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Abstract

Aims

To synthesise the existing literature which focuses on the impact of critical incidents on nurses and midwives, and to explore their experiences related to the support they received in the current healthcare environment in order to move-on from the event.

Design

Systematic review and qualitative synthesis.

Data sources

The electronic databases CINAHL, MEDLINE, PsycINFO, PubMed, Embase and Nursing and Allied Health (ProQuest) were systematically searched from 2013-2018 and core authors and journals identified in the literature were manually investigated.

Review methods

Qualitative studies of all research design types written in English were included according to the PRISMA reporting guidelines. The methodological quality of included studies was evaluated using the Joanna Briggs Institute (JBI) Critical Appraisal Checklist for Qualitative Research.

Results

A total of 7,520 potential publications were identified. After removal of duplicate citations, study selection and appraisal process, 11 qualitative primary research papers progressed to the meta-synthesis by meta-aggregation. The 179 findings and sub-findings from the included studies were extracted, combined and synthesised into three statements addressing three different aspects within the context of critical incidents: the experiences of the impact, the perceptions of support and the ability to move-on.

Conclusion

This review illuminated that moving-on after critical incidents is a complex and wearisome journey for nurses and midwives. More attention should to be drawn to second victims within general nursing and midwifery practice to strengthen their ability to navigate the aftermath of

critical incidents and reclaim the professional confidence indispensable to remain in the workforce.

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1. INTRODUCTION

Many health care professionals, including nurses and midwives, have described their involvement in critical incidents as the "darkest hour" of their professional careers (Scott et al., 2009, p. 328). Incidents have the potential to leave heath care professionals in significant distress, and hence have been described as the second victims of critical incidents. The notion of second victims has drawn attention to and inspired international exploration of this phenomenon (Wu, 2000).

A critical incident is defined as "a sudden unexpected event that has an emotional impact sufficient to overwhelm the usually effective coping skills of an individual and cause significant psychological stress" (de Boer et al., 2011, p. 316). A critical incident may not necessarily stem from catastrophic circumstances; the emotional, physical and professional impact on those involved can occur following any adverse event, clinical error or patient incident (de Boer et al., 2011). Regardless of the heterogeneity of critical incidents, the involvement in them can cause many health care professionals to experience emotional suffering and disturbing perceptions of their personal and professional self-image, which are often associated with long-term emotional sequelae and professional isolation (Scott et al., 2009).

The associated profound consequences of critical incidents cannot be underestimated as a negative influence on professional self-esteem, clinical competence, quality of patient care and the capacity to practice within the profession (Lewis, Baernholdt, Yan, & Guterbock, 2015; McLennan et al., 2015; Mealer et al., 2012b). Despite the awareness of the personal, social and professional effects of work-related stress, it has been acknowledged that health care organisations fail to provide adequate support mechanisms to address this potential workforce attrition (Kable, Kelly, & Adams, 2018).

Work related stress is amongst the most complex and influencing factors on the retention and attrition of nurses and midwives (Australian Government Department of Health, 2013). It is therefore paramount that retention strategies continue to be explored and implemented to sustain and strengthen the existing workforce.

Nurses and midwives are critical in the delivery of health care and represent 28 million, equating to 59% of the international health workforce (World Health Organisation, 2020). The

World Health Organisation (WHO) published a State of the World's Nursing report in 2020 which detailed the nursing and midwifery shortages estimated to reach 5.7 million by the year 2030 (World Health Organisation, 2020). The WHO projects that the proportion of the world's population aged 60 and over will nearly double from 12% to 22% by the year 2050 (World Health Organisation, 2018). The demands on health care associated with this shift, combined with the projected global shortfall of nurses and midwives, makes the retention of nurses and midwives in the workforce even more imperative. Developing a deeper understanding of the second victims' experiences and the support they require to maintain their clinical roles, could counteract the work-stress related attrition in nursing and midwifery. This has the potential to promote retention and contribute to reducing the projected national and international workforce shortages of nurses and midwives (Health Workforce Australia, 2014; World Health Organisation, 2020).

2. AIMS

The aim of this systematic review was to examine the international research and develop a contemporary understanding of the impact that critical incidents have on nurses and midwives in the current healthcare climate. Despite the widespread recognition of this impact, there is a dearth of studies that have investigated the strategies utilised by nurses and midwives to manage the intense reactions associated with exposure, or how future professional experiences have been influenced. It is important to explore these experiences so that health care organisations, managers and potentially other health care professionals better understand how to support those individuals involved.

2.1. Design

A six-step process endorsed by the Joanna Briggs Institute (JBI, 2018) was applied as a review protocol to enable a rigorous and transparent approach to identify, appraise and synthesise the relevant literature (Aromataris & Pearson, 2014; Aromataris & Riitano, 2014; Munn, Tufanaru, & Aromataris, 2014b; Porritt, Gomersall, & Lockwood, 2014; Robertson-Malt, 2014; Stern, Jordan, & McArthur, 2014).

2.2. Search Methods

This systematic review followed the guidelines of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement (Moher, Liberati, Tetzlaff, & Altman, 2009) (supplementary file 1).

2.2.1. Search strategy

The specific review question was constructed from the four elements of the *Population, phenomenon of Interest, Context* and *Study* design (PICoS) method (Stern et al., 2014): *What are nurses' and midwives' ("P") experiences and perceptions ("I") of critical incidents ("Co") depicted in qualitative research ("S")?* The specific search protocol was based on the key terms derived from the review question (Aromataris & Riitano, 2014). The search protocol featured a broad and systematic searching of electronic databases CINAHL, MEDLINE and PsycINFO, the supplemental databases PubMed, Embase and Nursing and Allied Health (ProQuest) between the 13th October to the 31st October 2018 (see supporting information A). The time period of five years was established due to increased attention of the topic and to capture contemporary international research relevant to the PICoS. Manual searching of core authors and journals identified in the literature, scanning of the reference trails of selected studies and scoping of unpublished material was also performed (Souza, Silva, & Carvalho, 2010). To minimise publication bias and to provide a thorough account of the available evidence, the grey literature was examined, including relevant websites.

Inclusion and exclusion criteria

The development of precise inclusion and exclusion criteria (supporting information B) added to the rigour and enabled the replicability of this review (Stern et al., 2014). The inclusion and exclusion criteria identified pertinent literature, while excluding irrelevant studies (Aromataris & Riitano, 2014)

2.2.2. Search Outcomes

Studies which met the inclusion criteria were screened and assessed for eligibility. If unclear from the title and abstract whether the article was relevant, the full text was considered (Porritt et al., 2014). Critical appraisal of potential studies excluded those of inferior quality and identified the strengths and limitations of the final 14 publications in this review (Porritt et al., 2014). The detailed search summary table demonstrates the characteristics of the included and excluded studies (supporting information C).

2.2.3. Quality Appraisal

The standardised JBI SUMARI instrument for the Critical Appraisal of Qualitative Evidence (Joanna Briggs Institute, 2018) was used to assess the overall congruity between the philosophical perspectives of each study and the methods applied. The authors utilised the 10

criteria of the JBI SUMARI instrument, supporting information D, to independently evaluate the papers to support the transparency of the study selection and to reach agreement on the ratings for study inclusion (Aromataris & Riitano, 2014). A summary of the quality assessment of the included quantitative studies is displayed in supporting information E.

Seventeen papers achieved a score between seven and nine, whilst the lowest score of six was attributed to three publications. None of the twenty included studies met all the applied quality appraisal criteria because none of the papers clearly located the researcher culturally or theoretically (Q6), nor sufficiently addressed the influence of the researcher on the research and vice-versa (Q7). The congruity between the stated philosophical perspective and the research methodology (Q1), was unclear in four papers (Cauldwell, Chappell, Murtagh, & Bewley, 2015; Clark & McLean, 2018; de Boer, van Rikxoort, Bakker, & Smit, 2014; Ferrús, Silvestre, Olivera, & Mira, 2016). Only Ferrús et al. (2016) presented indistinct congruity between the research methodology and the representation and analysis of data (Q4) and was therefore excluded after only meeting six of the 10 criteria. Also excluded was the study by Ullström and colleagues (Ullström, Andreen Sachs, Hansson, Ovretveit, & Brommels, 2014), because the participants and their voices were not adequately represented, nor was there evidence of ethical approval.

Mayer and Hamilton's paper (2018) did not mention ethical approval and failed to define the congruity between the research methodology and the research question. Following the close examination of any discrepancies, the decision was made to further exclude the study by Matandela and Matlakala (2016), because the research methodology was not detailed enough, data analysis was vague and the congruity between the research methodology and the interpretation of the result was weak. After rigorous discussion of the quality appraisal results following the independent review by the authors, two further studies were excluded (Ndikwetepo & Strumpher, 2017; Sato, 2015), not because of inadequate quality, but because they did not sufficiently address the PICoS. A total of 14 studies progressed to the qualitative data extraction and synthesis phase.

2.2.4. Data abstraction

Of the 14 included studies, the results of three articles could not be extracted. Whilst these appeared to have sufficiently addressed the PICoS initially because they included nurses or midwives in their sample, they also incorporated other health care professionals. It was not possible to identify the findings specific to nursing or midwifery without making assumptions

about their contribution to the themes (Cauldwell et al., 2015; Laurent et al., 2014; Rinaldi, Leigheb, Vanhaecht, Donnarumma, & Panella, 2016).

2.2.5. Data synthesis

To assemble the findings from the final 11 qualitative research papers, a meta-synthesis by meta-aggregation was undertaken (Munn et al., 2014b). Meta-aggregation is the JBI model for the synthesis of qualitative data (Munn et al., 2014b), which enabled the explicit focus on the complexity of the phenomena in question as well as to identify gaps in the literature. The themes and sub-themes from each of the 11 included studies' findings, supported by illustrations of participants' quotations, were extracted and assigned one of the three levels of evidence: 'unequivocal', 'credible' or 'not supported' (Joanna Briggs Institute, 2018). Those themes and sub-themes strengthened by illustrations from the participants beyond reasonable doubt were defined as 'unequivocal', whilst statements supported by citations that were open to interpretation were labelled 'credible' (Joanna Briggs Institute, 2018). Themes that were 'not supported' were extracted to provide context and background for the findings overall, however, they were not included in the synthesis.

2.2.6. Assessing Confidence

To assess and rate the confidence of the synthesised findings of this review, the dependability and credibility of each study was considered according to the ConQual approach by the primary author (Munn, Porritt, Lockwood, Aromataris, & Pearson, 2014a).

Dependability of the extracted findings was based the congruity between the research methodology and the conduct of the research presented in each study. All of the 11 included papers were rated against five specific questions (Q2, Q3, Q4, Q6 and Q7) of the standardised JBI SUMARI instrument for the Critical Appraisal of Qualitative Evidence presented in Supporting Information D (Joanna Briggs Institute, 2018). All studies demonstrated appropriateness of the methodology in relation to the research question or objectives, methods used to collect data and representation and analysis of data (Q2, Q3 and Q4). However, a statement locating the researcher culturally or theoretically (Q6) or the influence of the researcher on the research, and vice-versa (Q7), was either unclear or not addressed and the dependability rating was downgraded one level to moderately high (Munn et al., 2014a).

Credibility was established by assigning a classification of evidence to each of the included study findings, which enabled the evaluation of the trustworthiness (Hannes, Petry, &

Heyvaert, 2018). As this review consists of a mix of unequivocal and credible findings, the overall credibility of the findings were downgraded to a moderate level of credibility, as a high level required the presence of unequivocal findings exclusively (Munn et al., 2014a).

2.3. Ethical approval

This review complied with the recommendations for the conduct, reporting, editing and publication of scholarly work (International Committee of Medical Journal Editors, 2019) and the code of conduct for editors (Committee on Publication Ethics, 2020). The review was part of a research project endorsed by the Human Research Ethics Committee of Edith Cowan University (project number approval 17398).

3. RESULTS

3.1. Study inclusion

Figure 1 illustrates the results in the PRISMA flow diagram (Moher et al., 2009). A total of 7,520 potential publications were identified and exported to the bibliographic management software EndNote for removal of duplicate citations and commencement of the study selection (Aromataris & Riitano, 2014). Following elimination of 3,112 duplications, 4408 titles and 174 abstracts were screened to exclude papers which did not relate sufficiently to the PICoS. Fifty-four full-text articles were assessed and further reduced the number of publications which did either not meet the inclusion criteria or reported on issues that related to the exclusion criteria (Porritt et al., 2014). Twenty selected studies were subjected to a critical appraisal.

3.2. Study characteristics

A total of 179 findings and sub-findings of this review were derived from the analysed statements of 167 nurses (including 10 nurse practitioners) and 51 midwives in 11 qualitative studies published between 2013-2018. The majority of the participants were female who worked in Intensive Care Units (ICU), High Dependency Units (HDU), Emergency Departments (ED), acute care or maternity settings. Other clinical areas were much less represented. Of the 11 studies, two were conducted in Australia (Allen & Palk, 2018; Kable et al., 2018), two in Iran (Ajri-Khameslou, Abbaszadeh, & Borhani, 2017; Mohsenpour, Hosseini, Abbaszadeh, Shahboulaghi, & Khankeh, 2018) two in in the United States of America (USA) (Delacroix, 2017; Thornton Bacon, 2017), another two in England (Clark & McLean, 2018; Sheen, Spiby, & Slade, 2016), one in the Netherlands (de Boer et al., 2014), Singapore (Chan, Khong, Pei Lin Tan, He, & Wang, 2018) and New Zealand (Calvert & Benn, 2015). The sample

size ranged from seven to 35 participants in ten of the included studies, which all collected data through interviews followed by thematic, content or framework analysis. Only one of the papers conducted a survey of 80 participants which included open ended questions and thematic analysis (Allen & Palk, 2018). See supportive information C, which demonstrates the detailed search summary table.

3.3. Review findings

The 179 extracted themes and sub-themes progressed to a meta-synthesis by meta-aggregation (Munn et al., 2014b) and were cross-compared initially by the primary author to identify thematically or conceptually related commonalities. Following deliberation with all authors, nine identified groups emerged according to their similarity in meaning (Hannes et al., 2018): (a) emotional impact, (b) physical impact, (c) professional impact, (d) personal and peer support, (e) culture of workplace support, (f) value of debriefing, (g) living with the impact, (h) post-incident growth and (i) coping with the impact. Supporting information F demonstrates how these nine categories were aggregated into synthesised, representative statements, which supported the results of this systematic review (Munn et al., 2014b).

Synthesised finding 1 – Experiences of the impact: Nurses and midwives reported multifaceted experiences after their involvement in critical incidents. They conveyed that the extent of the associated emotional, physical and professional impact was likely underestimated by themselves and others. This synthesised statement stemmed from 50 findings and sub-findings aggregated in three categories.

Category 1 – Emotional impact (n = 13 findings and sub-findings from six studies (Allen & Palk, 2018; Chan et al., 2018; de Boer et al., 2014; Kable et al., 2018; Mohsenpour et al., 2018; Sheen et al., 2016): Nurses and midwives found themselves overwhelmed by negative emotional reactions. They were distraught and expressed feelings of powerlessness, profound sadness and loss of self-esteem: “I was overwhelmed by emotions . . . tears were in my eyes” (de Boer et al., 2014, p. 169). Shame, guilt, anger, regret, remorse and blame fuelled the emotional turmoil giving rise to self-doubt (Chan et al., 2018; de Boer et al., 2014; Mohsenpour et al., 2018; Sheen et al., 2016).

Category 2 – Physical impact (n = 5 findings and sub-findings from six studies (Ajri-Khameslou et al., 2017; Allen & Palk, 2018; Chan et al., 2018; de Boer et al., 2014; Delacroix, 2017; Mohsenpour et al., 2018): Many nurses and midwives experienced a paralysing sense of

doom and panic, which manifested itself in physical reactions associated with stress, such as feeling nauseous, hot, tachycardia, sweating and trembling (Allen & Palk, 2018; de Boer et al., 2014; Delacroix, 2017; Mohsenpour et al., 2018): "It affected me a lot… I started shaking from stress" (de Boer et al., 2014, p. 169). Some participants reported prolonged hyper-vigilance, flash-backs and insomnia, due to recurring thoughts of the incident which provoked re-evaluation of their clinical competence (Ajri-Khameslou et al., 2017; Chan et al., 2018; Delacroix, 2017).

Category 3 – Professional impact (n = 32 findings and sub-findings from nine studies (Ajri-Khameslou et al., 2017; Allen & Palk, 2018; Calvert & Benn, 2015; Chan et al., 2018; de Boer et al., 2014; Delacroix, 2017; Kable et al., 2018; Mohsenpour et al., 2018; Sheen et al., 2016): It was irrefutable that nurses and midwives were exposed to sudden, unpredictable and often traumatic events at work and many described the associated professional implications as destructive (de Boer et al., 2014; Kable et al., 2018; Sheen et al., 2016). "I felt incompetent…"(Delacroix, 2017, p. 405). Filled with dread of making another error, their future became uncertain in view of investigative or disciplinary actions (Ajri-Khameslou et al., 2017; Delacroix, 2017).

Synthesis 2 – Perceptions of support: Opposing perspectives on the perceived level of support nurses and midwives received during and after the incident from family and friends, work colleagues and managers through workplace practices and debriefing opportunities were inconsistent and ranged from sufficient to completely absent. This synthesis was derived from 53 findings and sub-findings aggregated in categories four, five and six.

Category 4 – Personal and peer support (n = 8 findings and sub-findings from five studies (Allen & Palk, 2018; de Boer et al., 2014; Kable et al., 2018; Mohsenpour et al., 2018; Thornton Bacon, 2017): Personal and peer support received was described as a crucial factor in coping with the multi-dimensional impact of the event. Although the compassion from family and friends was the main source of reassurance for some, most nurses and midwives described the support they received from colleagues during and after critical incidents as imperative to their recovery (Allen & Palk, 2018; de Boer et al., 2014; Kable et al., 2018; Mohsenpour et al., 2018; Thornton Bacon, 2017).

Category 5 – Culture of workplace support (n = 26 findings and sub-findings from eight studies (Allen & Palk, 2018; Calvert & Benn, 2015; Chan et al., 2018; de Boer et al., 2014; Delacroix, 2017; Kable et al., 2018; Sheen et al., 2016; Thornton Bacon, 2017): In some instances, the

workplace culture was considered outstanding and in other situations heavily criticised as inadequate or non-existent. Although most health care organisations adopt a 'no blame' approach, the participants of included studies often experienced a workplace culture in which forgiveness and reassurance were not readily forthcoming; at times absent or even destructive (de Boer et al., 2014; Delacroix, 2017; Sheen et al., 2016; Thornton Bacon, 2017). Several participants were told that the incident was their fault, others were mistrusted and exposed to rumours and gossip (Calvert & Benn, 2015; Chan et al., 2018; de Boer et al., 2014; Kable et al., 2018; Sheen et al., 2016). They indicated concerns of a 'blame culture' where incidents were naturally followed by attempts to assess their culpability and punishment by their organisation, professional registration authorities or investigatory bodies (Delacroix, 2017; Kable et al., 2018; Sheen et al., 2016).

Many nurses and midwives would have liked to talk about the incident and preferred to be asked by their managers how they were coping (Allen & Palk, 2018; de Boer et al., 2014; Sheen et al., 2016). Due to the organisational culture, the busyness of the environment and workplace practices, the perceived needs of nurses and midwives were neglected, and taking the time to discuss the incident was often not priority (Calvert & Benn, 2015; de Boer et al., 2014; Thornton Bacon, 2017): "We need support straight away… we certainly need a debriefing after. We need to change the culture so that's the norm" (Thornton Bacon, 2017, p. 373).

Category 6 – Value of debriefing (n = 19 findings and sub-findings from six studies (Allen & Palk, 2018; Calvert & Benn, 2015; Chan et al., 2018; Clark & McLean, 2018; Sheen et al., 2016; Thornton Bacon, 2017): Although genuine debriefing was commonly discussed as beneficial to resilience and coping, the need to improve current practice was apparent. The nurses and midwives who received some form of debriefing and perceived it as a positive experience and valuable strategy, tended to cope better with the situation (Allen & Palk, 2018; Clark & McLean, 2018; Thornton Bacon, 2017): "Our manager held a debriefing the next day and it helped after that, because we could get our feelings out and move on" (Thornton Bacon, 2017, p. 372). Debriefing practices that recognised the personal and emotional cost of nurses and midwives and provided 'peace of mind' through assurance that they were not at fault, were scarce (Calvert & Benn, 2015; Chan et al., 2018; Clark & McLean, 2018; Sheen et al., 2016): "There needs to be a lot more of them, a lot of people go home and worry. I don't think we are very good at taking care of each other" (Clark & McLean, 2018, p. 81).

Failure to provide and engage in a formal debrief after an incident impacted further on professional confidence to practice and was a contributing factor for staff attrition: "I have experienced when people have left because of certain arrest situations that they have seen" (Clark & McLean, 2018, p. 81). Debriefing sessions that focused either on risk management or improvement of clinical skills and neglected the personal and emotional needs, had the potential to threaten the resilience of nurses and midwives and tended to imply shame and blame (Calvert & Benn, 2015; Chan et al., 2018; Clark & McLean, 2018). These interventions were perceived as destructive (Calvert & Benn, 2015; Clark & McLean, 2018).

Synthesis 3 – Ability to move-on: The extent and persistent nature of living with the impact of critical incidents and the effort it took to overcome these were commonly taken too lightly. General perceptions held by nurses and midwives about contextual issues related to their practice and their ability to move-on, were dependent on their capacity to grow from their experiences, learn from the incident and cope constructively. This final synthesis was developed from categories seven, eight and nine and contained 76 aggregated findings and sub-findings.

Category 7 – Living with the impact (n = 36 findings and sub-findings from seven studies (Allen & Palk, 2018; Calvert & Benn, 2015; Chan et al., 2018; Delacroix, 2017; Kable et al., 2018; Mohsenpour et al., 2018; Sheen et al., 2016): Some of the emotional, physical and professional responses were enduring and personally distressing long after the event occurred. Emotional remnants persisted and contributed to the ongoing psychological impact for some of the participants of the included studies (Allen & Palk, 2018; Kable et al., 2018; Mohsenpour et al., 2018; Sheen et al., 2016). They described low mood, fear and general hyper-vigilance that affected their personal lives as well as work performance (Allen & Palk, 2018; Chan et al., 2018; Delacroix, 2017; Kable et al., 2018).

The re-examination of their performance and emotional turmoil were further complicated if the workplace was unsupportive with widespread negative communication, and horizontal violence related to the incident (Allen & Palk, 2018; Calvert & Benn, 2015; Chan et al., 2018): "I became depressed. Affected my life significantly. Had to seek medical attention" (Allen & Palk, 2018, p. 153).

Category 8 – Post-incident growth (n = 17 findings and sub-findings from six studies (Ajri-Khameslou et al., 2017; Allen & Palk, 2018; Chan et al., 2018; Clark & McLean, 2018; Mohsenpour et al., 2018; Sheen et al., 2016): The involvement in incidents created a powerful

learning opportunity and those involved could draw valuable lessons from it. An important key factor in overcoming the impact related to an incident was learning from the experience and understanding why and how the incident occurred in the first place (Ajri-Khameslou et al., 2017; Chan et al., 2018; Clark & McLean, 2018; Sheen et al., 2016).

Category 9 – Coping with the impact (n = 23 findings and sub-findings from six studies (Ajri-Khameslou et al., 2017; Allen & Palk, 2018; Chan et al., 2018; Delacroix, 2017; Sheen et al., 2016; Thornton Bacon, 2017): Coping with the new post-incident reality was context-dependent and highly individual. Only five studies reported on coping strategies and many of them were neither constructive in nature, nor sincerely proposed and upheld by the workplace.

Many engaged in atypical coping strategies to diminish their ongoing distress without fully addressing the real problem (Ajri-Khameslou et al., 2017; Allen & Palk, 2018; Delacroix, 2017; Thornton Bacon, 2017). They either avoided performing certain care practices or tried to hide problems (Ajri-Khameslou et al., 2017; Delacroix, 2017). Others became obsessive in a desperate attempt to avoid future errors: "The error has kind of heightened my vigilance… it made me hyper-vigilant" (Delacroix, 2017, p. 406).

Those who saw the incident as a catalyst for change and experienced personal, professional and organisational growth after the incident, coped through approaching life differently. They described a new-found hope and inspiration for improvement (Allen & Palk, 2018; Delacroix, 2017; Thornton Bacon, 2017): "It made me value life more and want to make a difference for my dying patients" (Allen & Palk, 2018, p. 153). What nurses and midwives perceived as beneficial to build resilience and promote coping with the incident was not always genuinely supported and received in reality (Ajri-Khameslou et al., 2017; Allen & Palk, 2018; Thornton Bacon, 2017): "Easier access to counselling, have a base at the hospital who can come as close to the actual occurrence of the event" (Allen & Palk, 2018, p. 153).

4. DISCUSSION

This systematic review has highlighted the widespread impact of critical incidents on nurses and midwives, determined their perceived level of support and explored their ability to move-on. The review findings were echoed elsewhere, although previous research associated with the second victim phenomenon mostly represented physicians, paramedics or other health care professionals (Mishra, Goebert, Char, Dukes, & Ahmed, 2010; Scott et al., 2009; Ullström et al., 2014). Although the experiences and perceptions associated with critical incidents may

differ from person to person or professional groups, they are not disparate or unique to the professions of nursing and midwifery. Nurses and midwives do not work in isolation, but within a multidisciplinary team; the findings of this systematic review are therefore situated within the second victim literature, rather than within previous research specific to critical incidents in nursing and midwifery.

This review identified the underestimated extent and magnitude of the emotional, physical and professional impact of critical incidents. Although health care professionals endeavoured to protect patients from harm and anticipated adversity, incidents were not always preventable (Scott et al., 2009; Wu, 2000). Despite the heterogeneity of critical incidents, the potential to impact upon the most resilient health care professional and leave them emotionally traumatised is comparable (Scott et al., 2010).

Emotional support was determined as paramount by the nurses and midwives of the included studies in this systematic review. This was confirmed by a group of paramedics in the USA, whilst Swiss anaesthesiologists and a team of American physicians, nurses and other health care professionals reported to be unsure where to go for help and tended to suffer in silence and alone, because formal professional assistance fell short (McLennan et al., 2015; Mishra et al., 2010; Scott et al., 2009).

The negative impact on self-esteem and clinical competence of these life-altering experiences, affecting health care professionals' capacity to practice, has also been recognised in other health care professions (McLennan et al., 2015; Ullström et al., 2014). Repeated retrospective re-enactment and re-evaluation of the situation triggered intrusive reflections that brought about an emerging sense of self-doubt and internal inadequacy (Scott et al., 2009), as well as provoked reduced confidence in decision-making (Ullström et al., 2014). A state of powerlessness, overwhelming feelings of being haunted, alone and isolated stemmed from this professional reflective stage (Scott et al., 2009), leaving second victims craving support to restore their personal integrity.

Several nurses and midwives in this review identified the significance of an empathetic and comforting support system. Apart from receiving personal reassurance from friends and family, a workplace culture that included genuine support from colleagues and managers, as well as access to professional counselling services were necessary to restore personal and professional integrity after critical incidents (de Boer et al., 2014; Kable et al., 2018; Scott et al., 2010; Thornton Bacon, 2017). Resonating with the findings of this review, the perceptions of whether

formal support was sufficient was very individual and varied considerably in the literature. Whilst some second victims asserted that formal support was quite adequate, previous research suggests that overall, it was generally perceived as lacking or even completely non-existent (Healy & Tyrrell, 2013; Joesten, Cipparrone, Okuno-Jones, & DuBose, 2015; Scott et al., 2010; Ullström et al., 2014).

Reverberating with the findings of this systematic review, an unsupportive, negative work environment intensified the feelings of self-doubt and further fuelled the consuming threat to a professional future in health care (Joesten et al., 2015; Scott et al., 2009). Despite the evidence that debriefing helped to resolve post-incident stress, many health care professionals, including nurses and midwives, stated that they were never offered the opportunity to participate in it, and claimed that formal guidelines for debriefs were not in place at their organisation (Joesten et al., 2015; Piquette, Reeves, & LeBlanc, 2009).

The literature also illustrated the enduring nature of the impact on second victims and highlighted the need for those involved to find strategies to cope with the events (Kirby, Shakespeare-Finch, & Palk, 2011; Mealer et al., 2012b). The experience of living through the impact of a critical event has been described as long-lasting, producing an imprint of a permanent memory of the incident and caused anxiety about future incidents (McLennan et al., 2015).

How successful individuals moved-on after living through the experience of the event was highly unique and divergent in the literature (Lewis et al., 2015; Scott et al., 2009). Some nurses, physicians and other health care professionals continued their employment in the clinical area where the incident occurred and alleged that they have worked past their issues related to the event, whilst others seriously contemplated leaving their careers (Scott et al., 2009). Because research about the application of coping strategies in nursing and midwifery practice is scarce, lessons can be learned from the growing body of literature on second victims and the role of coping. For example, an Australian study which included a group of paramedics reported that some of the participants displayed maladaptive and ineffective coping mechanisms that often resulted in continuing symptoms of post-traumatic stress such as anxiety, sadness and depression, which contributed to their departure from the profession (Kirby et al., 2011). On the other hand, more favourable and adaptive coping mechanism and essential strategies were found in self-help, expressing emotions, seeking support and

understanding, as well as accepting that a problem might be relieved through an optimistic outlook and more affirmative reframing of the situation (Kirby et al., 2011).

The concept of professional burnout has been linked to the exposure to critical incidents in Canadian paramedics, as well as American acute care nurses, if emotional exhaustion and depersonalisation arose as a consequence of the traumatic experiences (Lewis et al., 2015). In spite of this, some second victims managed to survive the emotional fatigue and continued with their role in the clinical arena. Active coping methods and characteristics of resilience were successful for American ICU nurses in preventing a psychological overload following a trauma and enabled more positive adjustments (Mealer, Jones, & Moss, 2012a). Mealer et al. (2012a) argued that the traits of resilient ICU nurses as well as adaptive coping skills can be learned and could therefore serve as either a preventative measure or post-event strategy to assist health care professionals to thrive again in a tension-charged and highly stressful environment. A further coping strategy was highlighted by a group of researchers who interviewed physicians in the United States of America (USA), who described the notion of post-incident growth, instigated by the learning arising from the experience of a medical error (Plews-Ogan, Owens, & May, 2013). Their analysis identified that physicians incorporated new realities post-event and revised or expanded their view of themselves and how they practiced as a consequence (Plews-Ogan et al., 2013). The researchers claimed that the physicians approached their work in a way that enhanced patient safety as well as safeguarded their own fallibility by assimilating what they had learned from the incident (Plews-Ogan et al., 2013).

Previous research indicated that the workplace support offered was unsatisfactory for up to 85% of the physicians, nurses and midwives who took part in an Italian exploration of the path to recovery for second victims (Rinaldi et al., 2016). The participants described a clear disparity between their desired and the actual support received, and identified areas which could impact on their recovery including access to increased organisational support, a friendlier atmosphere at work and better counselling services (Rinaldi et al., 2016).

According to Scott and McCoig (2016), managers and targeted organisational support systems can positively influence outcomes for second victims by offering support and anticipatory guidance to alleviate the post-event suffering and address the needs of second victims. An example of how effective care has been achieved occurred at the Missouri University Health Care (MUHC) in the USA, through the implementation of a second victim support program

that provides “care at the point of impact” to health care professionals (Scott & McCoig, 2016, p. 6). There is, however, sparse evidence in the international literature of the adaptive strategies applied specifically by nurses and midwives to continue their professional practice in clinical settings after their involvement in critical incidents.

There were limitations to several studies included in this literature review as the majority of participants volunteered to contribute to the studies or demonstrated an invested interest in the subject matter, with potential of self-selection bias (Allen & Palk, 2018; Clark & McLean, 2018; Kable et al., 2018; Thornton Bacon, 2017). Chan et al. (2018) reported recruitment difficulties and claimed that those least distressed may have had little interest in contributing to research related to critical incidents, while those who were most distressed refrained from participation because they feared exacerbation of their symptoms. Recall bias was also a factor due to the degree of detail recalled and the time elapsed since the incident (Clark & McLean, 2018; Kable et al., 2018; Thornton Bacon, 2017). However, the events had a profound effect on the nurses and midwives and most remembered significant particulars of them (Kable et al., 2018). This potentially limited the transferability of the findings to other clinical areas, institutions or populations (Ajri-Khameslou et al., 2017; Allen & Palk, 2018; Calvert & Benn, 2015; de Boer et al., 2014; Sheen et al., 2016), although significant lessons can be learned from the experiences of second victims of diverse professional backgrounds.

4.1. Recommendations for future research

Only 11 methodologically rigorous qualitative studies explored the experiences of nurses and midwives following critical incidents between 2013 and 2018. Whilst these studies highlighted the impact and need for support, not many specifically reported on the adaptive coping strategies which are thought to be beneficial in overcoming the enduring impact associated with incidents. Although there is evidence in the literature that describes a link between the application of adaptive coping skills in order to withstand the stressful work environment found mainly in ICU or ED, there is a distinct gap in the evidence that recognises the experiences of nurses and midwives who work in clinical areas other than critical or emergency care.

Further research into the needs of second victims should be conducted in order to build a more effective approach to the provision of and access to workplace support systems, as well as to reinforce the organisational leadership in relation to the management of staff involved in critical incidents. Such research has the potential to develop recommendations to inform health care organisation, education programs, individual nurses and midwives and potentially other

health care professionals, to strengthen their ability to navigate the aftermath of critical incidents and reclaim the professional confidence indispensable to remain in the workforce.

4.2. Limitations of the review

Although the robust search strategy of this systematic review intended to locate and include all relevant publications related to the PICoS, unindexed or grey literature could have been unintentionally omitted. The search term "second victims" was not included in the PICoS to limit the population to nurses and midwives and avoid the inclusion of other professional groups such as physicians, surgeons, paramedics or respiratory technicians. The exclusion of quantitative studies, as well as non-English publications also potentially limited the reach of this systematic review. To ensure recency of the literature, a search parameter of five years was established, and the authors acknowledged that relevant previous publications may have been excluded as a result.

To minimise the potential limitations related to single-reviewer bias, the meta-synthesis by meta-aggregation underwent robust deliberation with all authors until consensus was reached. Most of the included studies took place within a particular health care setting, for example an ICU, ED or other specific ward, involving a small sample of participants that represented a specific sub-population of nurses and midwives, thus potentially limiting the transferability of the findings to other clinical areas.

5. CONCLUSION

The findings from this systematic review highlighted the pervasive emotional, physical and professional impact of critical incidents, the nurses' and midwives' perceptions of available support systems, as well as their ability to process their experiences and move-on from the event. The discussion of the review findings identified a distinct gap in the current literature that would benefit from future research. Most of the available knowledge was derived mainly from nurses, midwives and other health care professionals, who worked in the specific areas of ICU and ED. Further research is required to gain understanding about the way in which nurses and midwives from a variety of non-critical clinical settings have been able to move-on after living through the impact of critical events, as well as how their future professional lives have been influenced by it. To support second victims of critical incidents to thrive within their profession and remain committed to high quality care, adaptive strategies that have been applied successfully by those involved should be explored and shared.

6. Relevance to Clinical Practice

This systematic review highlighted that the experience of critical incidents has a substantial psychological impact on second victims and potentially provokes intense emotional distress. Many health care professionals suffer harsh long-term effects detrimental to their professional practice. The magnitude and enduring nature of the emotional, physical and professional impact of critical incidents remains largely underestimated.

Second victims' perceptions of the adequacy of organisational, managerial and collegial support varied greatly and influenced the restoration of their personal and professional integrity as well as their ability to move-on.

6.1. What does this paper add to the wider global clinical community

- This paper identifies a gap in current literature that explores strategies to build a more effective approach to the provision of and access to blame-free workplace support systems.
- It is important to explore these experiences so that health care organisations, managers and potentially other health care professionals better understand how to support those individuals involved.

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