

Educational Needs of Rural Nurses When Entering Practice

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Abstract

Purpose: The purpose of this integrative review is to identify the educational needs of rural nurses and the strategies that have been effective in meeting those education needs.

Sample: The literature search yielded 1388 articles to be screened after 930 duplicates were removed. Two researchers screened by title and abstract and full-text review, yielding ten articles. Four were qualitative, four were quantitative and two studies were mixed methods.

Method: An integrative review using Whittemore and Knafl's method was conducted. CINAHL, MEDLINE, EMBASE and Scopus databases were searched. Studies about registered nurses' practice from Canada, the United States and Australia were included as these countries are geographically large with rural areas at a distance from larger, urban centres. Inductive content analysis was used to develop themes.

Findings: The themes of educational needs, educational delivery, and barriers to education were developed from data analysis. Educational needs of rural nurses are well established, although

multiple barriers impede access to education. Various educational delivery methods have been attempted; it is unclear as to which method is most effective.

Conclusions: Rural nurses must continue to advocate for education opportunities specific to their needs and the demands related to working within the rural context. It's essential employers and accrediting bodies of hospitals work together to ensure that rural and remote nurses have the essential skills to care for rural and remote populations.

Keywords: rural nursing, educational needs, educational delivery, barriers to education.

Educational Needs of Rural Nurses When Entering Practice

Rural nursing requires a diverse and broad scope of practice which is positively influenced by additional educational preparation tailored to the needs of rural nursing practice. Various definitions of rurality or remote areas exist. The variations consider population, geography, and even rural as a socially constructed phenomenon (Asad et al., 2021). The United States of America (USA) Department of Health and Human Services (2020), define urban areas and urban clusters and conclude rural encompasses all areas that are not urban. Canada similarly defines rural as areas outside population centres and specifies that population densities and living condition vary greatly among rural communities (Statistics Canada, n.d.). In 2016, 11.3% (44,724) of the regulated nurses working in Canadian provinces worked in rural or remote areas with 17.3% of the population living in these areas (Canadian Institute of Health Information [CIHI], 2016). This number is similar in the United States of America (USA), where 16% of Registered Nurses (RNs) work rurally (Health Resources and Services Administration [HRSA], 2013). In Australia, approximately 19% of nurses work in rural towns and remote communities (Commonwealth of Australia, 2020). The nature of rural nursing places a greater demand for an expanded role of practice, despite rural nurses having comparatively lower levels of formal education when compared to urban nursing colleagues

(MacLeod et al., 2017). Moreover, rural nurses may have lower wages and limited funding for professional development (Field et al., 2018; Skillman et al., 2007). The Canadian Association for Rural and Remote Nursing [CARRN] (2020) explains that rural nurses experience challenges with both having the education needed to meet the challenges of rural settings and accessing continuing education. In Australia, discussion about educational preparation has focused on postgraduate study, yet most rural nurses do not have postgraduate qualifications and face significant barriers in obtaining them (Kenny & Duckett, 2003). This also highlights a conflict of whether preparation to practice should occur prior to entering the practice environment or if it can occur while practicing in the area. Educational preparedness is nuanced and often understanding what makes nurses feel unprepared, can help inform how to prepare nurses for practice (Garner & Bedford, 2021). In a survey of nurses from the USA, when comparing rural to urban, rural nurses were more likely to indicate that inadequate training was a barrier to their work performance. Also, they were less likely to report that their nursing education had equipped them for work (Probst, McKinney et al., 2019). Rural nurses are required to have a wide range of advanced physical assessment skills, triage, emergency, obstetrical and trauma care skills (MacLeod, Kulig et al., 2004; Medves et al., 2015). Maintaining knowledge to stay up to date with practice in rural communities requires a broad range of continuing education topics (Hendrickx & Winters, 2017). This paper reports on an integrative review that examined rural nurses learning needs and how best to address them.

Background

Rural nursing is a multi-specialty, generalist practice that requires excellent clinical knowledge (Registered Nurse Association of British Columbia [BC], 2005; Nurses and Nurse Practitioners of BC, 2018). In addition to a broad scope of practice, in some rural and remote practice, nurses may be the only primary care providers available. In contrast, urban settings often

have nurses on-site 24/7 with on-call physician support (McCullough et al., 2021). Rural nurses are expected to be able to respond to a variety of clinical situations with minimal support and resources. Rural citizens in Canada, Australia and the USA disproportionately suffer from adverse health outcomes, poorer health, and higher age-adjusted mortality (Australian Government n.d.-b; Probst, Eberth et al., 2019; Subedi et al., 2019). This is related to complex factors such as geographic location, social determinants of health, access to resources and difficult recruitment and retention of healthcare providers (MacLeod, Kulig et al., 2004). Systematic change is required to address all these complex barriers and improve health outcomes in rural and remote settings as rural nurses' lack of educational opportunities could exacerbate the existing poor rural health outcomes. Rural nurses who are prepared for rural challenges will be more competent in meeting the healthcare needs of the population they serve.

Few continuing education or postgraduate certificate specific to rural nursing exist. Of the programs and courses that do exist, their efficacy is poorly reported, and there is no standardization of educational expectations for rural practice. Yet, rural nurses need additional education to help them be prepared for practice. Wolf and Delao (2013) highlighted that rural emergency nurses believed that an advanced knowledge base and critical skill application are fundamental to ensuring safe patient care, and continuing education crucial to support this. Lea and Cruickshank (2015) discussed the transition to rural practice and concluded that mentorship or unit orientations are not often enough. This was related to generally lower staff numbers, limited resources, and senior staff workloads impeding the ability to support incremental learning in rural practice settings. Following a scoping review, Bish et al. (2012) suggested that rural nurse leaders on a global scale need to create structures and processes to enable excellence in nursing careers of all types. A key structure they identified is the need to create educational pathways specific to rural

nursing practice. Despite the need for educational opportunities, especially those specific to rural practice preparation, access and opportunity remain limited. Barriers to continuing education for rural nurses include geographic isolation, limited accessibility, and financial and time constraints (Penz et al., 2007; Young et al., 2019). Regardless of these barriers, meeting rural nurses' educational needs must be prioritized. However, it is not well understood what educational strategies have been utilized or are effective in preparing rural nurses for their practice.

Within Canada, entry-level nursing competencies developed for provincial and territorial nursing regulatory associations are based on generic requirements and do not address the needs of nursing in rural or remote practice settings (MacLeod, Kulig et al 2004; Kulig, 2005). This is echoed by a recent review by the CARRN (2020) where they obtained correspondence from the Canadian Association of Schools of Nursing (CASN) database stating that rural curricular content in Schools of Nursing is not currently captured by their database. Absence of such information lead to less accountability and lack of quality standards.

In the USA, each state and territory have laws to govern the practice of nursing, as defined in the Nursing Practice Act (Huynh & Haddad, 2022). The Nursing Practice Act (NPA) is interpreted into regulations by each state and standards on prelicensure nursing education with clinical learning experiences defined and used for accreditation purposes. As each state has a different interpretation, it proves challenging to examine which includes educational requirements specific to rural practice. Not all USA nursing regulatory bodies currently require national nursing accreditation (National Council of State Boards of Nursing, n.d.), which may decrease the impetus to include rural nursing educational content.

Australian nursing programs are approved by the Nursing and Midwifery Board of Australia which works with the Australian Health Practitioner Regulation Agency to regulate the profession

(Australian Government, n.d.-a). Ralph et al. (2014) reviewed Australian undergraduate, pre-registration, nursing curricula using a PESTEL (politics, economics, society, technology, environment, and law) framework. Within the politics category targeted priority areas are identified and include rural and remote Australians as a health population. Although their analysis identified 36% of curriculum targeted priority areas, there was no indication about the amount of curriculum related to rural health. In June of 2022, the Australian Government released the National Rural and Remote Nursing Generalist Framework. This document describes rural and remote practice and the core capabilities of nursing practice. Its purpose is to act as reflective and supportive tool for educators, employers, and mentors to assist in a pathway of development for the rural nurse and remote nurse.

Despite the complexity of rural practice within Canada, only two institutions have certificate programs focused on rural or remote nursing (CARRN, 2020). While some Canadian, USA, and Australian nursing schools do offer rural preceptor experiences, there is no consistent approach for preparing students for rural placements or consensus as to whether these experiences are adequate (Green et al., 2022; Gum, 2007; Sedgwick & Yonge, 2008; Yonge et al., 2013; CARRN, 2020). The Rural Nurse Organization is a USA-based organization formed to recognize, promote, and maintain the unique specialty of rural nursing practice (Rural Nursing Organization, n.d.). They advocate for the implementation of rural nurse residency programs and transition-to-practice programs. In Australia, the Council of Remote Area Nurses of Australia (CRANA) is a grassroots, not-for-profit, membership-based organisation that aims to support nurses and other health professional in providing high quality care to remote areas in Australia. They offer continuing education programs tailored to remote and rural practice, as well as a rural and remote mentorship program (CRANA, n.d.).

We determined conducting an integrative review would enhance understanding of the unique educational needs of rural nurses and educational strategies that have been employed in rural settings. Findings would provide insights into the educational needs of rural nurses and perhaps identify successful rural nurse education programs and strategies. Supporting ongoing nurse competence would in turn lead to better patient outcomes and better healthcare experiences (Molanari et al., 2011). This information could be used by health authorities to enhance the practice and competence of rural nurses. Wilson et al. (2020) called upon government leaders to help advance education, policy, practice, and research activities related to rural health care in Canada. The purpose of this integrative review is to identify the educational needs of rural nurses and the strategies that have been effective in meeting those education needs.

Methods

Design

An integrative review of the literature was performed using Whittemore and Knaf's (2005) framework of identifying and analyzing relevant studies. This framework has five phases, including 1) problem formation, 2) literature search, 3) data evaluation, 4) data analysis, and 5) presentation of results.

A health sciences librarian helped guide the literature search and development of search terms. Search terms were as follows: (RN" or "registered nurse*") AND (education or training or "prepared*" or orientation or workshop*) AND (rural or "non-urban" or country* or remote) AND (need* or necessit* or requirement* or support*). Databases that were searched include CINAHL, MEDLINE, EMBASE and Scopus.

Inclusion criteria for the review were articles in the English language, published within the last 20 years 2002-2022 and articles about rural registered nurses' practice from Canada, the United

States and Australia. These countries are geographically large with rural areas at a distance from larger, urban centres. Exclusion criteria were articles relating to continuing education that were included in an integrative review by Pavloff et al. (2017) as these authors focused only on continuing education for already practicing rural nurses between 2010-2016. Non-research, theoretical articles, dissertations and theses were also excluded.

Results of the literature review were screened utilizing Covidence (Covidence Systematic Review Software, n.d.) by title, then abstract, and finally reading the full article by two researchers. A Preferred Reporting Items for Systematic Reviews (PRISMA) figure (Shamseer al., 2015) was created to document the process of article selection (see Figure 1). The mixed methods appraisal tool (MMAT) was utilized to critically assess the articles – Table 1 (Hong et al., 2018). After data were extracted into a table (see Table 1), it was analyzed using inductive content analysis (Hsieh & Shannon, 2005) to identify patterns, themes, or relationships in the literature (see Table 3). The first and second authors had numerous meetings discussing the data until a consensus about the key concepts, categories and themes were reached. The third author reviewed and provided feedback on the protocol and versions of the findings.

Table 1
Integrative Review Table

Author, year and origin	Aim	Method and Sample	Findings	Limitations
Beks, et al. (2018). <i>Rural and Remote Health</i> Australia	To explore the experience of rural nurses in managing acute mental health presentations within an emergency context.	Qualitative descriptive. Themes are analyzed by an inductive descriptive approach. 13 rural generalist nurses from one rural ED and 2 rural UCCs located in elsewhere.	Four main themes were elicited. we are the frontline; doing our best to provide care; complexities of navigating the system; thinking about change. Rural generalist nurses deliver the majority of care to mental health consumers in EDs and UCCs.	Small sample size and novice nurses' perspectives were not captured.
Bolin et al. (2011). <i>Journal of Emergency Nursing</i> United States	To explore the perspective of emergency nurses in rural areas on the impact of continuing education on clinical competency.	Quantitative, descriptive design. Non-probability sampling via survey. Data were obtained from 33 nurses, representing 3 different rurally located ED settings.	<i>Participants</i> , 10 (39%) rated their occupational satisfaction as 10, 19 (58%) rated their occupational satisfaction 7 - 9, and 1(3%) rated their occupational satisfaction 5. Maintaining competencies is perceived as highly important. 23 (70%) rated this as 10; 8 (24%) rated between 7 and 9. <i>Maintaining competencies</i> was described as moderately important. 25 (76%) of respondents stated ED specific CEUs should be mandatory. 21 (64%) stated that CEUs are not a requirement of their job duties. There was no one to serve as nurse educator in ED. Orientation programs, using either a preceptor or mentor approach, was available 85% of the time (n = 28). The only <i>significant correlation</i> was a direct correlation between age and occupational satisfaction, which approached significance ($p = .072$), and age and perception of maintaining competencies, which achieved significance ($p = .001$).	Participants were voluntary which may have influenced the findings. The small sample size limits generalizability

Author, year and origin	Aim	Method and Sample	Findings	Limitations
Chang et al. (2002). <i>Nurse Education Today</i> Australia	To describe the development, implementation and evaluation of a mental health continuing education program for nurses employed in rural and remote areas of New South Wales (NSW), Australia. As well as evaluates the efficacy of this program.	Mixed Methods. Qualitative survey to determine needs. Quantitative surveys + analysis of open-ended questions to determine program effectiveness.	<i>Needs Analysis Questionnaire</i> - list of mental health topics needing more education included: Talking to people/basic communication skills, assessment/correct psychiatric terminology, depression, suicide/prevention, psychosis/schizophrenia, confusion and dementia in the elderly, management of all conditions, especially aggression. <i>Evaluation of the Course</i> - each workshop was evaluated for content, presentation and organization. The median response to every question was 6 (agree), except for q24 (the modules form a convenient resource for future reference) to which the median response was 7 (strongly agree). <i>Overall Effectiveness</i> : 91% stated the program content assisted them strongly in developing their knowledge and understanding of mental health and psychiatric problems in rural and remote settings. <i>Analysis of Open-Ended Questions</i> : most comments were in favour of the program.	Limited attention given to medications. An educator is necessary to hold this education component. Since the course was tailored to participants, it may not be relevant to other groups.
Fitzgerald & Townsend (2012). <i>Journal of Continuing Education in Nursing</i> United States	To determine needs and preferences for CE topics and delivery for rural nurses. To create a collaborative relationship between the university and rural hospitals and have them work together to plan online CE	A quantitative, pilot study. Convenience sampling of 27 nurses working at two hospitals.	Pilot study results: 1) <i>Education</i> - 48.1% (n=13) ADN, 40.7% (n=11) BSN, 7.4% (n=2) MN, and 0 DNP, 0 PhD, 3.7% (n=1) no response. 2) <i>Experience</i> 48% (n=13) had been working a current education for 16 or more years, and 74% (n = 20) for at least 11 years. Approximately 44.4% (n = 11) had been working as a RN in a rural setting for at least 11 years. 3) <i>Preference for Learning</i> - the most preferred (48%, n=13) and most common (70%, n=18) approach to CE was in person. Next was "self-study online" (54%; n = 14). 4) <i>Topics of Interest</i> : cardiovascular, respiratory, geriatric, and diabetes. 5) <i>Potential barriers</i> : Topic offered, fee	Pilot study using a small convenience sample limiting the generalizability. Requires continued collaboration between rural hospitals and universities.

Author, year and origin	Aim	Method and Sample	Findings	Limitations
	offerings about topics of interest to these rural nurses.		for CE, time away from work, modality of training, distance to training and level of interest in learning.	
MacLeod, Lindsey et al. (2008). <i>The Journal of Continuing Education in Nursing</i>	To develop a practice-driven, reality-based post-RN rural acute care certificate program.	Qualitative Descriptive. In-depth focus group interviews with 236 rural acute care nurses representing 51 different communities.	Seven major themes identified by RNs as core content for a post-basic nursing curriculum; health assessment across the lifespan, chronic disease management, palliative care and wound care, nursing practice with older persons, perinatal care, critical care, emergency & trauma, mental health and addictions and living and working in a rural community.	All of participants were from one geographical region. Enacting their learning needs may require an educator that is not currently employed
Canada				
MacLeod, Misener et al. (2008). <i>Nursing Leadership</i>	To improve the recruitment and retention of nurses in rural communities, a better understanding of what's important to rural and remote nurses is needed. Nurses were asked what advice they would have for new nurses, educators, administrators and policymakers.	Qualitative Descriptive. A national survey of 3,933 RNs and in-depth interviews with 153 RNs from all provinces and territories.	<i>Advice to New Nurses:</i> Find and build relationships with colleagues and the multidisciplinary team. <i>Advice to Educators:</i> Educate on the need for rural practice content and make it hands-on, rural-focused and accessible. <i>Advice to Administrators:</i> Provide accessible supports for learning and clinical practice. <i>Advice to Policymakers and Professional Practice Organizations:</i> Acknowledge that rural/remote practice is unique and needs support. Involve communities in planning health services.	The results of qualitative data are not generalizable. The educational needs over a diverse area to nurses who are geographical distant makes addressing their needs challenging.
Canada				
McCafferty, et al. (2017). <i>Online Journal of Rural Nursing and Health Care</i> , 23(1)	To assess the educational needs and	Quantitative, cross-sectional descriptive, non-probability	12-item needs assessment looked at barriers to education, preferred learning methods, the interprofessional education environment and	The authors were unable to determine which of the scenarios were top priority.

Author, year and origin	Aim	Method and Sample	Findings	Limitations
<i>Journal of Continuing Education in Nursing</i> United States	barriers identified by rural nurses in two midwestern states. The continuing education needs of rural nurses are not well understood. Rural hospitals face special challenges that serve as barriers to the attainment of continuing education.	sampling. A survey was sent via forum to nine rural hospitals to 119 nurses.	education topic needs. Areas identified as the highest need included postpartum hemorrhage, preterm labour, pediatric care, preeclampsia, shoulder dystocia, and embolism. The barriers to obtaining updated education included distance to travel for educational opportunities and lack of staff for coverage while attending the program.	
Pascoe et al. (2007) <i>Australian Journal of Advanced Nursing</i> Australia	Describe the educational needs of nurses working in general medical practice in Australia	Mixed Methods. Combining qualitative and quantitative data (convergent design) via telephone survey. 222 enrolled (RN Division 2 in Victoria) and registered nurses (RN Division 1 in Victoria) working in general practice in rural and urban areas of Australia.	<i>Educational areas</i> of high importance including communication skills (94.1%); infection control (93.7%); confidentiality and national privacy legislation (93.7%); legal and ethical issues (91.9%); first aid and CPR (91.4%); wound care (91.0%); cold chain monitoring (90.0%); sterilisation (90.0%); and triage (90%). <i>Barriers to education</i> were lack of time due to work (21.9%); costs of courses (17.3%); distance to education (13.9%); and lack of time due to family commitments (13.1%), distance (20.5%). than urban nurses (3.6%).	Since this study asked urban and rural nurses about their learning needs it is unclear if the barriers were more representative of the rural nurses. It is unknown if this sample is representative of rural nurses.
Ristevski et al. (2021),	To examine rural community-	Quantitative, non-randomized. Health service managers (N =	The questionnaire rated nurses' knowledge against 6 national palliative care standards and 10 screening and assessment tools. A 5-point scale of	The self-rating scale may have contributed to under or over reporting.

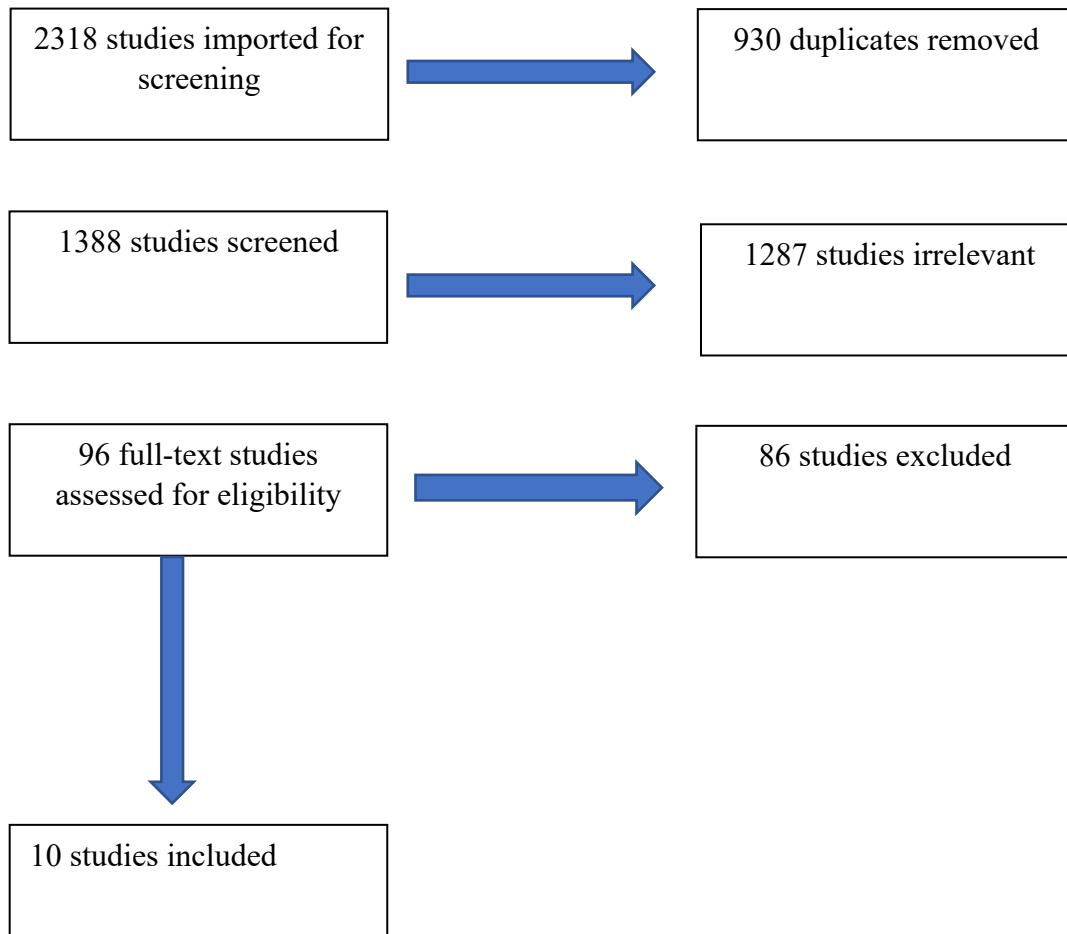
Author, year and origin	Aim	Method and Sample	Findings	Limitations
<i>Palliative and Supportive Care</i> Australia	based nurses' self-reported knowledge and skills in the provision of psychosocial care to rural residing palliative and end-of-life clients and carers. Then correlate knowledge gaps to inform workforce education and planning.	19) distributed a link to an electronic questionnaire to eligible staff (N = 165). 122 of 165 nurses (response rate = 74%) completed the survey	(1) No experience to (5) Can teach others was used to rate knowledge. Results were classified into three categories: practice gaps, areas of consolidation, and strengths. The study found formal training and increasing years of experience were most often associated with the absence of knowledge gaps.	
Whiteing et al. (2022). <i>Journal of Clinical Nursing</i> Australia	To delineate the contemporary practice of registered nurses working in rural and remote areas of Australia.	Qualitative, multiple case study design. Nurses were recruited from 240 sites. The study comprised three phases of data collection. First, a content analysis of 42 documents relating to the context of nursing, specifically rural and remote nursing; second, a content analysis of an online questionnaire (n = 75); and third, a thematic analysis of	Major themes: A medley of preparation for rural and remote work; Being held accountable” responsibility and accountability are intrinsically linked when determining the scope of nursing; Alone, with or without someone; Spiralling well-being. Nurses reported levels of stress, with many reporting recent burnout due to the many issues, they face in daily practice.	The qualitative data are not generalizable. The introduction of the new code of conduct at the beginning of the process may have may have made it challenging for participants to remember it.

Author, year and origin	Aim	Method and Sample	Findings	Limitations
Continuing Education (CE), Continuing Education Units (CEUs), Emergency Department (ED), Urgent Care Center (UUCs)				

semi-structured
interviews (n = 20).

Figure 1

Prisma Diagram



Findings

The search yielded 1,388 articles to be screened after having 930 duplicates removed. After the title, abstract and then full-text review, ten articles remained. Of those articles, four were qualitative (Beks et al., 2018; MacLeod, Lindsey et al., 2008; MacLeod, Misener et al., 2008; Whiteing et al., 2022), four were quantitative (Bolin et al., 2011; Fitzgerald & Townsend, 2012; McCafferty et al., 2017; Ristevski et al., 2021) and two were mixed methods (Chang et al., 2002; Pascoe et al., 2007) (see Table 2). The five qualitative studies (Beks et al., 2018; MacLeod, Lindsey et al., 2008; MacLeod, Misener et al., 2008; Ristevski et al., 2021; Whiteing et al., 2022) met all the MMAT criteria. The two, quantitative, descriptive studies met three out of five criteria (Fitzgerald & Townsend, 2012; McCafferty et al., 2017; Pascoe et al., 2007). For the mixed methods studies, Chang et al. (2002) did not meet the criteria and Pascoe et al. (2007) met two out of five criteria (Table 2). Given the few studies, all were included. The included studies represent three different countries, Canada (MacLeod, Lindsey et al., 2008; MacLeod, Misener et al., 2008), the United States (Bolin et al., 2011; Fitzgerald & Townsend, 2012; McCafferty et al., 2017) and Australia (Beks et al., 2018; Chang et al., 2002; Pascoe et al., 2007; Ristevski et al., 2021; Whiteing et al., 2022).

Table 2

MMAT Quality Assessment Table

Citation	Screening Questions		Qualitative Studies				
	S1. Are there clear research questions?	S2. Does the collected data allow us to address the research questions?	Is the qualitative approach appropriate to answer the research question?	Are the qualitative data collection methods adequate to address the research question?	Are the findings adequately derived from the data?	Is the interpretation of the results sufficiently substantiated by data?	Is there coherence between qualitative data sources, collection, analysis, and interpretation?
Beks et al. 2018	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MacLeod, Lindsey et al. 2008)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MacLeod, Misener et al. 2008)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ristevski et al. 2021	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Whiteing et al. 2022	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Citation	Screening Questions		Quantitative - Descriptive				
	S1. Are there clear research questions ?	S2. Does the collected data allow us to address the research questions?	Is the sampling strategy relevant to address the research question?	Is the sample representative of the target population?	Are the measurements appropriate?	Is the risk of nonresponse bias low?	Is the statistical analysis appropriate to answer the research question?
Fitzgerald & Townsend, 2012	Yes	Yes	Yes	No	Yes	Can't Tell	Yes

McCafferty et al., 2017	Yes	Yes	Yes	No	No	Yes	Yes
Bolin et al. 2011	Yes	Yes	Yes	Yes	Yes	Can't Tell	Yes
Citation	Screening Questions		Mixed Methods				
	S1. Are there clear research questions?	S2. Does the collected data allow us to address the research questions?	Is there an adequate rationale for using a mixed method design to address the research question?	Are the different components of the study effectively integrated to answer the research question?	Are the outputs of the integration of qualitative and quantitative components adequately interpreted?	Are divergences and inconsistencies between quantitative and qualitative results adequately addressed?	Do the different components of the study adhere to the quality criteria tradition of the methods involved
Chang et al., 2002	Yes	Yes	No	No	No	No	No
Pascoe et al., 2007	Yes	Yes	No	Yes	Yes	No	No

The three themes that were developed from these articles include educational needs, educational delivery, and barriers to education (see Table 3).

Table 3

Themes Table

Themes	Categories
Educational Needs	Tailored Education Preceptors, Interprofessional Practice and Experience
Educational Delivery	Delivery Methods – Collaboration, (Preceptors/Interprofessional Practice/University Partnerships), Simulation & Tailored Modules, Certificates and Programs
Barriers	Pursuing Continuing Education Employer/Policy maker Engagement

Theme 1: Educational Needs

Educational needs for rural nurses broadly included the demand for tailored education. The importance of tailored education to rural practice was present in eight studies (Beks et al., 2018; Chang et al., 2002; Fitzgerald & Townsend, 2012; MacLeod, Lindsey et al., 2008; MacLeod, Misener et al. 2008; McCafferty et al., 2017; Pascoe et al., 2007; Whiteing et al., 2022). In addition, three studies reported that preceptorship, experience and interprofessional practice were other educational needs of rural nurses (Beks et al., 2018; Ristevski et al., 2021; Whiteing et al., 2022).

Tailored Education

Amongst eight of the studies, the emphasis on ensuring rural/remote education was tailored to the context of rural practice was prevalent (Fitzgerald & Townsend, 2012; MacLeod, Lindsey et al., 2008; MacLeod, Misener et al. 2008; McCafferty et al. 2017; Pascoe et al., 2007; Whiteing et al., 2022). There was an overlap in the reported needs of rural nurses. Health assessment and triage, living/working in rural communities, care of older persons, perinatal care, critical care/trauma/emergency, chronic disease management/palliative care/wound care, mental health

and addictions were major areas that rural/remote nurses reported the need for education (MacLeod et al., 2008; McCafferty et al., 2017; Pascoe et al., 2007). McCafferty et al. (2017) also specified perinatal care, emphasizing post-partum hemorrhage, preterm labour, neonatal resuscitation, preeclampsia, and shoulder dystocia as important educational topics. In terms of emergent care, McCafferty et al. (2017) reported the educational needs for diabetic emergencies, cardiac arrest, stroke/cerebral vascular accidents, and behavioural/psychological disorders. Fitzgerald and Townsend's (2012) top four areas of interest included cardiovascular, respiratory, geriatric, and diabetes care as priority education topics. Educational needs in mental health nursing were identified by Chang et al. (2002) and Beks et al. (2018).

Whiteing et al.'s (2022) qualitative study suggested that preparation for practice should be aligned with a generalist role, but also stressed the importance of cultural competence due to 70% of Australia's remote populations being indigenous peoples. Cultural competence was not discussed by the other studies, except for a small piece from MacLeod, Lindsey et al. (2008), which mentioned indigenous populations under the umbrella of living/working in rural communities, without further discussion.

Preceptors, Interprofessional Practice, and Experience

Experience in both clinical practice and continuing education was seen to be important in rural practice. Whiteing et al. (2022) claimed rural/remote nurses argue for experience rather than education as necessary for the transition to rural nursing. However, they also clarify that there is a lack of access to professional support and no legislation identifying the necessary preparation needed to prepare nurses for rural and remote practice. Without any legislation for mandatory qualifications, few nurses possess advanced training or certificates and multiple barriers exist to obtaining them. They suggest preparation should be through specialty post-graduate courses.

Ristevski et al.'s (2021) exploration of rural nurses' self-reported knowledge and skills also seemed to be linked to years of experience and formal training. They found formal training and increasing years of experience were most often associated with the absence of knowledge gaps and suggest that further research may be needed to determine the best educational strategies. This sentiment is reiterated in Beks et al.'s (2018) discussion that nurses who receive ongoing mental health training will increase their competence.

Theme 2: Educational Delivery

Educational delivery methods and understanding of nurses' perceptions of the best educational modalities were examined by six studies (Beks et al., 2008, Fitzgerald & Townsend, 2012; MacLeod, Lindsey et al., 2008; MacLeod, Misener et al., 2008; McCafferty et al., 2017; Whiteing et al., 2022).

Delivery Methods

When looking at methods of delivery, multiple approaches were reported as being effective or beneficial. Two studies' findings agreed that face-to-face workshops were the preferred delivery method. (MacLeod, Lindsey et al., 2008; Fitzgerald & Townsend, 2012). In contrast, others suggested that interactive, experiential simulation was the most desired learning modality. (McCafferty et al., 2017; Beks et al., 2018; MacLeod, Misener et al., 2008; Whiteing et al., 2022). However, the studies reporting face-to-face learning as a preferred learning method (MacLeod, Lindsey et al., 2008; Fitzgerald & Townsend, 2012), didn't differentiate if that meant simulation, didactic learning or otherwise.

Whiteing et al. (2022) was the only study to report that RNs believed experience to be more relevant than education for a successful transition to rural and remote practice. This finding is similar to the studies that advocated for simulation learning, as some of Whiteing et al.'s (2022)

recommendations included real-world scenarios, 3D technology, and artificial intelligence programs to improve simulation experiences.

Two researchers highlighted the importance of interprofessional education and achieving positive working relationships with other disciplines through group interactions (MacLeod, Lindsey et al., 2008; Whiteing et al., 2022). Whiteing et al. (2022) stressed the importance of positive relationships between RNs and physicians, as professional development related to accountability. In contrast, MacLeod, Lindsey et al., (2008) discussed nurse-to-nurse interactions as crucial in learning about rural and remote practice. MacLeod, Lindsey et al., (2008) believed in the importance of group interactions and promoting learning through “regional learning circles” with nurses within a geographical location who could interact with rural/remote nurses and learn from one another.

Included studies used a variety of delivery methods for education. The most common educational delivery methods, and most valued methods by nurses included: collaborative efforts, simulation, and tailored modules/programs and were discussed in six studies. (Chang et al., 2002; Fitzgerald & Townsend, 2012; MacLeod, Lindsey et al., 2008; MacLeod, Misener et al., 2008; McCaffery et al., 2017; Whiteing et al., 2022).

Collaboration (Preceptors/Interprofessional Practice/University Partnerships).

Authors from three studies (McCafferty et al., 2017; MacLeod, Misener et al., 2008; MacLeod, Lindsey et al., 2008) discussed the importance of “finding colleagues” or educational models focused on interprofessional, experiential simulation and learning in collaborative settings. These ideas were based on the idea that care is complex and required a collaborative, team-focused approach to ensure the best possible outcomes. However, McCafferty et al.’s (2017) continuing education needs assessment, highlighted the tension between utilizing simulation for day-to-day

routine practice or high acuity, infrequent skill sets. They relate this to how the need to provide education to current nursing providers is identified in the literature, but specific scenarios and topic areas are not.

Partnerships and educational content created through collaboration with universities were examined in three articles. (Chang et al., 2002; Fitzgerald & Townsend, 2012; MacLeod, Lindsey et al., 2008). Both Chang et al. (2002) and Fitzgerald and Townsend (2012) claimed their small-scale examples demonstrated how collaborative efforts could unite university nursing programs with rural hospitals to offer educational support to rural nurses. In contrast, MacLeod, Misener et al. (2008) reported that nurses wanted rigorous continuing education that would qualify as academic credit toward a Bachelor of Science in Nursing (BSN) or Master of Science in Nursing (MSN) and such education would require university partnership.

Simulation

As previously discussed, five researchers suggested simulations were an important delivery method (McCafferty et al., 2017; Beks et al., 2018; MacLeod, Misener et al., 2008; Whiteing et al., 2022). Task infrequency was a concern highlighted by three authors (MacLeod, Lindsey et al., 2008; McCafferty et al., 2017; Whiteing et al., 2022). A common proposal was that this problem could be mitigated by ongoing simulation and skills practice.

Tailored Modules, Certificates, and Programs

Two scholars studied tailored certificates or programs for rural nurses. Chang et al. (2002) utilized and discussed the efficacy of multiple modalities of mental health education delivery. They explored the use of modules, audiotaped material, sky channel presentations and regional workshops. Participants reported the modules were at levels suitable to their individual needs, and audiovisual materials relevant to the topics. The sky channel presentations were the least well

received with only 48% of participants watching the presentations, due to work, family, or timing of the broadcast. MacLeod, Lindsey et al. (2008) discussed a practice-driven, reality-based program. A post-graduate certificate was developed through collaboration with a course writer, academic advisor and four practice advisors (rural, acute care RNs). The curriculum was a blend of workshops and practicum aligned to their needs assessment. Although the program's efficacy or nurses' perceptions of its administration were not measured, it is an example of new possibilities for responsive, relevant curriculum development in rural acute care nursing.

Theme 3: Barriers to Education

The barriers to pursuing continuing education for rural nurses are vast and were discussed in five different studies (Fitzgerald & Townsend, 2012; MacLeod, Lindsey et al., 2008; McCafferty et al., 2017; Pascoe et al., 2007; Whiteing et al., 2022). Employer and policy maker engagement was one barrier explored in-depth in four of the studies. (Bolin et al., 2011; MacLeod, Misener et al.'s, 2008; Ristevski et al., 2021; Whiteing et al., 2022)

Pursuing Continuing Education

Barriers to pursuing continued education were discussed in four studies (Fitzgerald & Townsend, 2012; McCafferty et al., 2017; Pascoe et al., 2007; Whiteing et al., 2022). All four studies agreed that distance to education could be a barrier. Travel, cost and family commitments (Fitzgerald & Townsend, 2012; McCafferty et al., 2017; Pascoe et al., 2007) as well as coverage from missed shifts and institutional support (Whiteing et al., 2022). Nurses wanted barriers removed so that continuing education was more relevant, more rural-focused, accessible, and included distance delivery.

Employer/Policy Maker Engagement

Nurses value continuing education (Beks et al., 2018; Bolin et al., 2011; MacLeod, Misener et al., 2008; Whiteing et al., 2022). Three studies explained that mandatory continuing education is not universally required by employers. (Bolin et al., 2011; Ristevski et al., 2021; Whiteing et al., 2022). After completing interviews with RNs, MacLeod, Misener et al. (2008) urged employers to acknowledge the uniqueness of rural and remote practice, and support nurses' scope appropriately. Study participants suggested that appropriate education is one means of recognizing and supporting the unique role of rural and remote nurses.

Discussion

The findings of this review identified that researchers have developed an understanding of the diversity of rural and remote nurses' educational needs, which highlight that rural nurses need to be proficient in routine as well as infrequent high-stakes situations, such as labour and delivery, or cardiac arrest. What was not clear in the literature was an understanding as to how best approach such diverse educational needs and nurses reported varied views about how they wanted education to be facilitated. Similar to the barriers found in this review, Santos's (2012) integrative review examining both urban and rural nurses' barriers to learning, found time constraints, financial constraints, workplace culture, access/relevance, and competency in accessing electronic evidence-based practice literature to be issues. Penz et al. (2007) specifically assessed what rural/remote nurses perceive as barriers, finding time and financial constraints, lack of employer support, geographical isolation and physical distance from learning opportunities.

Another challenge to rural nurses is that continuing education is not mandated as something employers need to provide to their employees. However, renewing and enriching knowledge is part of professional identity and an obligation for nurses (Lera et al., 2020; Rasmussen et al., 2021). Thus, nurses' attitudes and perceptions towards continuing education, as well as organizational

support and supportive work environments are important in facilitating continuing education. (Lera et al., 2020; Mlambo et al., 2021)

Some of the strategies identified in this study to address barriers were collaboration and interprofessional education. Walmsley et al. (2020) looked at practical approaches to normalize interprofessional collaboration in rural hospitals, highlighting the importance of positive workplace cultures and understanding of professions' roles. They suggest the importance of induction processes and informal introductions, formalized interprofessional interactions, interprofessional education and positive leadership. However, they explain that interprofessional collaboration often focuses on urban healthcare systems, where sub-specialized staff and services are often more plentiful than in rural areas. If urban settings were to collaborate with rural sites, it could be an alternate approach to one of the findings of this review which suggested different rural regions develop learning groups to collaborate and support one another in advancing their educational needs.

Simulations were commonly advocated as an educational delivery method in this review. Davies et al. (2021) integrative review about ward-based simulations suggests learners enjoy them and report increased preparation for professional practice. Unfortunately, access, technology, and available resources can be a barrier to simulation in rural settings. Yet low-tech simulations in rural settings were found to be useful in overcoming barriers that prevent the frequent use of simulation in rural settings (Mogler et al., 2020).

Whiteing et al. (2022) was the only study in this review that stressed the importance of cultural competence, stating that 70% of Australia's Indigenous population live in rural areas. In Canada, approximately 60% of the Indigenous population also live in rural areas (OECD, 2020). With such a high percent of Indigenous People living in rural areas, who have poorer health

outcomes than non-indigenous counterparts in Canada, the USA and Australia, it is imperative for rural and remote nurses to have education about cultural safety and cultural competence (Harfield et al.,2018). This is important because despite cultural safety being taught in health curriculum worldwide, inequity still exists (Kaphle et al., 2021). Browne et al.'s (2016) ethnographic research describes the importance of the Indigenous epistemological lens as a driving force in strategies to enhance health equity. This same approach could be used to provide rural and remote nurses education to foster cultural competence.

Implications for Practice

The findings of this study highlight the need for rural education that is tailored to the needs that are well identified by rural nurses (Fitzgerald & Townsend, 2012; MacLeod, Lindsey et al., 2008; MacLeod, Misener et al., 2008; McCafferty et al., 2017; Pascoe et al., 2007; Whiteing et al., 2022). Further research is needed to understand how best to facilitate educational delivery to rural and remote nurses. This research should also focus on how to facilitate education when there are physical and infrastructural barriers such as challenges with internet delivery and lower wages for rural nursing as well as limited professional development funds that may constrain types of educational delivery and incentives for nurses to pursue education (Fields et al., 2018). Interventional research could be one tool to explore and compare the efficacy of the various delivery methods. Despite uncertainty about the best means to facilitate education, rural nurses still need to advocate and pursue continuing education. Delivery of education could be offered through a variety of modalities, such as mentoring programs, online modules, group learning, simulations and interprofessional education. Due to the few postgraduate, rural specific programs and the pre-existing difficulties recruiting and retaining nurses to work in rural settings, mandating specific postgraduate education prior to working in a rural setting is unrealistic. Working towards

educational programs that support the needs of rural nurses, that are readily available and accessible is more likely to be beneficial.

It is essential employers and accrediting bodies of hospitals work together to ensure that rural and remote nurses have the essential skills to care for the rural population. As the educational needs of rural nurses are clearly identified, standardization of mandatory continuing education could facilitate a more coordinated approach to education delivery. Employers need to support their staff in obtaining courses such as advanced cardiac life support, pediatric advanced life support, trauma nurse care courses and other continuing education courses tailored to specific specialty areas, like labour and delivery. Unified approaches could help determine strategies to accommodate participation in educational opportunities. Frequent course offerings, with on-site nursing staff or clinical educators, as certified instructors for various courses could be an asset. An educator on site would allow for planned and impromptu course offerings, such as when patient censuses are low. If having on-site educators is not feasible, brainstorming between nurses and their managers on how to accommodate learning could facilitate innovative educational strategies.

Limitations

This review is limited by the English language, focusing on three countries, and the inclusion and exclusion criteria used in the databases. Studies from other countries and studies in other languages could provide further insights into different contexts and systems of care, particularly on the best way to facilitate educational delivery to rural nurses.

Conclusion

Rural nurses have a diverse scope of practice and require a broad skill set to manage patients across their lifespans. The educational needs of rural nurses appear to have been identified yet meeting these needs has proved challenging. Tailored education to rural contexts and making

educational opportunities readily accessible for rural nurses is important. Nurses have a professional responsibility to ensure they maintain their fitness to practice, which includes continuing education. Supportive workplace cultures and healthcare organizations are critical in helping rural nurses achieve equitable access to educational opportunities when compared to their urban counterparts. Discussion between nursing staff and their employers on how to best meet educational needs would improve accountability in practice, competence in practice and potentially improve health outcomes for rural and remote residents.

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