE nor LTR) (objectively measured). • Information already part of the students' knowledge base (objectively measured).	• Responses to the general knowledge survey on DV largely showed improvement between pretest and 3-year follow-up. • Between the first and second survey (administered 2 months following formal instruction)‡, there was more significant improvement in DV-related knowledge than between the first and third survey, suggesting reduced LTE and LTR over time.
Everett *et al*. (2012) *USA*	To assess first-year dental students' awareness and beliefs regarding IPV before and after a one-hour educational seminar.	One-group pretest-posttest study design. Voluntary survey pre- and post-intervention; eight-item questionnaire.	65 first-year dental students. Gender ratio: 70.8% male, 29.2% female.	One-hour educational seminar facilitated by an experienced IPV outreach coordinator, involving a presentation, supplemental resources and contact information, and question-and-answer session.	• Awareness of IPV as a health or dental profession issue and awareness of IPV resources (self-reported). • Professional beliefs regarding the dental profession and IPV issues (self-reported). • Personal beliefs regarding IPV education and intervention (self-reported).	• Respondents' awareness of IPV as a health or dental profession issue and awareness of IPV resources increased significantly following the educational session. • Professional beliefs were largely improved following the educational session. • Willingness to participate in further IPV education and self-reported comfort to participate in IPV intervention both increased significantly following the educational session.
Haase *et al.* (1999) *USA*	To investigate whether an elective DV course delivered to medical students resulted in improved attitudes and abilities during clinical years.	Posttest-only study design. Data collected through 11-item survey instrument which was administered 2 years after the DV course.	115 medical students. Of these, one fourth reported having participated in the elective DV course. Students were first-year at the time of the intervention. Gender ratio: 56% male, 44% female.	Nine hours of didactic sessions over a six-week period. These sessions covered strategies for identification of victims, intervention methods, and reading of landmark DV literature. Participation in a class project was also required to complete the course (no further information given).	• Perceived preparedness to recognize and address DV (self-reported). • Comfort (self-reported). • Frequency of screening for DV during clinical rotations (self-reported). • History of successfully identifying DV during clinical rotations (self-reported). • Awareness of local DV advocacy program (objectively measured).	• Women were disproportionately interested in undertaking the elective DV course. However, there was not a significant gender effect on students' scoring (measured by a Domestic Violence Sensitivity Scale; DVSS). • The DV-educated group scored significantly higher on the DVSS. • DV-educated students reported higher levels of comfort, frequency of screening and history of successfully identifying DV during clinical rotations.

Helton and Evans (2001) *USA*	To examine senior baccalaureate nursing students' experiences of completing an experiential DV learning module (DVLM).	Qualitative phenomenological study design. Data collected from participants' journals (voluntary and anonymous); this was the only written requirement for the DVLM.	The journals of 18 baccalaureate nursing students (out of 60 in total) were randomly selected for analysis. Gender ratio: 10% male, 90% female (total cohort).	22-hour mandatory course involving orientation, pretesting and posttesting, review of didactic material, learning module notebook and video, 8-hour court experience, three 60-90-minute group therapy sessions (one with shelter victims and two with perpetrators in court-ordered group), and three-hour debriefing session.	• No measured outcomes due to qualitative phenomenological study design.	• Five common themes emerged from the students' journals: (1) clinical encounters were frightening and emotionally difficult to attend; (2) surprise at the incidence of violence; (3) identifying with the victims; (4) dispelling of stereotypes about perpetrators and victims; and (5) consideration of the moral issues of 'good' and 'bad' in relation to nursing practice.
Heron *et al*. (2010) *USA*	To implement and assess an IPV OCSE module using SPs, with the goal of improving students' competency, self-efficacy, communication skills and professionalism.	Prospective observational study design. 360-degree evaluation form was used to assess competency and comfort levels during OSCE. Pre- and posttests were also used to assess knowledge, attitudes, beliefs and comfort levels surrounding IPV, but these were not graded, and no basic data are provided.	41 fourth-year medical students. Gender ratio: 49% female, 51% male (NB. Ratio reflects the overall cohort, whose size was not specified).	One-hour interactive didactic training in small groups. Additionally, the OSCE featuring SPs was conducted prior to the posttest, and although it served as a means of assessment, it could be considered as an interactive experience and/or intervention in its own right, as it would likely have impacted the students' posttest responses.	• Competency in IPV (self-reported and objectively measured). • Comfort (self-reported and objectively measured). • Communication, professionalism and patient care (objectively measured).	• There was no significant improvement in students' self-reported comfort levels between pre- and posttest. • Correlation between self-reported comfort level and OSCE-assessed competencies was positive.
Jonassen *et al.* (1999) *USA*	To determine whether participation in a domestic violence interclerkship (DVI) improved the knowledge, attitudes and skills of two successive	Two-group pretest-posttest study design. Posttest was implemented once immediately after intervention and again at 6 months. A third cohort which had not received the DVI was used as a control (certain	67 medical students from first cohort and 77 students from second cohort participated in the pretest, immediate posttest and 6-month posttest (written measurements	First cohort: 3.5-day interclerkship on domestic violence, including a series of didactic and interactive content (lectures, films, panels, standardized patient interviews, role plays and small-group discussions). Students	• Knowledge, attitudes and skills pertaining to DV (objectively measured through written assessment). • Feedback regarding course format, content and effectiveness (self-reported).	• Students' knowledge, attitudes and skills were all significantly improved following DVI participation (both cohorts). • Students from the first cohort maintained improvements in all three domains (knowledge, attitudes and skills) at 6-month follow-up, whereas students from the second cohort maintained their improved skills only.

	cohorts of medical students.	posttest criteria only). Data was collected via written assessments, Likert scale feedback, questionnaires regarding clinical experiences, and OSCE assessments.	only). The OSCE assessment scores of both full cohorts (98 and 107 students respectively) were compared with a third cohort of 93 students. Gender ratio: Not specified.	also interacted with real DV survivors. Second cohort: Same intervention as first cohort but lasting 2 days.	• Reports of students' clinical experiences with DV (self-reported). • Preparedness for DV-based OSCE (self-reported). • Performance in addressing DV (objectively measured though OSCE).	• Students who participated in the shorter DVI rated the course more favorably. • Both intervention cohorts performed significantly better in their DV-based OSCE assessments than did the third (control) cohort. All three cohorts performed equally in non-DV-based OSCE stations. • Students from both intervention cohorts reported a significantly higher sense of preparedness for the DV-based OSCE than the control cohort.
Kennedy *et al*. (2013) *Ireland*	To evaluate the effectiveness of a teaching session on the care of the victim of sexual violence for undergraduate medical students.	Quasi-experimental study design. Pre- and post-intervention survey using Likert scale.	88 third-year medical students. Gender ratio: 44% male, 56% female (NB. Ratio reflects the 105 students who originally consented to take part in the study).	Two-hour interactive lecture including a training DVD to help maintain student engagement.	• Awareness of key issues relating to care of patients who have experienced sexual violence (self-reported). • Insight into common rape myths (self-reported).	• Students improved their knowledge of patient care and insight into common rape myths following the educational intervention.
McAndrew, Pierre and Kojanis (2014) *USA*	To determine the effectiveness of an online DV tutorial for changing dental students' knowledge, attitudes, beliefs and behaviors.	Quasi-experimental pretest-posttest study design with control and intervention group. Pre- and post-intervention survey (Physician Readiness to Manage Intimate Partner Violence Survey; PREMIS) used to collect data.	25 forth-year dental students. Gender ratio: Not specified.	One-hour web-based tutorial divided into 10 modules. The intervention group took the survey before and after the online training, while the control group took the same survey twice *before* completing the online training.	• Perceived preparation to manage IPV (self-reported). • Perceived knowledge (self-reported). • Actual knowledge (objectively measured). • Opinion scales to assess perceived readiness to manage IPV based on 8 criteria (self-reported).	• The intervention group's composite scale scores were significantly increased post-intervention for perceived preparation, perceived knowledge and actual knowledge. • There was a significant improvement in 2 of the 8 opinion scale scores for the intervention group; the remaining 6 were improved but not significant. • The intervention group's posttest scores were greater than those of the control group, but not significant.
Milone *et al*. (2009) *USA*	To determine if medical students' attitudes toward rape and sexual assault can be changed through	One-group pretest-posttest design. Anonymous 21-item questionnaire completed before interventions, again after first intervention, and	102 second-year medical students. Gender ratio: 46% male, 54% female. (NB. Ratio reflects the 127 students in	Intervention 1: 45-minute lecture on the subject of sexual assault, including instructions on screening techniques and treatment of victims. Lecture attendance was voluntary.	• Rape myth acceptance (self-reported). • Attitudes toward screening (self-reported).	• Significant differences in both rape myth acceptance and attitudes toward screening were observed between pretest and first posttest, but not between first and second posttest. • No significant difference was observed between the responses of students who had and had not attended the lecture.

	educational interventions.	again after second intervention.	the cohort, and not the 102 who completed the posttest).	Intervention 2: SP encounter involving history-taking and a physical exam.		• Significant differences were observed between male and female responses (females were less accepting of rape myths and showed more positive attitudes toward screening).
Pomeroy *et al*. (2013) *USA*	To compare the effects of two educational methods on social work students' knowledge and attitudes towards interpersonal violence among college students.	Mixed methods; three-group pretest-posttest study design with qualitative measurement procedures. Data was collected through focus groups.	63 social work students, year of study not specified (48 participated in the pre-intervention focus groups, and 40 in the post-intervention focus groups). Gender ratio: 19% male, 81% female.	Three groups were compared (two intervention and one control); the interventions were peer theatre (interactive; 90-minute presentation) and peer education (didactic; 90-minute lecture). The comparison group watched a family orientated video that contained no violence (90 minutes in length).	• Focus group questions were centered on beliefs about relationship violence, sexual assault and stalking.	• Themes from pre-intervention focus groups: (1) relationship violence: naïve awareness; (2) sexual assault: concerned but uninformed; (3) stalking: serious versus familiar, funny and flattering. • Post-intervention, the comparison group statements remained similar to pre-intervention; the peer education group results showed increased knowledge acquisition; and the peer theatre group results suggested integration of knowledge, awareness and practical application.
Smith, Wight and Homer (2017) *Australia*	To evaluate the effectiveness of an educational intervention to increase student midwives' confidence to screen for and respond to DV disclosure during pregnancy.	Mixed methods; one-group pretest-posttest design. Three surveys used to collect data: initial online knowledge survey, pre-workshop confidence survey (immediately prior) and post-workshop confidence survey (immediately after). Quantitative and qualitative questions were included.	72 midwifery students completed the pretest survey and 102 completed the posttest survey. 40% of the sample were in their third-year of study§. Gender ratio: Not specified.	Interdisciplinary and interactive one-day workshop covering theory and practice.	• Confidence levels in 8 DV-related topic areas (self-reported). • Open-ended survey questions, pre- and post-workshop, asked the students to identify activities which may increase their confidence to screen for and respond to disclosures of DV.	• A statistically significant increase in students' confidence levels was reported across all 8 topic areas following the workshop. • In the pretest survey, students suggested that activities centered on the *process* of addressing DV in practice would be most useful in helping to increase their confidence. • In the posttest survey, students reported that the most useful activities in the workshop were those focused on the *process* of addressing DV, consistent with their pretest views. • Both didactic and interactive activities were cited as being useful.

†Although only 93% of the sample in Danley *et al*.'s (2004) study were students, the paper was deemed to be useful in answering the research question.
‡2-month follow-up survey was part of a previous study by the authors.
§Approximately 60% of the students in Smith *et al*.'s (2017) study were registered nurses completing a 12-month preregistration midwifery program. Although this group was already registered in a healthcare profession, they were yet to qualify in the profession being studied by this research (midwifery), and so the paper was not excluded. It would not have been possible for this review to exclude all papers featuring already-registered health professionals seeking to qualify in a second health-related area, as oftentimes this is not an explored characteristic.

Table 4: Summary of Critical Appraisal (Quantitative and Mixed Methods)

	Aims clearly stated	Study design suitable to meet objectives	Outcomes	Quantitative and qualitative methods used appropriately	Teachers and learners blinded to study purpose	Assessors and examiners blinded to learning method	Evidence of sample size estimates	Ethical approval obtained if appropriate†	Data collection instrument (validity)	Data collection instrument (reliability)	Time elapsed between intervention and posttest‡	Data analysis	Presentation of results	Discussion	Summary score for methodological rigor§	Summary score for data relevance§
Buranosky *et al.*	G	F	G	G	n/a	n/a	P	n/a	F	P	n/a	G	G	G	2	3
Cerulli *et al.*	G	F	F	G	P	P	P	n/a	P	P	n/a	F	G	G	2	2
Danley *et al.*	G	G	G	G	P	P	P	G	F	P	P	G	G	G	2	3
Edwardsen *et al.*	G	G	G	G	G	G	P	G	G	G	P	G	G	G	3	3
Elman *et al.*	G	F	P	G	G	P	P	G	P	P	G	G	G	G	2	1
Ernst *et al.* (1998)	G	F	F	G	U	P	P	G	F	P	G	G	G	G	2	2
Ernst *et al.* (2000)	G	F	F	G	P	P	P	G	P	P	G	G	G	G	2	2
Everett *et al.*	G	F	G	G	P	P	P	n/a	P	P	P	G	G	G	2	3
Haase *et al.*	G	F	P	G	P	P	P	n/a	P	F	G	F	F	F	2	1
Heron *et al.*	F	U	U	G	U	U	P	G	F	P	G	U	F	G	1	1
Jonassen *et al.*	G	G	G	G	P	P	P	U	F	F	G	G	G	F	2	3
Kennedy *et al.*	G	F	G	G	P	P	P	G	G	G	P	G	G	G	2	2
McAndrew *et al.*	G	G	G	G	P	P	P	G	G	G	P	G	G	G	2	3
Milone *et al.*	G	F	G	G	P	P	G	G	P	G	P	F	G	G	2	3
Pomeroy *et al.*	G	G	G	G	G	U	P	G	n/a	n/a	G	G	G	G	3	3
Smith *et al.*	G	F	G	G	P	P	P	G	G	P	P	G	G	G	2	3

G = Good; F = Fair; P = Poor; U = Unclear; n/a = Not applicable

†Some studies were given exempt status by the university in which the research took place.

‡*Not applicable* given to studies where time elapsed between intervention and posttest was not relevant (e.g. if opinions and feedback were the only assessed outcomes).

§As adapted by Tranter, Irvine and Collins (2011) after Whittemore and Knafl (2005).

Table 5: Summary of Critical Appraisal (Qualitative)

	Clear statement of research aims	Appropriateness of qualitative methodology	Research design appropriate to address aims	Appropriateness of recruitment strategy	Data collection	Researcher-participant relationship considered	Consideration of ethical issues	Data analysis sufficiently rigorous	Clear statement of findings	Value of the research	Summary score for methodological rigor†	Summary score for data relevance†
Helton and Evans	G	G	G	F	G	P	G	G	G	F	2	3

G = Good; F = Fair; P = Poor; U = Unclear; n/a = Not applicable
†As adapted by Tranter, Irvine and Collins (2011) after Whittemore and Knafl (2005).

Table 6: Critical Findings

Critical Findings
1. Interactive approaches to learning yield better results than didactic approaches. 2. Students prefer their learning to be practice-focused rather than strictly theoretical. 3. Courses of longer duration seem to be more effective in altering students' attitudes and opinions. 4. Gendered differences might be significant, although more research is needed before conclusions can be drawn. Females tended to outperform males in assessments.

Table 7: Implications for Policy, Practice and Research

Implications for Policy, Practice and Research
1. GBV learning opportunities should have a practical focus and should aim to incorporate an interactive element for improved results. 2. More research is needed on the subject of single- versus mixed-gender audiences in GBV education for pre-qualifying healthcare students. 3. Existing and future education programs should give greater attention to the wider forms of GBV (including female genital mutilation/cutting, forced marriage, honor violence and human trafficking). Future research may also strive to incorporate a focus on wider learning theory and consider its application in the development of GBV curricula.

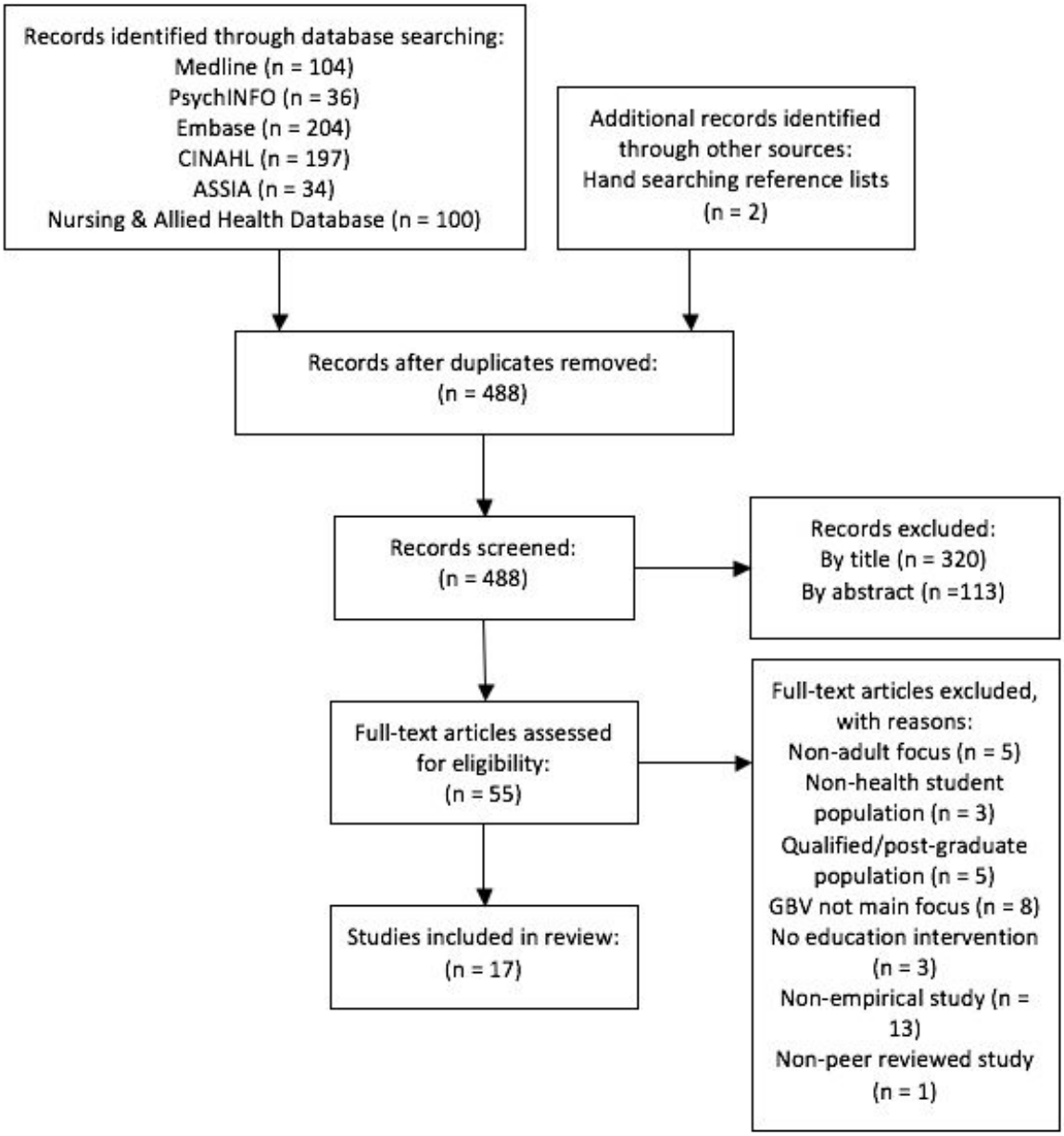

Figure 1: PRISMA Flow Chart

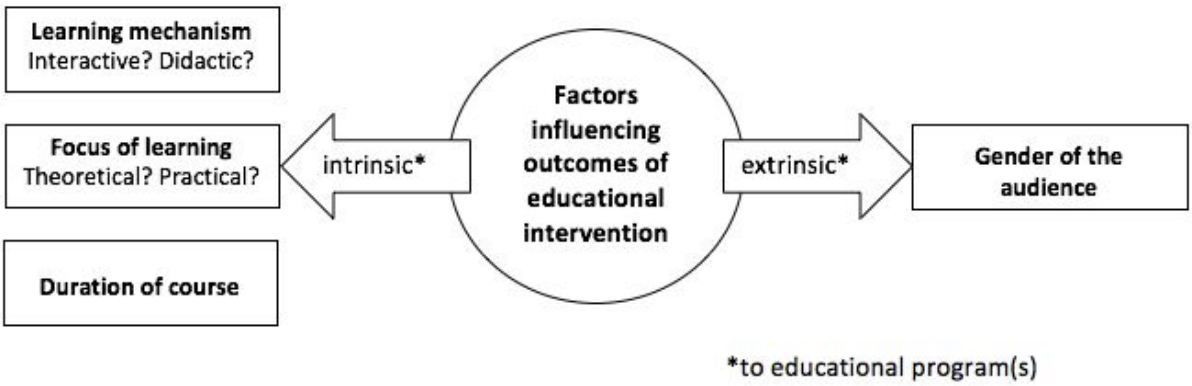

Figure 2: Visual Summary of Themes