

Psychological impact of traumatic events in rural nursing practice: An Integrative review

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Abstract

Background: Rural and remote nurses who practice in acute care often deal with traumatic injury and death in isolated practice with limited psychosocial support. The majority of research in this area has been conducted within urban nursing populations or non-nursing disciplines. Caring for others who have experienced a traumatic event may place rural and remote nurses at a greater risk of negative psychological effects over time.

Purpose: This integrative review will explore the evidence related to the potential negative psychological impact of caring for those who have experienced a traumatic event in the context of rural nursing practice.

Method: An integrative review of four health and social science databases was conducted using the framework by Whittemore and Knafl (2005). Main search terms included rural and remote nursing, vicarious trauma, secondary traumatic stress, post-traumatic stress disorder, compassion fatigue, trauma, and burnout. Articles published between 2006 and 2017 were identified and critiqued based on their scientific merit and applicability to rural nursing practice.

Results: Nine publications were found regarding rural and remote nurses' exposure to traumatic events, and the potential personal and professional impact of exposure. While occupational stress

was evident within rural and remote practice, there is a lack of clarity on the traumatic stressors of greatest concern. Most notable was the limited application of a rural and remote nursing lens to explore specific events linked to trauma, and the diversity of concepts used to describe the impact of these experiences.

Conclusion: There are few rural or remote studies that have explored the psychological impact of caring for others who have experienced traumatic events. Further research is necessary to explore the specific psychological impact experienced by rural and remote nurses being exposed to traumatic events over time and types of programs necessary to better support them to continue in their practice.

Keywords: rural, remote, nurses, trauma, vicarious trauma, secondary traumatic stress, post-traumatic stress disorder, compassion fatigue, burnout

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A traumatic event is defined by Health Canada (2007) as an extreme event that may occur in any location or form in which a “person is subjected to or witnesses; falls outside the range of normal experience; is life threatening or could result in serious injuries; exposes the person to shocking scenes of death or injuries” and/or “could lead a person to experience intense fear, helplessness, horror or other reactions of distress” (Health Canada, 2007, p.1). Nurses who practice in rural and remote communities may be confronted with a higher incidence of traumatic injuries and death related to the environment (DesMeules et al., 2006; Peek-Asa, Zwerling, & Stallones, 2004; Shah, Hagel, Lim, Koehncke, & Dosman, 2011). Higher rural-remote mortality rates occur as a result of diverse farming practices (Shah et al., 2011), motor vehicle accidents (Simons et al., 2010), and delays in response time, incident recovery, and trauma care (Gonzalez, Cummings, Mulekar, & Rodning, 2006; Simons et al. 2010). There is concern that those who provide care for

people who have experienced a traumatic event, may themselves be at risk for negative, transformative, and permanent psychological and physical consequences (Ford & Courtois, 2009; McCann & Pearlman, 1990; Pearlman & Saakvitne, 1995).

There are many factors that place rural nurses at a higher risk and potentially make them more vulnerable to the impact of distressing traumatic events over time. Nurses in rural practice provide care for a broad range of people living in “sparsely populated areas” which “host most high risk occupations” (Winters, 2013a, p.58). They commonly work in isolation with limited support, and are expected to manage a diversity of complex patients across the lifespan (Kulig, Kilpatrick, Moffitt, & Zimmer, 2016; LeSargent & Haney, 2005). Dealing with higher rates of trauma and death is also complicated by the fact that many rural nurses both live and work in the same community, where limited anonymity and blurring of personal/professional boundaries is often the case (Lauder, Reel, Farmer, & Griggs, 2006; Misener et al., 2008). With personal knowledge of their community members, rural nurses are commonly immersed in all aspects of community life and are part of both formal and informal social networks (Lauder et al., 2006; Nelson, & Park, 2012). Given these dual or overlapping relationships, rural nurses are more likely to be intimately involved in traumatic events and witness to the suffering of their community members (Nelson, Pomerantz, Howard, & Bushy, 2007; Winters, 2013b).

The literature exploring the potential psychological impact of formal care providers being exposed to trauma describes constructs such as vicarious trauma (Beck, 2011; Bercier & Maynard, 2015; Cieslak et al., 2014; Cohen & Collens, 2013; Dominguez-Gomez & Rutledge, 2009; Graham, 2012; Hensel, Ruiz, Finney & Dewa, 2015; Izzo & Miller, 2010; Mealer & Jones, 2013; Sabo, 2008; Sinclair & Hamill, 2007; Von Rueden et al., 2010), secondary traumatic stress (Adriaenssens, De Gucht, & Maes, 2015; Beck, 2011; Bercier & Maynard, 2015; Cieslak et al., 2014; Dominguez-Gomez & Rutledge, 2009; Graham, 2012; Hensel et al., 2015; Izzo & Miller,

2010; Meadors, Lamson, Swanson, White, & Sira, 2010; Mealer & Jones, 2013; Von Rueden et al., 2010), compassion fatigue (Beck, 2011; Bercier & Maynard, 2015; Cieslak et al., 2014, Dominguez-Gomez & Rutledge, 2009; Graham, 2012; Hensel et al., 2015; Izzo & Miller, 2010; Meadors et al., 2010; Mealer & Jones, 2013; Sabo, 2008), burnout (Adriaenssens et al., 2015; Cieslak et al., 2014, Graham, 2012; Izzo & Miller, 2010; Meadors et al., 2010; Sabo, 2008), and post-traumatic stress disorder (Adriaenssens et al., 2015; Beck, 2011; Cieslak et al., 2014, Graham, 2012; Hensel et al., 2015; Mealer & Jones, 2013; Von Rueden et al., 2010). Although distinct from one another, these constructs are at times, used interchangeably, with overlapping conceptual definitions and/or varied use across occupational disciplines in mainly urban populations.

Integrative Review Method

A review of the published literature related to the psychological impact of exposure to traumatic events among rural nurses was conducted using Whittemore and Knafl's (2005) five stages of problem identification, literature search, data evaluation, data analysis, and presentation. This framework was chosen to guide the review as it allows for the incorporation of a variety of research designs including experimental and non-experimental research to develop a more comprehensive understanding of a particular phenomenon (Whittemore & Knafl, 2005).

Problem Identification Stage

A key initial aspect of an integrative review is to identify the background problem and the purpose of the review (Whittemore & Knafl, 2005). As was highlighted earlier, nurses who practice in rural and remote acute care settings may be at a higher risk for exposure to traumatic events in the context of their geographical isolation. Given the limited access to psychosocial support within these settings, they may be at risk for negative psychological effects over time. The terms/constructs used to describe the impact of this exposure are varied, with much of the research

conducted within occupational groups other than nursing, and/or within urban practice settings.

The specific research questions that guided this review were:

1. What terms/constructs are used to describe the impact of exposure to traumatic events for rural and/or remote nurses?
2. What are the potential occupational outcomes of experiencing traumatic events for rural and remote nurses?
3. What types of traumatic events are rural and remote nurses being exposed to, and which of these have the greatest impact?
4. What contextual factors are not being addressed in the literature from the perspective of nurses who provide care in rural and remote settings?

An additional purpose of this review was to inform key stakeholders regarding the potential occupational consequences of being exposed to traumatic events, which may guide the development of psychosocial and supportive interventions within a rural/remote context. Studies for this review were selected that focused on rural and remote nurses, and restrictions were not placed on having a clear definition of rural as a variety of terms have been used to describe the context of rural nursing, such as rural, remote, and isolation (Kulig et al., 2008; MacLeod, Kulig, Stewart, Pitblado & Knock, 2004; Misener et al. 2008).

Literature Search Stage

The second stage of the review process is the literature search stage which consists of rigorous, well-defined strategies to ensure that all relevant literature on the topic is included (Whittmore & Knafl, 2005). Search terms were chosen for this review based on those commonly used in the literature to describe the negative psychological consequences of being exposed to trauma (Adriaenssens et al., 2015; Beck, 2011; Bercier & Maynard, 2015; Cieslak et al., 2014, Cohen & Collens, 2013; Hensel et al., 2015; Izzo & Miller, 2010; Mealer & Jones, 2013; Sinclair

& Hamill, 2007; Von Rueden et al., 2010). A comprehensive search of four electronic databases included a) Cumulative Index to Nursing and Allied Health Literature [CINHAL], b) Medline, c) PsychINFO, and d) Cochrane Library, with articles published between the years 2006 and 2017 targeted to capture the most recent literature. Keyword search categories included ‘vicarious trauma’, OR ‘post-traumatic stress disorder’, OR ‘secondary traumatic stress’, OR ‘compassion fatigue’, OR ‘burnout’, OR ‘nurses’, OR ‘rural and remote.’ The terms were combined with ‘AND’ for a more comprehensive search. The term ‘nurse(s)’ was then searched against other trauma related terms as major subject headings of ‘post-traumatic stress disorder,’ ‘secondary traumatic stress,’ ‘compassion fatigue,’ and ‘burnout.’ Additional search terms were found by harvesting keywords from articles with the major subject headings including ‘trauma,’ ‘psychological stress,’ ‘occupational stress,’ ‘stress disorders,’ ‘mental health personnel,’ ‘psychosocial factors,’ and ‘mental health.’ Each were explored using ‘OR’ with the search terms ‘vicarious trauma,’ ‘post-traumatic stress disorder,’ ‘secondary traumatic stress,’ ‘compassion fatigue,’ and ‘burnout.’ Phrase searches were then explored in pairs with ‘OR’ and up to all 5 concepts by title and abstract.

Finally, to ensure that all considered publications were relevant to rural and remote practice, the search terms ‘rural health care personnel,’ ‘rural nursing,’ ‘rural health nursing,’ ‘rural health care delivery,’ ‘remote nursing,’ ‘rural,’ and ‘remote’ were also explored. To further enhance the search, the subheadings of ‘trauma’ and key word ‘nurse’ were explored using the process of truncation to identify more suffixes. This comprehensive search strategy provided a thorough historical overview and ensured that all relevant literature was retrieved (Pluye, Gagnon, Griffiths, & Johnson-Lafleur, 2009). Articles and Literature Reviews were included if: (a) they focused on the psychological impact of exposure to traumatic events, (b) included nurses in the sampling frame, (c) included a rural and/or remote focus, (d) the research design was either qualitative,

qualitative, or mixed method, (e) the language of publication was English, and (f) the publication date ranged from 2006 to 2017. Articles were excluded if they were: (a) non-empirical, (b) unpublished dissertations or theses, or (c) focused strictly on urban practice settings.

Figure 1 outlines the search strategy and screening process where a total of 475 articles were initially identified during the keyword search, with two additional articles discovered through a search of the publication reference lists. Following removal of 3 duplicates, 474 abstracts were screened using the established inclusion/exclusion criteria. There were 407 publications that were excluded related to not having a rural/remote focus, not published in English, they focused on traumatized populations (e.g., mothers of sexually abused children), the area of research was not relevant as it had been conducted in unique environmental and socioeconomic conditions (e.g., Gaza strip, Rwanda genocide), the human service worker did not include or differentiate nurses from other health care practitioners, or they were newsletters/editorials. The remaining 67 articles were read in depth and screened for their applicability, further excluding articles focusing on midwives, coping, or those that employed a weak research design or were of poor quality overall. A total of nine rural nursing focused articles were subsequently selected for final review (see Hegney, Eley, Osseiran-Moisson, & Francis, 2015; Kenny, Endacott, Botti, & Watts, 2007; Lenthall et al., 2009; Terry, Lê, Q., Nguyen, & Hoang, 2015; Singh, Cross, & Jackson, 2015; O'Neill, 2010; Opie et al., 2010; Opie et al., 2011; Rose & Glass, 2009).

Data Evaluation Stage

In addition to using Whittemore and Knafl's (2005) review method to evaluate the overall quality of each article, the research critique process outlined by Loiselle & Profetto-McGrath (2011) was also used to further systematically evaluate the nine articles chosen for review. Articles were reviewed based on substantive and theoretical dimensions, methodology, interpretation of findings, presentation, and writing style (Loiselle & Profetto-McGrath, 2011). The nine articles

included in the final review outlined the significance of the problem (i.e., rural nurses may be at risk for negative psychological effects related to trauma exposure) or identified an important issue that was relevant to one or more of the four original research questions outlined. Each provided a clear study design that fit well with the research problem or purpose of the study, sound methodological approach, setting, and data collection method. There was congruence between the study purpose/research questions and study designs chosen. The sampling design was consistent with the method chosen and sample sizes and response rates were clearly identified. The use of standardized tools and data collection methods supported the data quality.

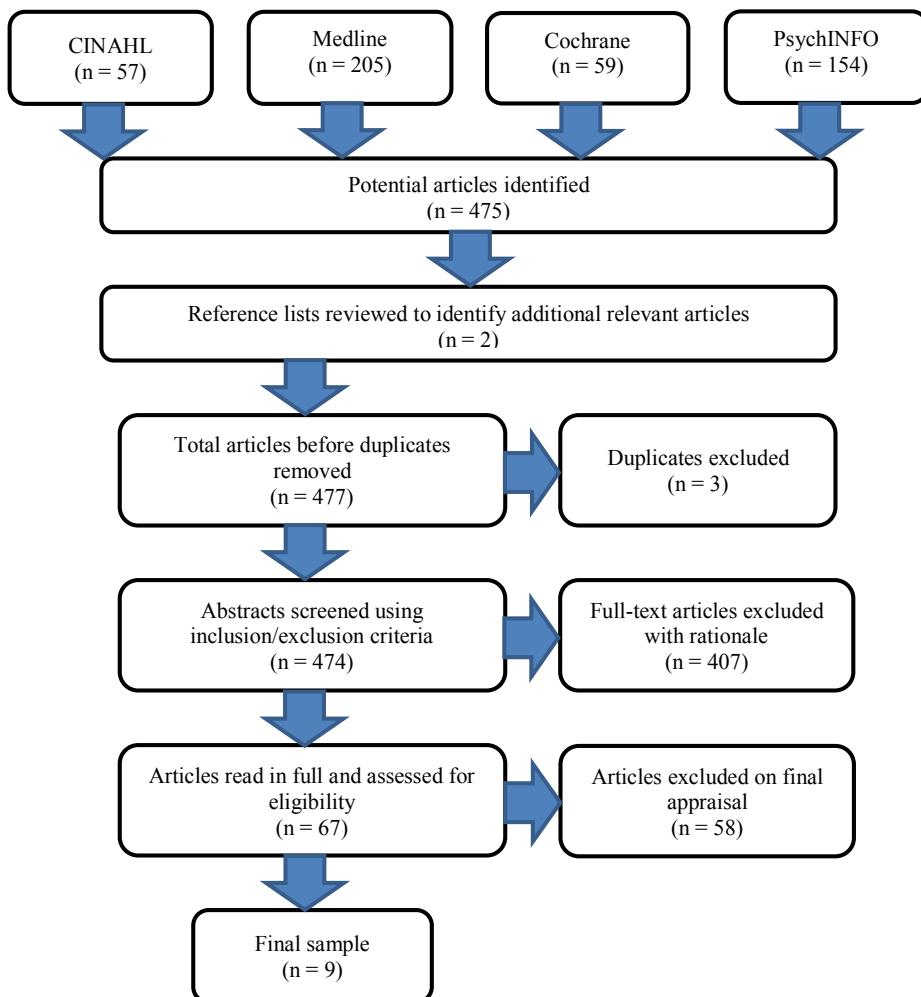


Figure 1. Search strategy

Research findings, interpretation, implications and recommendations were made explicit. All articles contributed meaningfully to the current body of knowledge on the topic and have the potential to improve nursing practice.

Of the nine articles, two utilized qualitative methods including an emancipatory methodology (Rose & Glass, 2009) and a narrative inquiry with a phenomenological approach (Terry et al., 2015). Five of the studies employed a cross-sectional design with survey questionnaires and use

of standardized scales and both univariate and multivariate statistical analyses (Opie et al., 2010; Opie et al., 2011; Singh et al., 2015; Hegney et al., 2015). Three studies used a thematic approach including a comprehensive literature review that presented patterns using a thematic analysis (Lenthall et al., 2009), a review article that outlined themes (although a thematic analysis approach was not made explicit) (O'Neill, 2010), and a study that specifically used a thematic analysis (Kenny et al., 2007). None of the research was conducted using a mixed method approach or longitudinal design for research over time. Despite some limitations, overall inclusion was based on the article strengths, merit, contribution to understanding, and whether they aligned with the aims of this review.

Data Analysis

According to Whittemore and Knafl (2005), the data analysis stage involves the process of categorizing and summarizing the main conclusions identified about the phenomenon being studied. Due to the paucity of research in this area, the authors used their research questions to guide the analysis and summarization of content. A rural lens was used in this review with a specific focus on identification of the (a) specific terms used to describe the psychological impact of exposure to traumatic events over time, (b) potential occupational outcomes of experiencing trauma over time, (c) specific types of traumatic events that may be of concern in rural/remote settings, and (d) gaps in the rural/remote literature and further research directions.

Review Presentation Stage

The final stage in the review process is data presentation, which involves the provision of explicit details from each of the primary sources summarizing the final conclusions within the review (Whittemore & Knafl, 2005). Table 1 presents the nine relevant articles according to their: (a) author, starting with the most recent year of publication, and country (b) purpose (c) sample, (d) design, (e) data collection method(s), and (f) key findings relevant to the review.

Results

The review process yielded nine studies which will be presented with headings that represent the four research question.

Conceptual terms defining the psychological impact of trauma exposure

In relation to our first question for this integrative review, the nine articles identified a variety of conceptual terms used to describe the psychological impact of exposure to distressing events on nurses in rural, remote, and isolated nursing practice environments. Those identified were diverse in nature and included emotional toil (Kenny et al., 2007), emotional strain (Rose & Glass, 2009), psychological distress (Opie et al., 2010; Opie et al., 2011), emotional exhaustion (Opie et al., 2010; Opie et al., 2011; Singh et al., 2015), burnout (O'Neill, 2010; Opie et al., 2010; Singh et al., 2015; Terry et al., 2015; Hegney et al., 2015), compassion fatigue (O'Neill, 2010; Terry et al., 2015; Hegney et al., 2015), secondary trauma or secondary traumatic stress (STS) (O'Neill, 2010; Hegney et al., 2015), vicarious trauma (Lenthall et al., 2009), and post-traumatic stress disorder (PTSD) (Lenthall et al., 2009). Although these concepts have been measured in studies involving nurses practicing in urban settings (Adriaenssens et al., 2015; Beck, 2011; Bercier & Maynard, 2015; Cieslak et al., 2014; Cohen & Collens, 2013; Hensel et al., 2015; Izzo & Miller, 2010; Mealer & Jones, 2013; Sinclair & Hamill, 2007; Von Rueden et al., 2010), they have not commonly been examined in the context of rural and/or remote nursing practice. This was made evident in this review with identification of only one study that referred to the psychological impact of exposure to trauma in the rural environment (Hegney et al., 2015), one study that focused on trauma in the remote environment (Lenthall et al., 2009) and one that highlighted trauma exposure in circumpolar isolated areas (O'Neill, 2010).

On review, there was a lack of consistency in the use of terms, with differing conceptual definitions, and/or diverse constructs being used interchangeably. For example, emotional toil was

described as the result of practicing in an emotionally challenging role that impacts a nurse's psychological well-being (Kenny et al., 2007). It was considered a key issue in providing psychological care to others and influenced by supportive networks, dual relationships, and achieving balance between tasks and care (Kenny et al., 2007). Emotional strain occurred when opposing social forces created an inner tension or strain between the nurse's personal expectations of their professional practice and what is valued in the practice setting (Rose & Glass, 2009), and emotional exhaustion was described as the result of job demands that cause stress when personal energy is expended (Opie et al., 2010; Opie et al., 2011). Although the above concepts each have unique aspects, all are characterized by intense emotional feelings, and suggest the importance of attending to the competing personal and professional demands that many nurses in rural and remote practice may experience.

O'Neill (2010) described burnout as a gradual process that begins with high levels of job stress in situations that are emotionally demanding, while Singh et al. (2015) suggested that burnout involves mental and emotional exhaustion with increasing intensity which results in a sense of a lack of personal accomplishment. Burnout was also found to be related to workload fluctuations (Terry et al., 2015), limited resources, and lack of support (Opie et al., 2010). While burnout was described as the potential outcome of emotional exhaustion (Opie et al., 2010; Opie et al., 2011; Singh et al., 2015), the literature included in this review does not clarify whether exposure to traumatic events may lead to rural nurses experiencing burnout over time due to high levels of stress or emotional exhaustion.

One concept identified as a consequence of working empathically with others who have experienced trauma was compassion fatigue, which led to lower work capacity, loss of interest, or intensified emotional responses to being empathetic (O'Neill, 2010). Compassion fatigue was noted to be commonly experienced by nurses (Hegney et al., 2015) and similar to vicarious trauma

as it results in cognitive changes over time (Terry et al., 2015). O'Neill (2010) also highlighted the concept of secondary trauma or secondary traumatic stress as having a sudden onset and occurring when there is a connection or engagement between the caregiver and the trauma experience of the client and may result in symptoms of PTSD in the caregiver. Lenthall et al. (2009) described PTSD as being influenced by high demands and low resources, which overlaps with the constructs of emotional toil, emotional strain, emotional exhaustion and burnout. Lenthall et al. (2009) suggested that remote nurses may be at greater risk for PTSD with increased exposure to traumatic incidents in the workplace.

Vicarious trauma was also highlighted in the literature, and was viewed as cumulative in nature with gradual and permanent cognitive changes through the incorporation of the client's traumatic event (O'Neill, 2010). The range of effects can be detrimental as changes can be physical and/or psychological such as distortion in the areas of safety, trust, control, self-esteem, and intimacy, and may result in sensory changes (e.g., physical sensations, intrusive imagery) as well as symptoms of PTSD (O'Neill, 2010). PTSD and vicarious trauma are both influenced by a high demands and low resource context in the work setting and like emotional toil, emotional strain, emotional exhaustion and burnout; are intensified by competing personal and professional expectations. It is evidence in this review that vicarious trauma, emotional toil, emotional strain, emotional exhaustion, compassion fatigue, and burnout share dimensional aspects, as they all focus on cumulative effects that may occur over time.

Those concepts that are specifically linked to trauma exposure are PTSD, secondary traumatic stress (STS), compassion fatigue, and vicarious trauma. In regard to viewing the above concepts through a rural lens, we have determined that while they are often described as unique constructs in the literature, they are difficult to distinguish from one another, as all but STS is characterized by gradual onset, creation of internal turmoil, require a considerable amount of

personal energy to be expended, and become an occupational stressor as a direct result of external job demands. Overall, the concepts outlined in the reviewed literature vary from a behavioral, emotional, physical, and cognitive perspective; are not well defined within a rural context; and commonly overlap with each other in terms of conceptual clarity. It is evident that rural and remote nurses may be vulnerable to the detrimental effects of exposure to trauma in their work environment, and there is a need for a higher degree of conceptual clarity to better capture their unique experiences.

Potential occupational outcomes related to trauma exposure

The occupational outcomes explored in the cross-sectional studies were diverse and measured using a variety of standardized scales (Hegney et al., 2015; Opie et al., 2010; Opie et al., 2011; Singh et al., 2015) and newly developed scales such as the RAN (remote area nurses) Specific Job Demands Scale developed by Opie et al. (2010). Key concepts examined were occupational stress, work engagement, general health and burnout. Standardized scales included the Nursing Stress Scale (Opie et al., 2010 and Opie et al., 2011), General Health Questionnaire (Opie et al., 2010 and Opie et al., 2011), Maslach Burnout Inventory (Opie et al., 2010 and Opie et al., 2011; Singh et al., 2015), Utrecht Work Engagement Scale (Opie et al., 2010 and Opie et al., 2011), Maslach and Jackson Burnout Inventory (Singh et al., 2015), Job Content Questionnaire (Opie et al., 2010 and Opie et al., 2011) and RAN-Specific Job Demands Scale (Opie et al., 2010). Other concepts related to workplace well-being were measured using the Depression, Anxiety scale and Professional Quality of Life Scale, Connor-Davidson Resilience Scale, Professional Practice Environment Scale, and Nursing Work Index (Hegney et al., 2015).

Five of the publications included in this review focused on the workplace environment (Hegney et al., 2015; Lenthall et al., 2009; Opie et al., 2010; Opie et al., 2011; Terry et al., 2015) of which three identified stress as a significant occupational issue (Lenthall et al., 2009; Opie et

al., 2010; Opie et al., 2011), with one suggesting that workplace psychological stress is considered hazardous (Terry et al., 2015). Other studies explored the potential factors influencing nurse's health and safety, and emotional well-being (Terry et al., 2015; Rose & Glass, 2009; Kenny et al., 2007), and underscored a variety of negative emotional responses experienced by nurses who provide care to others (Kenny et al., 2007; Rose & Glass, 2009; Terry et al., 2015), specifically within the context of traumatic events (O'Neill, 2010). In addition, a number of work processes within rural geographical settings were identified as unsafe, impractical, or unsustainable, and safety concerns were linked to psychological distress (Rose & Glass, 2009; Opie et al., 2010; Opie et al., 2011; Terry et al., 2015).

Overall, the dominant themes surrounding the occupational wellbeing of nurses in rural and remote settings included compromised workplace health and safety, occupational demands and job stress, and a lack of formal psychological support. Key areas of concern centered on organizational constraints (e.g., high workloads, burnout, lack of supervision, interprofessional conflict/bullying), the physical work environment (e.g., unsafe or hazardous state of client homes, unpredictable behaviour of animals, exposure to cigarette smoke), challenging client behavior (e.g., abuse, violence), and the geographical challenges of working in remote settings (e.g., travel distance, personal and professional isolation, inconsistent cellular access/communication).

Traumatic events and related stressors within a rural context

Unfortunately, this review revealed a clear lack of evidence on the specific types of traumatic events that may impact rural and remote nurses, which is of great concern. Psychological distress was linked to the physical, geographic, and organizational environments in which rural nurses work, the emotional demands of working with patients (Terry et al., 2015), management of life-threatening conditions, and challenges of dual relationships (Kenny et al., 2007). However, it is difficult to conclude to what degree or severity of exposure to traumatic events rural and remote

nurses may be experiencing, and what psychological impact these may have on them personally and professionally over time. Nurses in rural and remote settings were found to have a broad and complex scope of practice and commonly confronted with job stress, high job demands, and a hazardous work environment as a result of violence, death, and tragedy (Terry et al., 2015). In rural settings, personal and professional boundaries were blurred (O'Neill, 2010), as individuals commonly knew one another or had personal relationships in the community (Kenny et al., 2007). This was supported by Terry et al. (2015) who found that workplace health and safety was particularly challenging in rural and remote areas where death and tragedy are common, and burnout or compassion fatigue are seldom identified as areas of concern. For nurses who are embedded in their community, dual relationships were found to have both advantages and disadvantages (Kenny et al., 2007). High visibility and community scrutiny were identified as concerns as nurses in these settings are highly invested in the communities they serve. On the flip side, O'Neill (2010) suggested that rural nurses' dedication and commitment may act as protective factors. However, there is still concern regarding the opposing risk factors that exist in rural and remote settings such as the lack of access to mental health services, limited collegial support (Kenny et al., 2007), and reduced access to relief staffing to be able to participate in debriefing sessions or to take a personal leave of absence for mental health reasons (Terry et al., 2015).

Contextual factors not being addressed in the literature

A variety of terms were used in the reviewed literature to discuss the geographical context of rural living or non-urban nursing practice. Although geographical terms related to rural, remote, or isolated setting were noted, no study clearly defined 'rural.' An article by Kenny et al. (2007) categorized hospitals according to their size and range of services from A-E with the large urban hospitals represented as 'A' to the smallest hospitals represented as 'E'. Two articles used the Australian Institute of Health and Welfare (ARIA+) score to determine the level of remoteness

and access to services by applying a range from 0-15 (Opie et al., 2010; Opie et al., 2011). In a study by Hegney et al. (2015), the Australian Standard Geographical Classification was used to identify rural, remote, and major cities based on workplace postal code, and a study conducted in the northern isolated wilderness and minimally populated area was described as circumpolar (O'Neill, 2010). Lastly, Lenthall et al. (2009) characterized remote by geography, professional and social isolation, and the remote nature of practice and defined the primary care nurse sample as “specialist practitioners that provide and coordinate a diverse range of healthcare services for remote, disadvantaged or isolated populations” (p. 208).

On review of the constructs through a rural lens, it was determined that there was overlap in the terms used to describe the psychological impact of working in rural and remote practice settings. The lack of definition and clarity of the terms related to rural and remote geographical settings to describe their unique nature is concerning. None of the reviewed literature focused solely on the impact of rural nurses being exposed to traumatic events. However, both review articles recognized the impact of exposure to traumatic events on those working in isolated and remote practice settings (Lenthall et al., 2010; O'Neill, 2010). While several articles focused on the context of rural nursing practice, only two studies discussed the potential impact over time (O'Neill, 2010; Singh et al., 2015). In addition, information on potential occupational outcomes of experiencing traumatic events for rural and remote nurses was limited although all of the articles noted general occupational health concerns related to working in rural, remote, or isolated settings.

Overall, a lack of evidence was found relating to the distress experienced by rural or remote area nurses, with the review highlighting concerns that rural, remote and isolated nurses may be at greater risk of experiencing a variety of negative psychological effects as the result of interactions with their work environment, and being exposed to traumatic events. There is a potential negative impact on personal well-being, psychological distress, and compromised psychological safety

which may develop into conditions such as post-traumatic stress disorder and vicarious trauma (Lenthall et al., 2009).

In summary, very little rural and remote literature exists, there is a lack of a clear definition of rural, and most of the research to date has been conducted within countries other than North America. To better understand the impact of traumatic events on rural and remote nurses, additional research using interpretive methodologies (e.g., grounded theory, interpretive description, phenomenology) focusing on the meanings and experiences of individuals is necessary. This will assist in determining what specific traumatic events are most impactful within a rural and remote context from a broader perspective (e.g., Canadian, North American), and what conceptual outcomes are consistent with these experiences when considering the unique nature of rural and remote nursing practice.

Discussion

In this analysis, diverse terms emerged to describe the negative psychological effects of varied experiences encountered by rural, remote, and isolated nurses in the work setting, and the impact on their sense of personal and professional wellbeing. Through this review, it was also determined that much of the research has been carried out in Australia and Tasmania, with limited study in the context of rural and remote practice in North America (i.e., Canada, United States). In addition, it is difficult to determine the relevance of the findings to rural and remote practice settings from a broader, global perspective. This is especially concerning as the majority of rural nurses live in their primary work community (MacLeod et al., 2017) and experience unique aspects of nursing practice as a result of being embedded as both health care professionals and essential members of their communities (Kenny et al., 2007; O'Neill, 2010). There is a need to more fully

explore the potential impact of exposure to trauma on rural and remote nurses, while recognizing the dual personal and professional roles nurses play, and attending to the potential cumulative effects over time. As was noted earlier, vicarious trauma is the only conceptual outcome that captures both the cumulative nature of the impact and results directly from exposure to traumatic events, and as such, may best describe the experiences of nurses who live and work in rural communities and are exposed to trauma over time.

The review also highlighted that high levels of psychological distress may have a negative and detrimental impact on the occupational wellbeing of rural and remote nurses, which is a significant workplace health and safety issue. More specifically, there was an impact on a nurse's sense of safety and well-being, challenges related to job demands and responsibilities, and concerns regarding a lack of availability of and access to formal psychological support. The evidence emphasized the need to develop better management strategies aimed to address more effective organizational support, increased clinical supervision, and implement practice models that include psychosocial interventions to reduce psychological distress and address safety concerns (Kenny et al., 2007; Rose & Glass, 2009; Opie et al., 2010). Remarkably, only one study suggested the need for an organizational strategy to address workplace stress by developing a support system focused on debriefing (Kenny et al., 2007).

This review also supported our concern that nurses who practice in rural, remote, and isolated settings are confronted with a variety of traumatic events as a result of their daily work, which may have negative psychological effects. The extensive rural and remote area practice experience of the first author of this review, validates that those events involving serious injury and/or death are often viewed as having a negative impact, especially when considering the personal connections felt through various community ties. While death, dying, tragedy (Kenny et al., 2007; Terry et al., 2015), and violence (Hegney et al., 2015; Lenthall et al., 2009; Opie et al., 2010; Opie et al.,

2011; Terry et al., 2015) were commonly noted to have a negative psychological impact, the specific types or nature of the traumatic events or circumstances surrounding events were not described in the reviewed literature. There is concern that the psychological impact of exposure through a single event or through cumulative events was not reported and reflects a lack of awareness about the types of events or circumstances surrounding the traumatic events with the greatest negative impact.

Overall, this review revealed that exposure to traumatic events has a negative psychological and physical impact on nurses although there is limited research on the impact on nurses from a rural perspective and none on the long-term implications. While there were many parallels in the findings of the studies from the rural, remote, and isolated contexts, none adequately addressed the research questions posed or clarified the terminology used to describe the negative psychological impact of caring for those who have experienced a traumatic event in the context of rural nursing practice over time. In addition, there was minimal discussion on the physical impact or outcomes of exposure to traumatic events with the exception of stress, sensory changes, and fatigue. Overall, reports of the specific physical, mental and emotional outcomes of exposure to traumatic events for rural nurses were found to be limited. There is a gap in knowledge regarding this specific topic area and the global extant literature, and more consideration must be given to the complexities of rural nursing practice and the potential impact of exposure to traumatic experiences over time.

Conclusion

In summary, the psychological response of exposure to the trauma of others has been explored from various discipline specific foci within the context of urban health care delivery. However, there is less evidence exploring key issues related to trauma exposure from the perceptive of nurses

in rural and remote area practice. The limited literature available beyond the context of rural practice in Australia or strictly northern settings highlights numerous conceptual gaps in the research. It is clear that further study is necessary to identify the types of traumatic events that rural and/or remote nurses most commonly face in the workplace, the potential psychological and physical effects of exposure over time, and to distinguish between the types of trauma in relation to degree of negative impact on rural nurses in an effort to better support their psychosocial wellbeing and foster healthy rural and remote work environments.

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Table 1*Summary of the findings from literature reviewed*

Author Year Country	Purpose	Sample	Design	Data Collection	Findings Relevant to Research Questions
Hegney et al. (2015) (Australia)	Compare the well-being & perception of the practice environment of nurses in community, acute & long-term care across geographical settings	Registered nurses, enrolled nurses, and assistants N=1608 (urban n=1008; rural n=382; remote n=238)	Quantitative Cross-sectional survey method	Scales measuring depression, anxiety, stress, resilience, professional quality of life, perceptions of the practice environment	Key terms/constructs: Secondary Traumatic Stress (STS), Burnout (BO), Compassion Fatigue (CF), Compassion Satisfaction (CS); <ul style="list-style-type: none"> STS was associated with burnout; Lower levels of STS in remote nurses, compared to urban or rural; No differences in stress, anxiety, depression, CS, BO, or resilience across geographic locations; Professional practice environment viewed positively by nurses across geographic settings and urban nurses rated nursing foundations for quality care higher than rural or remote nurses; Overall, 20% of nurses reported CF Contributing factors, such as exposure to trauma, not identified
Singh et al. (2015) (Australia)	Compare the frequency and intensity of Burnout in rural versus urban nurses	Mental health nurses in rural or urban N=319	Quantitative Cross-sectional survey design	Scale measuring 3 aspects of Burnout (e.g., Emotional Exhaustion)	Key terms/constructs: Burnout (BO), Emotional Exhaustion (EE) <ul style="list-style-type: none"> No difference in the level of BO in rural or urban nurses; Potential contributing or causal factors were dealing with emotional and behavioural disturbances vs. trauma exposure; Men experienced higher levels of depersonalization than women Higher levels of emotional exhaustion in younger participants

Author Year Country	Purpose	Sample	Design	Data Collection	Findings Relevant to Research Questions
Terry <i>et al.</i> (2015) (Tasmania)	Examine the safety of the workplace processes	Rural community nurses (N=15)	Qualitative Narrative inquiry with Phenomenological approach, Thematic analysis	Semi-structured interviews	<p>Key terms/constructs: Burnout (BO), Compassion Fatigue (CF)</p> <ul style="list-style-type: none"> • Death & tragedy potential contributing factors in BO and CF; • Geographical, environmental, and organizational workplace health and safety challenges; • Emotional demands, responsibilities and expectations, social issues, and safety concerns are linked to psychological distress and emotional exhaustion; • Lack of replacement staff to take leave may influence ability to access debriefing support and time away for psychological support
Opie <i>et al.</i> (2011) (Australia)	Assess and compare workplace conditions in two nursing populations	Remote and urban nurses in health centers and hospitals N=626 (remote n=349; urban n=277)	Quantitative Cross sectional survey design	Questionnaires measuring Burnout, Work Engagement, Nursing Stress, and Job Demands & Resources	<p>Key terms/constructs: Psychological distress (PD), Emotional exhaustion (EE)</p> <ul style="list-style-type: none"> • Higher levels of workplace PD and EE in urban nurses than remote nurses; • High levels of stress in both remote and urban groups; • Higher work engagement and job satisfaction in remote nurses; • No difference between groups in job demands, job resources, or PD related to conflict with nursing colleagues; • Workload correlated to EE; • Contributing factors such as exposure to trauma are not identified

Author Year Country	Purpose	Sample	Design	Data Collection	Findings Relevant to Research Questions
O'Neill <i>et al.</i> (2010)	Examine mental health service access in northern communities	Articles on northern isolated circumpolar communities 62 articles and 2 databases included in this review	Themes are outlined but Thematic analysis not explicit	Literature Review	<p>Key terms/constructs: Secondary trauma (ST), Secondary traumatic stress (STS), Vicarious Trauma (VT), Compassion Fatigue (CF), Burnout (BO)</p> <ul style="list-style-type: none"> Empathic engagement with client's trauma over time may have profound effect on practitioners; Confusion in definition of terms with ST and CF emphasizing emotional responses; while VT focuses on changes to the provider's cognitive schema and perception over time, including sensory experiences; Embedded practitioners identified emotional, cognitive, and sensory disruptions and dedication and commitment were protective factors; Understanding northern cultures essential for competent practice Contextual issues in northern mental health practice include isolation with challenges for both insider and outsider practitioner roles (e.g., visibility, lack of anonymity, exposure to intergenerational trauma)
Opie <i>et al.</i> (2010) (Australia)	Examine the workplace demands and resources of remote nurses	Remote and urban nurses in health centers (N=349)	Quantitative Cross-sectional survey design	Questionnaire measuring Burnout, Work Engagement, Nursing Stress, and Job Demands & Resources	<p>Key terms/constructs: Psychological distress (PD), Emotional Exhaustion (EE), Burnout (BO)</p> <ul style="list-style-type: none"> Contributing factors were high levels of occupational stress; PD and emotional EE were linked to emotional demands, staffing, workload, violence, responsibilities, expectations, isolation, intercultural factors, and social issues; Identified need to enhance workplace support and interventions to address stress and BO and reduce turnover such as improving employee assistance programs and debriefing

Author Year Country	Purpose	Sample	Design	Data Collection	Findings Relevant to Research Questions
Rose & Glass (2009) (Australia)	Explore the emotional wellbeing of nurses who provide palliative care	Rural and urban community health nurses (N=15)	Qualitative Emancipatory Method	Semi-structured interviews Purposive sampling Reflective journaling	<ul style="list-style-type: none"> Key terms/constructs: Emotional strain (ES) Workplace not always conducive to healing, increasing emotional strain; Emotional interactions increase risk of harm and strain on a nurses' well-being; Psychosocial aspects of care have a personal and professional impact; Strategies needed that promote emotional intelligence, foster self-care, and focus on balance
Lenthall <i>et al.</i> (2009) (Australia)	Explore stressors experienced by remote area nurses	Remote Primary Health Centers 26 studies included in this review	Meta databases analyzed: Thematic analysis	Literature Review	<p>Key terms/constructs: Post-Traumatic Stress Disorder (PTSD), Vicarious Trauma (VT)</p> <ul style="list-style-type: none"> Exposure to violence and traumatic incidents in the workplace increases the risk of developing PTSD and VT; Identified need for education, training and orientation
Kenny <i>et al.</i> (2007) (Australia)	Identify issues rural nurses face in providing psychological care to patients with cancer	Rural hospitals (N=19)	Qualitative Descriptive approach Thematic analysis	Focus group interviews Field notes	<p>Key terms/constructs: Emotional toil (ET)</p> <ul style="list-style-type: none"> Impact on emotional well-being identified into 3 themes: task vs. care, supportive networks, and having dual relationships; Difficult to achieve balance between tasks vs. care; Support system needed that focuses on debriefing and forum to reflect, discuss, and receive support; Advantages and disadvantages to dual relationships; Fatigue and emotional exhaustion have a major impact on own well-being; Live and work in same community creates a supportive bond