

REVIEW ARTICLE

What influences nurses' decisions to work in rural and remote settings? A systematic review and meta-synthesis of qualitative research

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ETHICS APPROVAL

All named authors have read and agreed to the content of this review

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ABSTRACT:

Introduction: Due to global nursing shortages, recruitment and retention of nurses is a major international concern, exacerbated in

rural and remote areas. Existing research reveals that individual factors influence healthcare professionals' decision making to work in rural and remote settings. However, existing evidence does not fully consider the multiple influences that may impact nurses' decisions to remain or leave rural and remote areas. This limits the effectiveness of recruitment and retention strategies. The objectives of this study were to explore the influences on nurses' decisions to work in rural and remote healthcare settings, using a systematic review and thematic meta-synthesis of qualitative studies.

Methods: Databases Medline, Journals@OVID Full text, PsycInfo and specialist journals were searched from January 1990 to January 2020. Inclusion criteria were applied to all records by two independent reviewers. The Critical Appraisal Skills Programme checklist for qualitative studies was used for independent quality critique by two reviewers. Thematic synthesis was conducted using a three step process: (1) the results sections of each article were extracted and inductively coded line by line; (2) master themes and subthemes were organised into tables; (3) relationships between the themes were identified and examined to develop an overarching analytical framework.

Results: A total of 121 articles were screened and 40 were included for data extraction and thematic synthesis. Thematic Keywords:

experience, qualitative, rural nursing, remote nursing, recruitment, retention, workforce.

analysis identified three interrelated dimensions that influenced nurses' retention and migration decision-making, namely 'person/al', 'profession/al' and 'place' with 18 inter-related domains. The 'person/al' dimension contained five domains: a sense of belonging/connectedness, knowledge of rural culture, blurring of personal and professional lives, anonymity and job satisfaction/stress. The 'profession/al' dimension contained eight domains: expert generalist, advanced nurse practitioner, professional isolation, mentorship, education, autonomy and empowerment, role conflict, and recruitment and retention. The 'place' dimension identified five domains: terrain and weather, fewer resources, geographical isolation, safety and rural culture. The data informed the development of the MacKay's 3P (person/al, profession/al and place) model to capture the complex phenomenon of the influences on nurses' decision making to work in rural and remote settings.

Conclusion: Multiple dimensions and domains influence nurses' decision making to work in rural and remote settings. MacKay's 3P model provides a theoretical framework to explore the complex interplay between the person/al, profession/al and place-related dimensions of rural nursing. These findings can inform the development of future recruitment and retention initiatives.

FULL ARTICLE:

Introduction

In the context of global nursing shortages, recruitment and retention of nurses is an increasingly important challenge for the sustainability of healthcare delivery¹. Failure to recruit and retain nurses in rural and remote settings is a particularly acute problem^{2,3}. Nurse-to-population ratios are significantly lower in rural and remote areas, further exacerbating the problem⁴. Nurse vacancies are anticipated to accelerate over the next decade as more of the workforce retires⁵.

A growing body of literature on rural and remote nursing has explored a variety of individual factors influencing nurses' decisions to work in rural and remote settings. These include a sense of belonging⁶, having a rural background, family connections⁷ and job satisfaction⁸. Much of the literature describes the difficulty within rural and remote areas to maintain skilled and competent nurses in the face of workforce shortages⁹, increased workload^{10,11}, the generalist nature of the role¹² and the challenges of professional isolation¹³.

Rural nursing practice has been defined as a unique, demanding and challenging speciality requiring specific personal qualities such as flexibility, versatility and adaptability¹⁴. The characteristics of rural nursing include the need for rural nurses to assume the role of expert generalist and function as a jack-of-all-trades whilst working in a broad spectrum of clinical settings and performing many diverse tasks⁶.

Despite the complexity of factors that influence nurses' decisions

to work in rural or remote areas, much of the research to date has focused on specific factors in isolation. The purpose of this article is to systematically review existing literature on nurses' experiences to explore the influences on nurses' decision making to work in rural and remote areas. By doing so, findings from this study will inform strategies to improve recruitment and retention of nurses in rural and remote settings.

Background

Defining 'rural' and 'rural nursing'

The literature is replete with definitions of rural nursing. The word 'rural' often conjures up images of the idyllic life in the country¹⁵. 'Rural' is described as a vague and ambiguous term signifying many things to many people, such as agricultural landscapes, isolation, small towns and low population density¹⁶. The literature categorises 'rural' using a range of pre-assigned characteristics including land use, population density, demographic structure, environmental characteristics, population characteristics, non-metropolitan area and commuting patterns¹⁷. The variation in definitions of 'rural' has important methodological implications¹⁸ such as assuring the validity, reliability and utility of research¹⁹. Definitional complexity around 'rural' also impacts understandings of rural nursing²⁰.

Rural nursing is defined by some as 'the provision of health care by professional nurses to persons living in sparsely populated areas'²¹. Although there is debate around whether any difference exists between nursing practices in rural and urban health care

facilities²², some common features of rural nursing predominate. The term 'expert generalist' is often used to describe rural nursing, with suggestions that rural nurses need to be a 'jack-of-all-trades and master of many'¹². Rural nursing is conceptualised as being a 'long way from anywhere and pretty close to nowhere, being independent or perhaps just being alone', and the challenges are described in terms of difficulties in separating one's personal life from one's professional life, as rural nurses are 'stripped of their own anonymity while simultaneously charged with protecting their patients' privacy'²³. The implications of living and working in the same community, such as high visibility, lack of anonymity and privacy, result in nurses feeling as though they are living 'in a fishbowl'²⁴. Despite some consensus around the nature of rural nurses' work, traditional definitions and descriptions are said to provide limited understanding of how rural practice shapes nurses' unique approach to managing healthcare needs²⁵. Within the literature debate is ongoing in respect to the difference between rural and remote area nursing with the context of practice in rural areas described as being more divergent than the context of practice in remote areas²⁴. The generalist role of rural nurses increases as the population declines, thus the more remotely nurses are located the greater the generalist nature of the work^{22,24}.

Existing evidence

Much of the recent research in rural and remote nursing has used quantitative designs and has been undertaken in Australia using large online survey repositories²⁶⁻²⁸. These studies have investigated connections between personality and career choice, and they highlight that persistence, self-directedness, cooperativeness and reward dependence are congruent with the professions' requirements. Results conclude that individuals have a unique combination of traits that make them who they are, and that recruitment and retention policy should not adopt a 'one size fits all' approach²⁶. Myriad demographic, developmental and environmental factors influence an individual's life and work choices and their psychological profile, which raises a question about whether individuals with the observed temperament and traits are attracted to nursing in rural areas, or whether it is more likely that individuals develop certain character traits as a product of their rural experience and training²⁸.

There has been a tendency to consider rural and remote nursing through cross-sectional studies^{26,29} rather than longitudinally, which would explore a more informed understanding of rural practitioners' decisions-in-the-making. For example, the 'rural pipeline' describes the passage of medical students from the point of developing their aspiration for a career in medicine, through to retaining general practitioners (GPs) in rural locations, while highlighting key stages in between³⁰. This includes how individuals

construct their career choice based on their personal identity and how an individual's attachment to place, such as the influence of rural upbringing³¹⁻³³, impacts their career pathway – ultimately influencing their decision to remain part of that workforce. Most studies exploring recruitment and retention focus mainly upon medicine, but extending the concept of the rural pipeline to include other professions such as nursing has the potential to strengthen understandings of rural career choice³⁴.

Rural and rurality are inherently geographical concepts but when a geographic location is imbued with meaning, it becomes place³⁵. It is not possible to separate the experience of health and health care from the place in which it is experienced, and space and place have emerged as important and central themes in nursing research³⁶. This research needs to move beyond considering places for health care merely as geometric points, passive containers or locations of human activity³⁷, and focus conceptually on the dynamics between nursing and place, encapsulating the powerful social and cultural phenomenon permeated with power, symbolism and attachments³⁸. Place matters – as a geographical location, a lived experience, as demarcation of space, and as a site of meaning creation³⁵.

Much of the current research has focused on describing aspects of rural and remote nursing as individual entities, which does not provide insight into the complex dynamic of experiences that ultimately influences nurses' decisions to work in rural and remote settings. This perspective is important to inform recruitment strategies for students and experienced nurses in the rural and remote setting.

The aim of this study was to explore the influences on nurses' decisions to work in rural and remote healthcare settings.

Methods

A systematic review with qualitative meta-synthesis was used to answer the research question, 'What factors influence nurses' decisions to work in rural and remote healthcare settings?' The study is reported following PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines³⁹.

Search strategies

Search strategies were devised for the following databases: Medline, Journals@OVID Full text and APA PsycInfo. The search spanned from January 1990 to January 2020 in order to capture the early rural nursing theory work²¹. The following speciality journals were also searched independently: *Rural and Remote Health*, *Journal of Rural Nursing and Health Care* and *Health & Place*. The reference lists of pertinent articles found were also searched. Table 1 summarises the search strategy. All search results were downloaded into RefWorks and duplicates were removed.

Table 1: Medline search strategy

Step	Search term
1	Rural nurs*
2	Remote nurs*
3	Experience*
4	Qualitative research
5	1 and 2 and 3 and 4
6	1 and 3 and 4

Study inclusion

The publications had to meet the following inclusion criteria: (1) published in the English language; (2) any aspect of experiences of rural or remote nursing; (3) qualitative research. Qualitative studies were targeted as this paradigm is more appropriate to capture the experiences of rural and remote nurses. Inclusion criteria were used to screen the title and abstracts. Full text articles were first scrutinised by SCM to confirm inclusion or exclusion. All screening was conducted by a second independent reviewer, AS, RGK or MB. Consensus was reached where debate existed around retaining or excluding an article.

Data extraction

Data were extracted by SCM, and checked by AS, RGK and MB, for the following characteristics for each retained article: author(s) and year of publication, country, focus/aim, design, method/sample, definition of 'rural'/'remote' and study limitations.

Quality appraisal

Retained articles were assessed using the CASP (Critical Appraisal Skills Programme) tool for qualitative research⁴⁰, which was modified to include a scoring system from each of the CASP questions where 'Yes' = 1 and 'No' or 'Can't tell' = 0. The maximum score was 10 and the minimum score was 0. All articles were critically appraised and scored by SCM and then independently scored by a second reviewer (AS, RGK or MB). The tool was not utilised to exclude articles from the synthesis but rather to enhance understanding and identify methodological limitations of the primary studies.

Synthesis of findings

Thematic synthesis⁴¹ was selected as it relies on an inductive line-by-line coding of text from the primary studies. By staying as close as possible to the experiential accounts of nurses working in a rural or remote setting, the aim was to generate new insights into this phenomenon.

All data were coded by hand by SCM and three key steps were undertaken in the synthesis. First, the results sections of each study were extracted and inductively coded line by line. Verbatim quotations and text were entered into NVivo v12 (QSR International; <http://www.qsrinternational.com>). Second, the

identified master themes (dimensions) and subthemes (domains) were highlighted and organised into tables, and texts with similar content and meanings were grouped together as descriptive themes. As each study was coded, the bank of emergent themes was added to and developed. The third stage went beyond the content of the original studies by identifying and examining relationships between themes to develop an overarching analytical framework. The use of line-by-line coding enabled one of the key tasks in the synthesis of qualitative research to be undertaken: the translation of concepts from one study to another. Every sentence had at least one code applied, and most were categorised using several codes. A draft summary of the findings across the studies organised by the 18 descriptive themes was written by SCM. AS, RGK and MB commented on this draft and a final version was agreed. The analysis informed the development of a model of rural and remote nursing.

Results

The results are presented in Figure 1 using a modified PRISMA 2009 flow diagram³⁹. All independent reviewers agreed on the application of inclusion criteria and 40 full text articles were included.

All retained articles were published between 2001 and 2018 (Table 2). The geographical context of the 40 studies were as follows: Australia (15), Canada (12), USA (7), UK (4), South Africa (1), Ghana (1). The samples in the articles included were predominantly nurses (20), nurses/managers (6), nurse practitioners (2), mental health nurses (2), midwives (1), nurses/GPs (3), student nurses (3), dual role – nurse/midwife (1), preceptors/students (2).

Twenty of the 40 articles (50%) did not include a rural definition. Of the 20 articles that provided a definition, most used population based definitions, geographical classifications, accessibility/remoteness indexes such as the Rural/Remote and Metropolitan Area Classification (RRMA)⁴², the Weighted Inlier Equivalent Separations (WIES) based on number of hospital beds⁴³, or the Australian Bureau of Statistics whereby hospitals are coded A–E⁴⁴⁻⁴⁶. Several articles offered bespoke descriptions of rural such as 'rural nursing is carried out by a nurse in a health facility where the support services are predominantly visiting'⁴⁷ and 'mountainous terrain where access can be affected by adverse weather'⁴⁸.

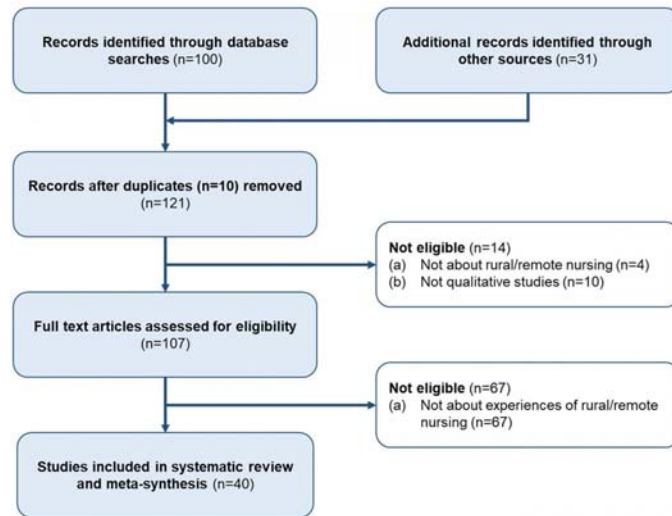


Figure 1: Modified PRISMA 2009 flow diagram.

Table 2: Data extraction

Author(s)	Country	Focus/aim	Method/sample	Definition of "rural"/"remote"	Limitations
Arnaert et al (2009) [ref. 65]	Canada	To explore homecare nurses' attitudes to palliative care in a rural community	Face to face semi-structured interviews and a focus group discussion with five homecare nurses	Statistics Canada definitions - population density of 1.2 inhabitants per square kilometre; made up of 18 small municipalities	The results may not be generalisable to other regions because each rural community has its own unique characteristics.
Baernholdt et al (2010) [ref. 59]	USA	To identify how rural nurses and their chief nursing officers define quality care	Focus group interviews - staff nurses (n=23), chief nursing officers (n=4), rural hospitals (n=4)	American Hospital Association Statistics - rural hospital = located in a non-metropolitan geographical area with population less than 50 000	Study took place in one specific region of one state in southern region of USA, so findings may not apply to all rural areas. Insufficient information given regarding the researcher-participant relationship.
Beks et al (2018) [ref. 57]	Australia	To explore the experience of rural nurses in managing acute mental health presentation	Semi-structured face to face interviews with 13 nurses	No definition	Sample size of this study was subject to the response of nurses to the study invitation. Novice nurses were not adequately captured.
Birks et al (2011) [ref. 74]	Australia	To report on models of health service delivery in remote or isolated areas of Queensland	Multiple case study research design including interviews and focus groups. Registered nurses (n=35)	No definition	Lack of in depth description of data analysis process. Insufficient information given regarding the researcher/ participants' relationship. Part of a broader study.

Bish et al (2015) [ref. 60]	Australia	To identify factors that influence directors of nursing in their approach to leadership when working in rural Victoria, Australia	In depth, semi-structured interviews. Directors of nursing ($n=5$)	No definition	Small sample size in one Australian state may limit the transferability of the study. Insufficient information given regarding the researcher-participant relationship.
Boucher (2005) [ref. 50]	USA	To explore what qualities a nurse needs to "make it" in rural home care?	Interviews with experienced rural home care nurses ($n=12$)	No definition	Recruitment strategy unclear. Insufficient details regarding ethics approval. Lack of in depth description of data analysis process. Insufficient information given regarding the researcher/ participants" relationship.
Caldwell (2007) [ref. 14]	USA	To reveal the life stories of nurse practitioners in rural Appalachia	Interviews of life stories and ballad elements of the culture. Nurse practitioners ($n=7$)	No definition	Lack of in depth description of data analysis process. Potential bias as the researchers" role was not clearly examined - everyone knew each other.
Conger and Plager (2008) [ref. 72]	USA	To describe rural connectedness versus disconnectedness	Focus groups and individual interviews. advanced nurse practitioners ($n=30$)	No definition	Difficult to ascertain how many of the 30 participants felt connected and how many did not. Insufficient information given regarding the researcher-participant relationship.
Corbett and Williams (2014) [ref. 61]	Wales (UK)	To study the interactions between nurses and their older rural patients by considering professional boundaries	Semi-structured interviews and home-care observations between older adults ($n=10$) with chronic pain and community nurses ($n=4$) and carers ($n=2$)	No definition	Recruitment strategy unclear. Methods of observational part of study unclear. Small scale study - findings may not apply to all rural areas. Insufficient information given regarding the researcher-participant relationship. Part of a larger study.

De Valpine (2014) [ref. 51]	USA	To ensure the unique stories of bush Alaska nurses are preserved and told, to foster a strong bush nursing tradition and to inform recruitment, hiring and retention practices in remote settings	Semi-structured interviews with long term retained (>15 years) nurses (<i>n</i> =10)	No definition	Bristol Bay may not be representative of other bush communities. Possible biased representation of events as the researcher (also a nurse and friend) prompted the women to speak about issues that an "outside" researcher would have no knowledge of.
Drury et al (2005) [ref. 47]	Australia	To describe nursing roles of registered mental nurses working in remote and rural areas of Western Australia	Face-to-face interviews. Rural mental health nurses (<i>n</i> =5)	Rural definition - rural nursing is carried out by a nurse who works in a health facility where the support services (medical and allied health) are predominantly visiting and in a community or district nursing service in a non-metropolitan area	Small sample size taken from one rural region, placing limitation on the extent to which results can be generalised. Ethics issues not described. Insufficient information given regarding the researcher-participant relationship.
Farmer et al (2007) [ref. 75]	Scotland (UK)	To consider Scottish maternity units and aim to identify issues in the change process associated with rurality and remoteness	Interviews with managers, midwives and community members (<i>n</i> =131) in rural maternity units in the north of Scotland (<i>n</i> =6)	Scottish Executive Classification defining "rural" as settlements of less than 3000 people and "remote" as more than 30 minutes from settlements of 10 000 people or more	Insufficient information given regarding the researcher-participant relationship.
Farmer and Kilpatrick (2009) [ref. 48]	Australia and Scotland (UK)	To investigate the actions of rural health professionals and consider if they were also social entrepreneurs	Interviews (majority face to face) with nurses (<i>n</i> =21), general practitioners (<i>n</i> =7), primary health care managers (<i>n</i> =4), allied health professionals (<i>n</i> =6) in Tasmania and Scottish Highlands	No definition Sites chosen because of physical similarities - "both have mountainous terrain and remote areas where access can be affected by adverse weather"	Inappropriate to generalise the findings beyond the two countries. Insufficient information given regarding the researcher-participant relationship.
Farmer et al (2010) [ref. 76]	Scotland	To investigate older people's health service provision in remote rural Scotland	Semi-structured interviews with men (<i>n</i> =12) and women (<i>n</i> =11), service practitioners (<i>n</i> =9) and service managers and politicians (<i>n</i> =7)	Scottish Government definition of rurality in terms of population sparsity and distance from service centres	Study findings may not typify all of rural Scotland. Lack of urban comparator sites. Insufficient information given regarding the researcher-participant relationship. Part of a larger EU project.

Gibb et al (2005) [ref. 68]	Australia	To investigate the culture of workplace learning within a study of eight small hospitals	Focus groups before and after a series of interventions designed to nurture a culture that supports learning (mentoring, generating cohesiveness within the team) with nurses ($n=4-8$ in each site)	No definition	Recruitment strategy a bit vague. Insufficient information given regarding the researcher-participant relationship.
Heilderbeer and Carson (2013) [ref. 70]	Australia	To explore what non-resident workers (fly in, fly out) see as the advantages and disadvantages of their modes of work, and whether they face the same or different social/personal and professional barriers to rural and remote practice as their resident colleagues	Semi-structured interviews with non-resident nurses working in remote locations in Northern Territory, Australia ($n=7$)	Population density of less than 0.1 persons per square kilometre	Insufficient information given regarding the researcher-participant relationship.
Hunsberger et al (2009) [ref. 13]	Canada	To investigate whether nurses receive the resources and supports necessary to meet the challenges of rural practice	Semi-structured interviews managers ($n=21$) and staff nurses ($n=44$) in rural hospitals ($n=19$)	Advisory Panel of the Canadian Medical Services in Underserved Regions - definition of rural communities = those with a population of 10 000 or less	Insufficient information given regarding the researcher-participant relationship.
Joseph et al (2013) [ref. 77]	Canada	To interpret the meaning of bad weather for front-line healthcare workers in rural long-term care	Interviews with nurses and personal support workers ($n=6$)	Rurality was defined using the Statistics Canada rural and small town (RST) definition of individuals living in towns or villages outside the commuting zone of major urban centres with a population of less than 10 000	Authors state that Interpretations were limited by the inability of the re-analysis approach to follow up with the interview respondents on new themes.
Kenny and Allenby (2013) [ref. 43]	Australia	To examine issues that rural nurses face in the provision of psychosocial care from a broad general nursing perspective	Focus group interviews. Rural nurses ($n=22$)	Rural hospitals categorised by measuring the level of inpatient activity measured in terms of weighted inlier equivalent separations (WIES). Categorised as B to E	The views reported within one rural region in Australia may not be reflective of the broader nursing workforce. Findings may not be generalised to every setting.

Kenny and Duckett (2003) [ref. 44]	Australia	To explore the issues that impact on the ability of rural hospitals to provide health care	In-depth interviews with managers, nurses and rural doctors (<i>n</i> =60) in rural hospitals (<i>n</i> =20)	Australian Bureau of statistics - Australian Government (2002). Large metropolitan teaching hospitals = Code A, rural hospitals = Codes B to E, very smallest hospitals = Code E	Insufficient information given regarding the researcher-participant relationship.
Kenny and Duckett (2004) [ref. 45]	Australia	To identify the critical issues that impact on service delivery in rural hospitals	In-depth interviews with hospital managers, chief executives, senior nursing staff and doctors (<i>n</i> =60)	Department of Human Services categorises hospitals according to size related groupings A to E	Large sample size for qualitative study. Insufficient information given regarding the researcher-participant relationship.
Kenny et al (2007) [ref. 46]	Australia	To identify rural nurses' perceptions of key issues related to the provision of effective psychosocial care for people with cancer in rural settings	Focus groups with nurses (<i>n</i> =19) in rural hospitals (<i>n</i> =3)	Department of Human Services categorises hospitals according to size related groupings A to E	All-female sample. Insufficient information given regarding the researcher-participant relationship.
Lauder et al (2001) [ref. 62]	Scotland	To describe the care given by district nurses to patients with mental illnesses and the adequacy of relationships between specialist and generalist services	In-depth interviews with district nurses (<i>n</i> =15)	No definition	Findings may not be generalisable to nurses in all rural areas as not all rural areas are geographically homogeneous. Insufficient information given regarding the researcher-participant relationship. Part of a larger study.
Leipert and Anderson (2012) [ref. 66]	Canada	To explore the use of photovoice to foster learning about and interest in rural locations and rural nursing as future practice settings	Photovoice was used to take photographs that represented challenges and facilitators of rural nursing practice. Nursing students (<i>n</i> =38)	Rural contexts are defined in Ontario as communities "with a population of less than 30 000 that are greater than 30 min away in travel time from a community with a population of more than 30 000"	Authors state that students need to be sensitised to the fact that all may not be as it appears in a photograph, that continuous reflection, consideration of complexity and life and professional experiences and knowledge are needed to accurately understand and effectively work in the rural context.

Lori et al (2012) [ref. 54]	Ghana	To determine the perceived barriers and motivators influencing final year midwifery students' acceptance of rural postings in Ghana	Focus group interviews with final year midwifery students (<i>n</i> =49)	No definition	Authors state that it is unclear whether midwifery students in a more rural setting perceive the barriers and motivators for rural practice in the same way as those represented in the study.
MacKinnon (2008) [ref. 58]	Canada	To describe the work nurses do when providing maternity care in rural/remote settings and to explore how interactions with women, healthcare providers and the rural community influence their work	Observation and focus group interviews with nurses (<i>n</i> =48)	No definition	Authors state that the diversity of rural communities cannot be represented by studying one area in one Canadian province. Caution when transferring findings.
Mills et al (2007) [ref. 42]	Australia	To explore rural nurses' experiences of mentoring and their multiple perspectives of "self"	Semi-structured interviews with rural nurses (<i>n</i> =9)	Rural/Remote and Metropolitan Areas (RRMA) classification	Authors state that snowball recruitment attracted one participant who had not had any formal mentoring training.
Mohale and Mulaudzi (2008) [ref. 56]	South Africa	To explore and describe the experiences of nurses working in a rural primary health-care setting in Mopani district, Limpopo Province	In-depth interviews with female nurses (<i>n</i> =11)	No definition	Recruitment strategy not fully described.
Montour et al (2009) [ref. 71]	Canada	To describe the nature of nursing work from the perspective of rural nurse executives and frontline nurses	Semi-structured interviews with nurses (<i>n</i> =21) from different hospitals (<i>n</i> =7)	Population size <100 000. Working definition of rural employed by the Ontario Ministry of Agriculture, Food and Rural Affairs used in the study	Sample primarily older females with extensive nursing experience. Transferability of study findings limited. Insufficient information given regarding the researcher-participant relationship.
Moszczynski and Haney (2002) [ref. 53]	Canada	To investigate stress and coping among northern rural nurses in relation to the transfer of trauma or accident patients	Focus group interviews with nurses (<i>n</i> =19) from rural hospitals (<i>n</i> =3)	No definition	Authors state that the small sample size may have limited the range of experiences described.
Newhouse (2005) [ref. 73]	USA	To explore the impact of legislative, strategic and organisational changes on nursing in rural hospitals since 1995	Focus group interviews with nurse executives (<i>n</i> =11)	"Rural hospitals are located outside a metropolitan statistical area which has a large population base with social and economic networks"	Insufficient information given regarding the researcher-participant relationship.

Pront et al (2013) [ref. 67]	Australia	To understand what influences student learning in the rural clinical environment	Semi-structured interviews with nursing students (<i>n</i> =7)	No definition	No in-depth description of recruitment strategy or data analysis. Insufficient information given regarding the researcher-participant relationship.
Robinson et al (2010) [ref. 68]	Canada	To better understand experiences and issues related to rural palliative care	Focus group interviews with nurses, physicians, pharmacists and social workers (<i>n</i> =44) and palliative volunteers or family members of those who had received hospice care (<i>n</i> =20)	Rural defined by "distance from an urban centre and population"	Recruitment strategy not clarified. Insufficient information given regarding the researcher-participant relationship.
Rohatinsky and Jahner (2016) [ref. 63]	Canada	To explore perceptions, processes and organisational features of mentorship in rural healthcare	Semi-structured interviews with seven female nurses. Two follow up interviews conducted to verify and confirm emerging concepts	Rural defined as the local community population is less than 1500, but the facility serves an area of approx. 20 000. The nearest urban centre is 200 km away	There is limited generalisability with this study as it was conducted in one rural facility with nurses only. Individuals whose relationships and experiences with mentors that were not successful may have chosen not to participate.
Rosenthal (2005) [ref. 6]	USA	To describe the lived experience of rural generalist nurses who work in an acute care hospital with less than 25 beds, located in a mountain setting	Face-to-face interviews with rural nurses (<i>n</i> =8)	No definition	The researcher and the storyteller are the same person, therefore only the researcher's perception of the nurses' stories was represented.
Sedgwick and Rougeau (2010) [ref. 64]	Canada	To describe events that influence undergraduate nursing students' sense of belonging during a rural hospital preceptorship	Individual in-person and telephone interviews with fourth-year nursing students (<i>n</i> =12)	Population size - rural communities designated as towns with a population of less than 9999 people	Recruitment strategy unclear. Insufficient information given regarding the researcher-participant relationship.
Woodhouse (2010) [ref. 49]	Australia	To determine the understanding of nurses within a shared care model and the degree of interaction evident in their practice in the shared care nursing environment in a rural care setting	Questionnaire sent to registered nurses with more than 5 years post registration experience in community health, palliative or aged care (<i>n</i> =6)	No definition	Small sample. Recruitment strategy unclear. No clear justification of research design. Data collection appears inappropriate for purpose of research. Insufficient rigour in data analysis Insufficient information given regarding the researcher-participant relationship.

Yates et al (2013) [ref. 9]	Australia	To explore and describe the experiences of working in the dual role as nurse and midwife in rural areas of Queensland, Australia	Interviews with dual role nurses ($n=8$)	No definition	Authors state that midwives in different rural locations may have different experiences. Insufficient information given regarding the researcher-participant relationship.
Yonge et al (2013) [ref. 55]	Canada	To capture the experiences of preceptorship in a rural setting	Photovoice study with preceptors ($n=4$) and students ($n=4$)	No definition	Recruitment strategy not fully described.
Yonge et al (2006) [ref. 52]	Canada	To examine the experiences of fourth-year nursing undergraduate students and their rural-based preceptors	Interviews with preceptors ($n=26$) and students ($n=23$)	Statistics Canada defines a rural area as a place having a population of less than 1000 and a density of less than 400 persons per square kilometre	

Quality appraisal and analysis

Initial inter-rater agreement of the application of the quality appraisal was 85.7% (343 items in agreement of 400 CASP items (ie 10 CASP questions \times 40 included articles)). The lowest agreement score (15%, 6/40 articles) was for CASP item 6 ('Has the relationship between the researcher and participants been adequately considered?'). Discussion between reviewers identified differences in how this question was interpreted. Interpretation of the question was therefore discussed at a meeting of all four reviewers and agreement reached. Additional differences in assessment were resolved through discussion until agreement of 100% for all CASP items was reached (Table 3).

Most articles scored highly for quality critique (8–10). Whilst two scored lower – (5)⁴⁹ and (6)⁵⁰ respectively – this may have been due to lack of information reported in the article, rather than low quality. Most articles demonstrated clarity in data collection methods, ethical issues and data analysis. Only 10 out of 40 articles provided evidence of some reflexive practice such as the researcher critically examining their own role and potential bias during data collection^{6,51-53}, an appropriate choice of location⁵⁴, and a good collaborative researcher/participant relationship based

on trust and researcher empathy⁵⁵. Several authors described reflexive techniques such as feedback of emerging themes to the participants, which facilitated achieving credibility by ensuring confidence in the trustworthiness of the data^{42,51,56-58}.

Thematic analysis identified three interrelated dimensions that influenced rural and remote nurses' retention and migration decision making: 'person/al', 'profession/al' and 'place', with 18 inter-related domains. The dimension of 'person/al' contained five domains: a sense of belonging/connectedness, knowledge of rural culture, blurring of personal and professional lives, anonymity and job satisfaction/stress. The dimension of 'profession/al' contained eight domains: expert generalist, advanced nurse practitioner, professional isolation, mentorship, education, autonomy and empowerment, role conflict and recruitment and retention. The dimension of 'place' identified five domains: terrain and weather, fewer resources, geographical isolation, safety and rural culture. Tables 4 and 5 summarise the rural and remote nursing dimensions and domains.

Key quotations are highlighted below to exemplify the dimensions and domains of rural and remote nursing.

Table 3: Quality assessment summary

Author(s)	CASP questions [Yes/No/Can't tell]										Score
	1. Was there a clear statement of the aims of the research?	2. Is a qualitative methodology appropriate?	3. Was the research design appropriate to address the aims of the research?	4. Was the recruitment strategy appropriate to the aims of the research?	5. Was data collected in a way that addressed the research issue?	6. Has the relationship between the researcher and participants been adequately considered?	7. Have ethical issues been taken into consideration?	8. Was the data analysis sufficiently rigorous?	9. Is there a clear statement of findings?	10. How valuable is the research?	
Arnaert et al (2009) [ref. 65]	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	9
Baernholdt et al (2010) [ref. 59]	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	9
Beks et al (2018) [ref. 57]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	10
Birks et al (2011) [ref. 74]	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	8
Bish et al (2015) [ref. 60]	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	9
Boucher (2005) [ref. 50]	Yes	Yes	Yes	Can't tell	Yes	No	No	No	Yes	Yes	6
Caldwell (2007) [ref. 14]	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	8
Conger and Plager (2008) [ref. 72]	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	9
Corbett and Williams (2014) [ref. 61]	No	Yes	Yes	Can't tell	Yes	No	Yes	Can't tell	Yes	Yes	6
De Valpine (2014) [ref. 51]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	10
Drury et al (2005) [ref. 47]	Yes	Yes	Yes	Can't tell	Yes	No	No	Yes	Yes	Yes	7
Farmer et al (2007) [ref. 75]	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	9
Farmer and Kilpatrick (2009) [ref. 48]	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	9
Farmer et al (2010) [ref. 76]	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	9
Gibb et al (2005) [ref. 68]	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	9
Heilderbeer and Carson (2013) [ref. 69]	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	9
Hunsberger et al (2009) [ref. 13]	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	9
Joseph et al (2013) [ref. 77]	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	9
Kenny and Allenby (2012) [ref. 43]	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	9
Kenny and Duckett (2003) [ref. 44]	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	9
Kenny and Duckett(2004) [ref. 45]	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	8
Kenny et al (2007) [ref. 46]	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	9
Lauder et al (2001) [ref. 62]	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	9
Leipert and Anderson (2012) [ref. 66]	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	9
Lori et al (2012) [ref. 54]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	10
MacKinnon (2008) [ref. 58]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	10
Mills et al (2007) [ref. 42]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	10
Mohale and Mulaudzi (2008) [ref. 56]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	10
Montour et al (2009) [ref. 71]	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	9
Moszcynski and Haney (2002) [ref. 53]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	10
Newhouse (2005) [ref. 73]	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	9
Pront et al (2013) [ref. 67]	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes	Yes	8
Robinson et al (2010) [ref. 68]	Yes	Yes	Yes	Can't tell	Yes	No	Yes	Yes	Yes	Yes	8
Rohatinsky and Jahner (2016) [ref. 63]	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	9
Rosenthal (2005) [ref. 6]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	10
Sedgwick and Rougeau (2010) [ref. 64]	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	9
Woodhouse (2010) [ref. 49]	Yes	Yes	No	Can't tell	No	No	Yes	No	Yes	Yes	5
Yates et al (2013) [ref. 9]	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	9
Yonge et al (2013) [ref. 55]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	10
Yonge et al (2006) [ref. 52]	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	10

Table 4: Rural/remote nursing dimensions and domains

Author(s)	Person/al	Profession/al	Place
Arnaert et al (2009) [ref. 65]	Lack of anonymity, role blurring, emotional isolation, stress	Professional isolation, more education required, poor communication and inadequate team work.	Limited resources
Baernholdt et al (2010) [ref. 59]	Community connectedness can be both a help and a hindrance Patients are what matter most Knowledge of rural culture required		

Beks et al (2018) [ref. 57]	Rural generalist nurses experienced a lack of confidence when caring for mental health consumers. Frustration as high workload obstructs altruistic practice. Lack of anonymity. Stress.	Paucity of mental health education for rural nurses. Need for closer collaboration with the community mental health teams. Lack of clinical skills and knowledge to assess and manage mental health presentations. Poor staffing levels. Professional isolation. Expert generalist. Shortfalls of telephone triage.	
Birks et al (2011) [ref. 74]		Need for: - better skill mix - better equipment and IT - clear and consistent communication strategy - appropriate education and training activities	
Bish et al (2015) [ref. 60]	Rich knowledge of rural life and culture Connection with the rural community through forming strong relationships with community members Commitment and attachment to the hospital	Nurturing of professional relationships and empowerment is central to leadership skills	
Boucher (2005) [ref. 50]	Qualities needed: flexibility, creativity, willingness to learn Ability to practice independently and to tolerate uncertainty Lack of anonymity	Need for more focus on mentoring and education	Challenges of rural nursing: isolation, weather, terrain, distance, rural poverty, rural unemployment, difficult to access health care, and increased costs
Caldwell (2007) [ref. 14]	Being deeply rooted to family, mountains, culture and people Seeing patients as extended family Nurse practitioners make a difference		
Conger and Plager (2008) [ref. 72]		Need to develop strong support networks - mentoring and collaborating with team - fostering relationships with large urban medical centres • electronic communications More education required to prepare advanced practice nurses for challenges of working in rural areas	
Corbett and Williams (2014) [ref. 61]	Strong feelings of social and emotional connectedness - "knowing each other" and "feeling connected" are fundamental to the establishment of close relationships between carers and rural patients Boundary crossing commonplace	Nurses face challenges around maintaining appropriate professional boundaries	

De Valpine (2014) [ref. 51]	An independent sense of family and childrearing. A strong sense of adventure.		An intense appreciation of Native Alaskan culture and environment Recognition of the hardship of living in an extreme environment.
Drury et al (2005) [ref. 47]	Challenges with clinical confidence and self esteem	Professional isolation Autonomy, independence and interdependence of roles Expert generalist Working at an advanced level without recognition Varied educational support	Safety issues
Farmer et al (2007) [ref. 75]		Perceived "distance" between senior managers imposing change Longstanding recruitment issues Pride in teamwork in local hospitals	Distance to urban units Tortuous geography Infrastructure deficiencies and potentially adverse weather
Farmer and Kilpatrick (2009) [ref. 48]	Engagement in a range of community activities enables physical/psychological health benefits that boost confidence	Mentoring Developing leadership skills	
Farmer et al (2010) [ref. 76]		Tensions in management approach Difficulty in recruiting specialists and maintaining their skills Incorporating the voice of local people in service design would show the degree to which "mutuality" in service planning and provision is realisable	
Gibb et al (2005) [ref. 69]	Advancing age seen as dis-enabler to education Nostalgia and grief regarding changes to organisational environment	Nurses recognised personal benefits of change through embracing learning and mentoring	Geographical distance, time and cost seen as dis-enablers to education
Heidelbeer and Carson (2013) [ref. 70]	Higher incomes and more time off with fly in fly out rural nursing High levels of fatigue due to intensity of work during "on" time Perceived undervaluing of their contribution	Difficulty accessing professional development/education Professional isolation Recruitment and retention issues	Harsh climate Travel difficulties
Hunsberger et al (2009) [ref. 13]	Commitment to colleagues, patients and community Sense of belonging Blurring of personal and professional lives Stress	Lack of resources, support and influence to manage negative situations Rural nursing can be unpredictable in relation to variety of practice and work arrangements Diversity of rural practice seen as a barrier to recruitment and retention	Security issues when working at night

Joseph et al (2013) [ref. 77]			Weather related illness and injury leading to staff absenteeism and increased workloads Road closures Dangerous environment Distance to urban centres
Kenny and Allenby (2013) [ref. 43]	Psychosocial care more difficult due to staff and clients knowing each other well outside the clinical setting Psychosocial care is significantly undervalued	Lack of collegial relationships amongst staff Issues around "culture" of organisation Professional isolation Lack of support from management Multi-skilling expectations	
Kenny and Duckett (2003) [ref. 44]		Diversity of nursing practice in rural hospitals Lack of university education amongst rural nurses Rural nurses need to be multi-skilled generalists who often make decisions in the absence of other health professionals Advance nurse practitioner role recommended	
Kenny and Duckett (2004) [ref. 45]		The rural hospital remains the symbol of the social power of medicine but nurses forced to do things that were outside their scope. Notion of advanced nurse practitioners was an extremely controversial subject	
Kenny et al (2007) [ref. 46]	Lack of confidence and emotional exhaustion Complex dual relationships	Rural nursing is characterised by diversity multiskilled generalists lacking specialist knowledge Need for mentoring and clinical supervision	
Lauder et al (2001) [ref. 62]	Blurring of personal and professional lives Community embeddedness Viewed as a friend, someone who can be readily approached - a trusting relationship An appreciation of their patients" family dynamics Nurses use their knowledge and experience, together with the trust they have built with the local population, to provide greater insight into health needs	Feelings of being unsupported in multiple roles Nurses" work is influenced by the current organisation of services often unaware of the nature of mental health interventions provided by other professionals Nurses reported a perceived lack of skills and lack of confidence when dealing with patients with alcohol related problems Poor communication between specialist and generalist services in rural areas	Nurses have a unique position within the community. Appreciation of rural culture
Leipert and Anderson (2012) [ref. 66]	Less stress as slower pace of life Blurring of boundaries between personal and professional life Insider/outsider status	Facilitators noted as increased autonomy, the generalist role and advances in technology Barriers noted as inadequate rural education and professional isolation	Strong sense of community/culture Isolation - distance, weather, road conditions, safety issues

Lori et al (2012) [ref. 54]	Although participants voiced a strong desire to help others and to save lives, they also expressed a deep concern for their own quality of life	Lack of staff No career advancement or continuing professional development	Concerns about unacceptable housing accommodations, no access to potable water, impassable roads, no transportation, non-existent schools, poor support structures and poorly equipped hospitals
MacKinnon (2008) [ref. 58]		Complexity of rural nursing Difficulties of being an "expert generalist" Knowing their community contributed to tremendous sense of responsibility Strained relationships with other healthcare providers "Moral distress" when it was difficult to obtain education and experience needed to be comfortable providing maternity care	
Mills et al (2007) [ref. 42]	Emotional impact of interactions in the course of nursing from "the womb to the tomb" Feelings of being put down re thoughts of patients receiving second class care in rural areas Role blurring Sense of belonging Lack of anonymity - "fish bowl existence"	Expert generalists - "we're not specialists in anything but have to deal with anything that comes through the front door" Nurses describe work as "not something you do between 9-5" Mentoring facilitates the desire to see high quality care delivered, cultivates and grows new nurses and strengthens trust and friendship between the novice and experienced nurse	Sense of close community/culture Family/friends grown up in region Want to see their children enjoy same sense of community
Mohale and Mulaudzi (2008) [ref. 56]	Emotional and physical strain as a result of the shortage of human resources	Retaining nurses is a problem	
Montour et al (2009) [ref. 71]		Ageing workforce - anticipation of a substantial increase in retirements during next decade Rural nursing is generalist in nature, requiring personal flexibility and a broad knowledge base Implementation of e-technology and emerging disease patterns in patient population identified as challenges	
Moszczynski and Haney (2002) [ref. 53]	Sadness of stress, anger and difficulty in keeping professional life from encroaching on personal life Community ties and relations could be taxing	Tension due to the lack of communication and support Professional conflict Expert generalist role Professional isolation	Geographical isolation Poor weather and terrain - "there's no road or anything" resulting in delays in help arriving

Newhouse (2005) [ref. 73]		Distinctive challenges for rural nurses - patient population, legislation, technology, staff shortages, cultural differences between staff, physicians and patients, nurse-physician conflict and maintaining competency Advanced practice nursing recommended	Physical isolation Lack of services
Pront et al (2013) [ref. 67]	Relationships between staff, students and patients meant an intertwining of professional and private lives	Promotion of learning through supportive preceptorship has the potential to aid retention of nurses in rural areas	Unpredictable nature of rural environment
Robinson et al (2010) [ref. 68]	Strong sense of pride in being able to "make it work" for patients	Dual relationships leading to numerous ethical challenges Lack of 24 hour service and human resource shortage endemic to rural communities Need for educational opportunities and telehealth	Social solidarity, close-knit relationships, culture and community commitments were strengths of rural communities Adverse weather Safety issues Access to care differed widely among rural communities
Rohatinsky and Jahner (2016) [ref. 63]	Lack of anonymity Stressed, overwhelmed and intimidated Role blurring Community embeddedness	Expert generalist - multiple hats Mentorship helped transition to rural healthcare environments Difficulties with recruitment and retention Professional isolation Education	Limited resources Geographical isolation Rural community influences/culture (involvement in community events)
Rosenthal (2005) [ref. 6]	Lack of anonymity Sense of belonging - nurses who wish to keep their lives private are generally not well accepted Insider/outsider issues - long period of residency before considered an "insider"	Rural nurses need to assume the role of expert generalist and function as "jack-of-all-trades" An ability to respond appropriately to unique challenges Role conflict Professional isolation	
Sedgwick and Rougeau (2010) [ref. 64]	Stress Sense of belonging	Fear of being observed or making an error or mistake How students interpret belonging is invaluable for hospital managers who seek to recruit and retain a future nursing workforce.	
Woodhouse (2010) [ref. 49]	Confusion around role, skills, communication and care planning		
Yates et al (2013) [ref. 9]	Stress	Nurses recognised the importance of being a multi-skilled generalist in rural areas Concerns that midwifery skills could be eroded due to diminishing work available	Experiences of nurses are shaped by location/culture. Limitations of working in rural hospital
Yonge et al (2013) [ref. 55]	Confidence and personal bonds can be fostered through preceptorship	Mutual professional development through preceptorship	

Yonge et al (2006) [ref. 52]	Students expressed their enjoyment of the "family feel" that coincides with a rural hospital - majority of students requesting a rural placement originated or grew up in smaller towns Personal satisfaction as knowledge of the community can be used to enhance relationships and care	Lack of technology and lack of academic support Professional isolation More exposure to different clinical areas in a rural setting with unpredictable workloads Need to be an expert generalist	Adverse weather
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Table 5: Rural/remote nursing dimensions summary

Author(s)	Rural/remote nursing dimension		
	Person/al	Profession/al	Place
Arnaert et al (2009) [ref. 65]	X	X	X
Baernholdt et al (2010) [ref. 59]	X		
Beks et al (2018) [ref. 57]	X	X	
Birks et al (2011) [ref. 74]		X	
Bish et al (2015) [ref. 60]	X	X	
Boucher (2005) [ref. 50]	X	X	X
Caldwell (2007) [ref. 14]	X		
Conger and Plager (2008) [ref. 72]		X	
Corbett and Williams (2014) [ref. 61]	X	X	
De Valpine (2014) [ref. 51]	X		X
Drury et al (2005) [ref. 47]	X	X	X
Farmer et al (2007) [ref. 75]		X	X
Farmer and Kilpatrick (2009) [ref. 48]	X	X	
Farmer et al (2010) [ref. 76]		X	
Gibb et al (2005) [ref. 68]	X	X	X
Heilderbeer and Carson (2013) [ref. 69]	X	X	X
Hunsberger et al (2009) [ref. 13]	X	X	X
Joseph et al (2013) [ref. 77]			X
Kenny and Allenby (2012) [ref. 43]	X	X	
Kenny and Duckett (2003) [ref. 44]		X	
Kenny and Duckett (2004) [ref. 45]		X	
Kenny et al (2007) [ref. 46]	X	X	
Lauder et al (2001) [ref. 62]	X	X	X
Leipert and Anderson (2012) [ref. 66]	X	X	X
Lori et al (2012) [ref. 54]	X	X	X
Mackinnon (2008) [ref. 58]		X	
Mills et al (2007) [ref. 42]	X	X	X
Mohale and Mulaudzi (2008) [ref. 56]	X	X	
Montour et al (2009) [ref. 71]		X	
Moszcynski and Haney (2002) [ref. 53]	X	X	X
Newhouse (2005) [ref. 73]		X	X
Pront et al (2013) [ref. 67]	X	X	X
Robinson et al (2010) [ref. 68]	X	X	X
Rohatinsky and Jahner (2016) [ref. 63]	X	X	X
Rosenthal (2005) [ref. 6]	X	X	
Sedgwick and Rougeau (2010) [ref. 64]	X	X	
Woodhouse (2010) [ref. 49]	X		
Yates et al (2013) [ref. 9]	X	X	X
Yonge et al (2013) [ref. 55]	X	X	
Yonge et al (2006) [ref. 52]	X	X	X

Person/al

Sense of belonging/connectedness: Previous exposure to rural or remote life, or previous work experience in the country, were the most compelling reasons influencing the attraction of some nurses to rural and remote areas^{6,13,14,42,51,59-64}. There was a sense of people returning to their roots:

*I'm going back to the rural setting ... I'm a farm girl. I was born and raised in a small community and I'm headed back ... I'm going to be a rural nurse. (Canada)*⁵²

Knowledge of rural culture: The culture of rural and remote regions was cited in several articles^{14,42,43,51,52,59,60} as a major

aspect of the nurses' practice and motivation to stay in the region. The community ethos influenced nurses:

*I had met some Alaskan Native people as patients and felt a love for them, appreciating their conduct, learning about their lives. (USA)*⁵¹

Blurring of personal and professional lives: Several studies pointed towards the advantages and disadvantages of familiarity between patients, professionals and the community^{13,42,43,46,53,61-63,65-67} and the potential blurring of personal and professional lives:

Patients do like to bring personal information into the

conversation perhaps about a neighbour and as patients may know of others being visited by the same nurse they may ask for an update – that is when I become very professional and try to point out that I can't tell Mrs Jones about their medical situations or what we do for them. (Wales)⁶¹

Anonymity: The challenges of maintaining anonymity were highlighted in several articles^{6,42,50,57,63,65}.

I suppose in a rural community ... everything that you do has more of an impact. Like, if you have a relationship or if you have a problem here everybody knows about it. It becomes more of a problem because it's so ... well advertised ... If you were an anonymous person in an anonymous setting you really wouldn't care for a start, but probably no one else would care either ... It wouldn't become everybody's sort of knowledge. (Australia)⁴²

Job satisfaction/stress: Generally, there was a strong sense of pride in being able to 'make it work'⁶⁸ for patients through the provision of responsive, creative, highly individualised care^{9,13,42,46-48,51-57,63-66,69,70}. The interplay with a sense of community belonging contributed to enhanced job satisfaction. Rural nurses expressed emotions such as sadness, anger and feelings of hopelessness due to being overburdened⁵⁶. Having to maintain a broad range of skills was considered as both a stressor and a motivator to continue learning^{9,13}. Seeking mutual social support from colleagues was a frequently used strategy:

I think nurses must get rid of that kind of sadness of stress by talking to each other – we've really only got each other – we need to do that. (Canada)⁵³

Profession/al

Expert generalist: The need for rural and remote nurses to be multiskilled was identified as a recurrent theme^{6,9,42-44,46,47,51-53,57,58,62,63,66,71}. Due to the diversity of the work and a lack of resources and facilities often the nurse became a jack of all trades, prepared and willing to undertake many different tasks:

You took care of a lot of the stuff – plane crashes, burns victims, cardiac, kids. (USA)⁵¹

We're not specialists in anything and we can have anything appear at the front door. I feel that we are fighting for survival ... you don't do things enough to be skilled. (Australia)⁴²

Advanced nurse practitioner: In order to address the complexity of the generalist role, several studies supported the view that advanced nurse practitioners provide high quality services in rural settings^{44,45,47,72-74}.

There is definitely work for a nurse practitioner. To have someone with those sorts of skills would be fantastic but, really, we can't get any nurses. At the moment anyone would do. (Australia)⁴⁴

Professional isolation: A number of studies cited professional

isolation as a part of everyday experience in rural and remote nursing^{6,13,43,47,52,53,57,58,63,65,70}.

I am the trauma team. (Canada)¹³

... sometimes you just want another midwife to say 'Oh, what do you think?' you know. (Australia)⁹

Professional isolation remained one of the most concerning aspects of rural work. Nurses experienced difficulty finding help when confronted with unfamiliar situations, and the need to become resilient and overcome fears was articulated:

I had to stop crying and realise that maybe I can do this ... I can settle down and do this. (Australia)⁷⁰

Mentorship: Mentoring was described as one strategy used to retain novice rural and remote nurses and to combat professional isolation^{42,46,48,50,55,62,63,67,69,70,72}. The lack of an onsite mentor described as 'another pair of eyes' challenged nurses and led to a sense of loneliness and isolation⁷². For rural nurses, working in a close-knit setting, the support of colleagues and managers is crucial:

Just the ability to be able to sit down and say, I did this really well or I did this really badly and want to talk about it. (Australia)⁴⁶

Education: Studies considered the significance of education for rural and remote nurses^{13,42,44,47,50,52,54,57,58,62,63,65-70,72,74} with some highlighting professional isolation as the main factor leading to difficulty in accessing education, resulting in deskilling^{13,70}.

It is hard to maintain skills that you are not using all the time ... it makes it a little scary. (Canada)¹³

Rurality and remoteness were considered a barrier to continuing professional development:

Due to isolation, nurses experience limited access to continuing education, interaction with healthcare professionals, and resources to provide care. (Canada)⁶⁶

Autonomy and empowerment: Several studies described autonomy and decision making as core characteristics of rural nursing practice, bringing difficult but rewarding challenges^{47,60,66}. These challenges, such as trying to provide proper care with limited resources and professional support, appeal to some nurses:

Autonomy is a facilitator because it can enhance nurses' problem solving skills and innovations in their ability to find solutions to a lack of resources ... and professional support. (Canada)⁶⁶

Role conflict: Professional conflict was reported in some of the articles^{6,9,43,45,53,58,62,73,75,76} and the lack of collegial relationships amongst staff in the rural context was identified as a barrier to effective working:

How do we provide great psychosocial care to clients if we can't provide psychosocial support to each other? ... You'd even

see them looking at the roster ... they'd say oh no ... I've got to work with her ... (Australia)⁴³

Some nurses believed that they were required to defend the patient care they had provided when dealing with their counterparts in an urban hospital, and cold and judgemental responses from nurses working in larger settings were recounted:

I am often left feeling angry when those guys come and scoop your patients up and spend an hour criticising your care ... it is very, very frustrating ... Will those receiving him down South respect your efforts, see you as professionally competent ... I've always felt that the nurses in the North had to be twice as good as the nurses in the South ... I guess it's some sort of geographic insecurity. (Canada)⁵³

Recruitment and retention: The sustainability of rural nursing is threatened when nurses lack resources, support and influence¹³. Demographic trends, such as the ageing nursing workforce, exacerbated this situation:

It's only going to get worse 'cause you figure they're telling us there's at least half of us right now that given the next 10 years could retire. Well you're already short now and you get another half going out the door? (Canada)⁷¹

Place

Terrain and weather: The physical geography that challenges rural and remote nursing practice was described in several articles^{50-53,66-68,70,75,77}.

Some nurses considered that:

Getting in and out of the area is difficult. There is no road system ... you can't get out of here (USA)⁵¹

We have had times when ambulances have been stuck in our laneway or ice storms, that kind of stuff, where you don't have the availability of quick response or a snowplough to help out. In the winter it can be a detriment. (Canada)⁷⁷

In the Highlands of Scotland, travelling on poor roads impacted on emergency calls and travel, and for island populations this was further challenged by unpredictable seas:

We are just too remote. If there wasn't the stretch of water between us and the mainland that might be different, but there is and there always will be. (Scotland)⁷⁵

Fewer resources: Fewer patient resources were described in some rural and remote communities^{9,50,51,53,54,63,65,68,70,73,75}, including those requiring specialist services such as mental health and drug addiction, which further compounds the challenges of treating a disadvantaged population⁷³. A lack of local support structures

resulted in patients being referred to better equipped facilities⁵⁴.

Poor resources also impacted on nurses' lives and might preclude them from accepting permanent positions in a rural or remote area:

They gave me this place to live in. It hadn't been cleaned, had almost no kitchen, the television didn't work, the washing machine didn't work, there was no ironing board. It's a basic level of accommodation (Australia)⁷⁰.

Geographical isolation: Geographic isolation^{50,51,53,54,63,65,66,68-70,73,75,77} and the fragility of life were highlighted by nurses:

Life is fragile out here – the isolation. (USA)⁵¹

More positively, geographical isolation was also considered a source of restoration as nurses enjoyed the slower pace of life in rural and remote communities, which resulted in less stress:

Remote areas are less contaminated by ... garbage ... you'll be in awe of the power and beauty of nature. (Canada)⁶⁶

Safety: Some nurses cited personal safety as being a concern^{13,47,51,53,54,66,68,70,77}. Nurses described lone working without security personnel in the evening:

There are four of you in the whole hospital and we don't like people to know that because we are very much at risk. (Canada)¹³

Rural culture: A desire to have a level of immersion into the culture of rural and remote communities influenced nurses personally⁶⁰. In several studies the culture was a major aspect of the nurses' motivation to stay in a rural or remote region^{6,9,42,48,51,60,62,63,66,68}. For example, nurses portrayed an intense appreciation of Native Alaskan culture and environment:

I love the Native population here. I like this community. It's beautiful, it's abundant with salmon ... a moose rack ... a haunch of caribou ... (USA)⁵¹

Explaining the cultural complexities of rural and remote communities such as the accepted norms and practices is integral to cultivating and growing new novice nurses⁴².

Mackay's 3P model

Data synthesis informed the development of MacKay's 3P model of factors influencing rural and remote nurses' decision making (Fig2). The model provides a theoretical framework to explore the complex interplay between the person/al, profession/al and place-related dimensions of rural and remote nursing and capture the complex phenomenon of the factors that influence nurses' decision making to remain or leave rural and remote areas.



Figure 2: MacKay's 3P model of factors influencing rural and remote nurses' decision making.

Discussion

This systematic review and thematic synthesis highlights the complexity of factors that influence nurses to work in rural and remote locations. Examples are the influence of family ties and connections (personal), appreciating the local culture (place) and accepting the flexibility required to adapt to whatever the immediate healthcare needs may be (professional). Being part of a team, job satisfaction, a rural lifestyle, a sense of belonging and being part of a culture that supports education and learning through mentoring had a positive effect on the retention of rural and remote area nurses. Professional isolation, lack of anonymity, challenges in maintaining continuous professional education, fewer resources and fears for personal safety were the main negative findings of the review. These findings were used to develop MacKay's 3P model, which provides a graphical representation of three distinct but interrelated dimensions of rural and remote nursing: person/al, profession/al and place. The review also highlighted the fluidity of the domains and dimensions, recognising the interrelated nature of factors affecting nurses' experience and decision-making to work in rural and remote areas. Despite clear connections between these three dimensions, few articles have explicitly considered this interplay. Around a quarter (11/40) of the articles only focused on one dimension. Of those that considered more than one dimension these were generally treated in isolation. Whilst these connections were not explicitly made within individual articles, the authors' analysis across the studies has highlighted and described multiple relations. MacKay's 3P model illustrates the complexity and interplay of the person/al, profession/al and place-related dimensions of rural and remote nursing.

This review found that there are no universally accepted definitions of 'rural'⁷⁸. Less than half of the articles included in this review

presented a definition of the term 'rural'. Of those, half used census or other administrative data defining rurality in terms of population distribution across land mass, whereas the other half used bespoke definitions based on a nurse's role⁷⁸. There is a need for authors to explicitly report the definition of a rural area used in their research⁷⁹. Of the 15 Australian articles included in the review, only seven presented a definition of 'rural' and only one of these articles considered remote nursing⁷⁰. The three remote nursing articles included in the review^{51,70,74} were retrieved using the search term 'rural nurs*'. By applying the search term 'remote nurs*' no qualitative remote nursing research articles were retrieved. This further clarifies that in addition to the paucity of remote nursing qualitative research is definitional complexity around the terms 'rural' and 'remote'. The categorisation of articles within databases did not differentiate between rural and remote – all were classified as rural. Of the three articles considering remote nursing two were set in Australia (remote Queensland)^{6,9,74} and one was set in USA (south-west 'bush' Alaska)⁵¹, all focusing on nursing experiences in delivering care in indigenous communities.

Implications for research, policy and practice

Findings from this review suggest three key implications for further research, policy and practice. First, to support further research in this area consensus should be reached around the terms 'rural' and 'remote'. There is a need for more clarity whereby authors should explicitly report the definition of a rural or remote area used in their research. It is methodologically important⁸⁰, for example, in order to more accurately assess the rurality of a community it may be more appropriate to include both quantitative (ie distance and population size) and qualitative criteria (ie community relationships, individual attitudes). Often 'remote' and 'rural' are used together without a clear understanding about the distinction between the two. The concept of rural or remote is complex,

variable and evolving⁸⁰. The small but growing literature around remote health recognises that recruitment and retention issues arise as remote populations are smaller, more isolated and more highly dispersed – often relying on visiting services (fly-in fly-out)⁷⁰. Due to the multidisciplinary and generalist nature of practice in remote settings, policy-makers and planners are mandated to direct resources and programs such as the preparation of specially credentialed remote area nurses to address the health needs of populations in these areas⁸¹. Second, policy-makers involved in developing recruitment and retention strategies should consider how the key factors that influence nurses' decision-making to work in rural and remote areas, identified here, can be incorporated into campaigns to attract and retain nurses in these areas. The review highlights some of the many advantages for nurses working in rural and remote settings that could be emphasised in recruitment approaches or marketing materials. Some describe the opportunities available for them to step up in challenging situations, make leadership decisions and have more than one role. Evidently nurses who choose to work in rural and remote settings do so because of a combination of factors, and an understanding of their experiences and decision-making can help devise effective recruitment and retention strategies for this workforce at a time of global nursing shortages. Finally, the literature has only begun to explore the connections between the person/al, profession/al and place-related dimensions of rural nursing and, whilst this article goes some way to highlight and describe the complex interconnections, further work is needed to fully understand the complexity of nurses' experiences of working in rural and remote settings and examine the interplay between the factors in MacKay's 3P model. Specifically, as most articles included a snapshot of nurses' experiences at a single moment in time, there is a particular need to understand nurses' experiences over time. In this way the complexity of the decision-making process and implications of decisions made to work in rural and remote settings will be better understood over the course of a career.

Unanswered questions and future research

This article has identified the many factors that influence nurses' decisions to work in rural and remote areas. A model of factors that influence nurses' decision-making to work in rural and remote areas has been outlined that can be used by policy-makers to shape targeted recruitment and retention strategies and serve as a framework for future research in this field. However, in the face of global nursing shortages, which have a disproportionately negative impact on remote and rural areas, this review shows that further research examining the interplay between the personal, professional and place-related dimensions of rural nursing is required. (Auto)biographical narratives have been used by health

researchers to enable participants to understand the flow of their lives through time and space, and the interrelation between the two⁸². Using autobiographical (or life history) approaches in rural nursing research may help to uncover nurses' rationale for their career decisions in the context of the relationships with people and places in which they were made. Through narrative, life stories are appropriate for understanding a lifetime of occupational experiences and for appreciating the personal, professional, social, economic, historical and geographical influences that shape these experiences⁸³.

Strengths and limitations

This appears to be the first systematic review and thematic synthesis to explore the evidence around the dimensions and domains that influence nurses' decision-making and experiences of working in rural and remote healthcare settings. Studies were generally of a high quality, perhaps reflecting the use of qualitative reporting guidelines such as COREQ-32 (consolidated criteria for reporting qualitative research)⁸⁴. Notwithstanding the use of the CASP tool⁴⁰, quality appraisal retains a degree of subjectivity, and although all articles were critically appraised and scored by SCM and then independently scored by a second reviewer (AS, RGK or MB) it is possible that other researchers may have appraised the quality of the studies in a different way. Only English language articles were included, and thus the findings of this review may have limited relevance to countries where English is not widely spoken. Although limited, due to the inclusion of only three qualitative remote nursing articles, this review has highlighted that the dimensions and domains of rural nursing seem to be synonymous with those of remote nursing. There is a scarcity of international qualitative remote nursing research evidence to enhance understanding of nursing in more isolated and remote settings.

Conclusion

This review identifies the factors influencing nurses' decision-making to remain in or leave areas of remote and rural work. To date, there is a paucity of qualitative rural nursing research undertaken in the UK, a lack of explicit definitions of rural and remote nursing in many studies, and a tendency to examine factors in isolation. MacKay's 3P model highlights the multiple and complex factors at play that guide nurses' decisions to remain in or leave rural and remote settings. This three-dimensional model (person/al, profession/al and place) will aid policy-makers to tailor recruitment and retention strategies for rural and remote areas. However, further research that examines the complex interplay of these multiple factors over time is required to inform action to enhance these strategies to address the global shortage of nurses in rural and remote settings.

REFERENCES:

1 World Health Organization. *Global Code of Practice on the international recruitment of health personnel*. 2010. Available: [web link](#) (Accessed 21 January 2020).

2 Roberge CM. Who stays in rural nursing practice? An international review of the literature on factors influencing rural nurse retention. *Journal of Rural Nursing and Health Care* 2009; **9**(1): 82-93. DOI link

- 3** Trepanier A, Gagnon MP, Mbembaa GIC, Cote J, Pare G, Fortin JP et al. Factors associated with intended and effective settlement of nursing students and newly graduated nurses in a rural setting after graduation: a mixed methods review. *International Journal of Nursing Studies* 2013; **50(3)**: 314-325. DOI link, PMid:23010132
- 4** Mbemba G, Gagnon MP, Pare G, Cote J. Interventions for supporting nurse retention in rural and remote areas: an umbrella review. *Human Resources for Health* 2013; **11(44)**: 1-9. DOI link, PMid:24025429
- 5** Prengaman MV, Bigbee JL, Baker E, Schmitz DF. Development of the Nursing Community Apgar Questionnaire (NCAQ): a rural nurse recruitment and retention tool. *Rural and Remote Health* 2014; **14**: 2633. Available: web link (Accessed 10 December 2020).
- 6** Rosenthal K. What rural nursing stories are you living? *Journal of Rural Nursing and Health Care* 2005; **5(1)**: 37-47. DOI link
- 7** Hegney D, McCarthy A, Rogers-Clark C, Gorman D. Why nurses are attracted to rural and remote practice. *Australian Journal of Rural Health* 2002; **10**: 178-186. DOI link, PMid:12081512
- 8** Kulig JC, Stewart N, Penz K, Forbes D, Morgan D, Emerson P. Work setting, community attachment and satisfaction among rural and remote nurses. *Public Health Nursing* 2009; **26(5)**: 430-439. DOI link, PMid:19706126
- 9** Yates K, Kelly J, Lindsay D, Usher K. The experiences of rural midwives in dual roles as nurse and midwife: 'I'd prefer midwifery but I chose to live here'. *Women and Birth* 2013; **26**: 60-64. DOI link, PMid:22516127
- 10** Dotson MJ, Dave DS, Cazier JA, Lischke MP, Freeman L, Her K. The determinants of nurses' attraction to working in rural areas: an empirical study in the United States. *International Journal of Management* 2011; **28(2)**: 399-411.
- 11** O'Donnell CA, Jabareen H, Watt GCM. Practice nurses' workload, career intentions and the impact of professional isolation: a cross-sectional survey. *BioMedCentral Nursing* 2010; **9(2)**: 1-10. DOI link, PMid:20205777
- 12** Hegney D. The status of rural nursing in Australia: a review. *Australian Journal of Rural Health* 1996; **4**: 1-10. DOI link, PMid:9437117
- 13** Hunsberger M, Baumann A, Blythe J, Crea M. Sustaining the rural workforce: nursing perspectives on worklife challenges. *Journal of Rural Health* 2009; **25(1)**: 17-25. DOI link, PMid:19166557
- 14** Caldwell DR. Bloodroot: life stories of nurse practitioners in rural Appalachia. *Journal of Holistic Nursing* 2007; **25**: 73-79. DOI link, PMid:17515560
- 15** McCoy C. Professional development in rural nursing: challenges and opportunities. *Journal of Continuing Education in Nursing* 2009; **40(3)**: 128-131. DOI link, PMid:19326820
- 16** Hart LG, Larson EH, Lishner DM. Rural definitions for health policy and research. *American Journal of Public Health* 2005; **95(7)**: 1149-1155. DOI link, PMid:15983270
- 17** Williams AM, Cutchin MP. The rural context of health care provision. *Journal of Interprofessional Care* 2002; **16(2)**: 107-115. DOI link, PMid:12028892
- 18** Williams MA. Rural professional isolation: an integrative review. *Journal of Rural Nursing and Health Care* 2012; **12(2)**: 3-10. DOI link
- 19** Lim A, Asher MI, Ellwood E, Ellwood D, Exeter DJ. How are 'urban' and 'rural' defined in publications regarding asthma and related diseases? *Allergologia Immunopathologia* (Madrid). 2013; **42(2)**: 157-161. DOI link, PMid:23735168
- 20** Place J, MacLeod M, John N, Adamack M, Lindsey AE. 'Finding my own time': examining the spatially produced experiences of rural RNs in the rural nursing certificate program. *Nurse Education Today* 2012; **32**: 581-587. DOI link, PMid:21849223
- 21** Long KA, Weinert C. Rural nursing: developing the theory base. In: P Winstead-Fry, J Tiffany, K Shippee-Rice (Eds). *Rural health nursing*. New York: NLN, 1992.
- 22** Bushy A. International perspectives on rural nursing: Australia, Canada, USA. *Australian Journal of Rural Health* 2002; **10**: 104-111. DOI link
- 23** Scharff JE. The distinctive nature and scope of rural nursing practice: philosophical bases. In: CA Winters, JH Lee (Eds). *Rural nursing concepts, theory and practice*. 3rd Ed. New York: Springer, 2010.
- 24** Mills J, Birks M, Hegney D. The status of rural nursing in Australia: 12 years on. *Collegian* 2010; **17**: 30-37. DOI link, PMid:20394272
- 25** Knight K, Kenny A, Endacott R. From expert generalists to ambiguity masters: using ambiguity tolerance theory to redefine the practice of rural nurses. *Journal of Clinical Nursing* 2016; **25**: 1757-1765. DOI link, PMid:27139173
- 26** Campbell N, Eley D, McAllister L. What does personality tell us about working in the bush? Temperament and character traits of Australian remote allied health professionals. *Australian Journal of Rural Health* 2013; **21**: 240-248. DOI link, PMid:24118145
- 27** Eley D, Eley R, Young L, Rogers-Clark C. Exploring the temperament and character traits in nursing students in a large regional area in Australia. *Journal of Clinical Nursing* 2011; **20(3)**: 563-570. DOI link, PMid:20550623
- 28** Eley D, Young L, Przybeck TR. Exploring the temperament and character traits of rural and urban doctors. *Journal of Rural Health* 2009; **25(1)**: 43-49. DOI link, PMid:19166560
- 29** Bigbee JL, Otterness N, Gehrke P. Public Health nursing competency in a rural/frontier state. *Public Health Nursing* 2010; **27(3)**: 270-276. DOI link, PMid:20525100
- 30** Fisher KA, Fraser JD. Rural health career pathways: research themes in recruitment and retention. *Australian Health Review* 2010. Available: web link (Accessed 2 January 2020). DOI link, PMid:20797360
- 31** Eley RM, Hindmarsh N, Buikstra E. Informing rural and remote students about careers in health: the effect of health careers workshops on course selection. *Australian Journal of Rural Health* 2007; **15(1)**: 59-64. DOI link, PMid:17257301
- 32** Somers GT, Strasser R, Jolly B, Strasser GSR. What does it take?

- The influence of rural upbringing and sense of rural background on medical students' intention to work in a rural environment. *Rural and Remote Health* 2007; **7**: 706-708. Available: [web link](#), DOI link
- 33** Bushy A, Leipert B. Factors that influence students in choosing rural nursing practice: a pilot study. *Rural and Remote Health* 2005; **5**: 387. Available: [web link](#) (Accessed 10 December 2020).
- 34** Laven G, Wilkinson D. Rural doctors and rural backgrounds: how strong is the evidence? A systematic review. *Australian Journal of Rural Health* 2003; **11(6)**: 277-284. DOI link, PMID:14678410
- 35** Bender A, Clune L, Guruge S. Considering place in community health nursing. *Canadian Journal of Nursing Research* 2007; **39(3)**: 20-35.
- 36** Andrews GJ. Towards a more place-sensitive nursing research: an invitation to medical and health geography. *Nursing Inquiry* 2002; **9(4)**: 221-238. DOI link, PMID:12460418
- 37** Brodie DA, Andrews GJ, Andrews JP, Thomas BG, Wong J, Rixon L. Working in London hospitals: perceptions of place in nursing students' employment considerations. *Social Science and Medicine* 2005; **61(9)**: 1867-1881. DOI link, PMID:15939515
- 38** Andrews GJ. (Re)thinking the dynamics between healthcare and place: therapeutic geographies in treatment and care practices. *Royal Geographical Society* 2006; **36(3)**: 307-318. DOI link
- 39** Moher D, Liberati A, Tetzlaff J, Altman DG. The PRISMA Group. Preferred Reporting Items for Systematic and Meta-Analyses: the PRISMA statement. *PLoS Medicine* 2009; **6(6)**: e1000097. DOI link, PMID:19621072
- 40** Critical Appraisal Skills Programme (CASP). *Qualitative research checklist*. 2018. Available: [web link](#) (Accessed 2 March 2020).
- 41** Thomas J, Harden A. Methods for the thematic synthesis of qualitative research in systematic reviews. *BMC Medical Research Methodology* 2008; **8**: 1-10. DOI link, PMID:18616818
- 42** Mills J, Francis K, Bonner A. Live my work: rural nurses and their multiple perspectives of self. *Journal of Advanced Nursing* 2007; **59(6)**: 583-590. DOI link, PMID:17727402
- 43** Kenny A, Allenby A. Barriers to nurses providing psychosocial care in the Australian rural context. *Nursing and Health Sciences* 2013; **15**: 194-200. DOI link, PMID:23210839
- 44** Kenny A, Duckett S. Educating for rural practice. *Journal of Advanced Nursing* 2003; **44(6)**: 613-622. DOI link, PMID:14651684
- 45** Kenny A, Duckett S. A question of place: medical power in rural Australia. *Social Science & Medicine* 2004; **58**: 1059-1073. DOI link
- 46** Kenny A, Endacott R, Watts R. Emotional toil: psychological care in rural settings for patients with cancer. *Journal of Advanced Nursing* 2007; **60(6)**: 663-672. DOI link, PMID:18039253
- 47** Drury V, Francis K, Dulhunty G. The lived experience of rural mental health nurses. *Journal of Rural Nursing and Health Care* 2005; **5(1)**: 19-27. DOI link
- 48** Farmer J, Kilpatrick S. Are rural health professionals also social entrepreneurs? *Social Science & Medicine* 2009; **69**: 1651-1658. DOI link, PMID:19783086
- 49** Woodhouse G. Exploration of interaction and shared care arrangements of generalist community nurses and external nursing teams in a rural health setting. *Australian Journal of Advanced Nursing* 2010; **26(3)**: 17-23.
- 50** Boucher MA. Qualities needed for rural home care nursing. *Home Healthcare Nurse* 2005; **23(2)**: 103-108. DOI link, PMID:15706159
- 51** DeValpine MG. Extreme nursing: a qualitative assessment of nurse retention in a remote setting. *Rural and Remote Health* 2014; **14(2)**: 2859. Available: [web link](#) (Accessed 10 December 2020).
- 52** Yonge OJ, Ferguson L, Myrick F. Preceptorship placements in Western rural Canadian settings: perceptions of nursing students and preceptors. *Journal of Rural Nursing and Health Care* 2006; **6(2)**: 47-56. DOI link
- 53** Moszczynski AB, Haney CJ. Stress and coping of Canadian rural nurses caring for trauma patients who are transferred out. *Journal of Emergency Nursing* 2002; **28**: 496-504. DOI link, PMID:12509726
- 54** Lori JR, Rominski SD, Gyakabo M, Muriu EW, Kweku NE, Agyei-Baffour P. Perceived barriers and motivating factors influencing student midwives' acceptance of rural postings in Ghana. *Human Resources for Health* 2012; **10(17)**: 1-7. DOI link, PMID:22828497
- 55** Yonge OJ, Myrick F, Ferguson LM, Grundy Q. Nursing preceptorship experiences in rural settings: 'I would work here for free'. *Nurse Education in Practice* 2013; **13**: 125-131. DOI link, PMID:22959672
- 56** Mohale MP, Mulaudzi, FM. Experiences of nurses working in a rural primary health-care setting in Mopani district, Limpopo Province. *Curationis* 2008; **31(2)**: 60-66. DOI link, PMID:19006959
- 57** Beks H, Healey C, Schlicht KG. 'When you're it': a qualitative study exploring the rural nurse experience of managing acute mental health presentations. *Rural and Remote Health* 2018; **18(3)**: 4616. Available: [web link](#) (Accessed 20 January 2020). DOI link, PMID:30081643
- 58** MacKinnon KA. Labouring to nurse: the work of rural nurses who provide maternity care. *Rural and Remote Health* 2008; **8**: 1047. Available: [web link](#) (Accessed 10 December 2020).
- 59** Baernholdt M, Jennings B, Merwin E, Thornlow D. What does quality care mean to nurses in rural hospitals? *Journal of Advanced Nursing* 2010; **66(6)**: 1346-1355. DOI link, PMID:20546364
- 60** Bish M, Kenny A, Nay R. A Scoping review identifying contemporary issues in rural nursing leadership. *Journal of Nursing Scholarship* 2015; **44(4)**: 411-417. DOI link, PMID:23062224
- 61** Corbett S, Williams F. Striking a professional balance: interactions between nurses and their older rural patients. *British Journal of Community Nursing* 2014; **19(4)**: 162-167. DOI link, PMID:24893550
- 62** Lauder W, Reynolds W, Rielly V, Angus N. The role of district nurses in caring for people with mental health problems who live in rural settings. *Journal of Clinical Nursing* 2001; **10(3)**: 337-344. DOI link, PMID:11820543
- 63** Rohatinsky NK, Jahner S. Supporting nurses' transition to rural healthcare environments through mentorship. *Rural and Remote*

Health 2016; **16**: 3637. Available: [web link](#) (Accessed 10 December 2020).

64 Sedgwick MG, Rougeau J. Points of tension: a qualitative descriptive study of significant events that influence undergraduate students' sense of belonging. *Rural and Remote Health* 2010; **10**: 1569. Available: [web link](#) (Accessed 10 December 2020).

65 Arneart A, Seller R, Wainwright M. Homecare nurses' attitudes toward palliative care in a rural community in Western Quebec. *Journal of Hospice and Palliative Nursing* 2009; **11(4)**: 202-208. DOI link

66 Leipert B, Anderson E. Rural nursing education: a photovoice perspective. *Rural and Remote Health* 2012; **12**: 2061. Available: [web link](#) (Accessed 10 December 2020).

67 Pront L, Kelton M, Munt R, Hutton A. Living and learning in a rural environment: a nursing student perspective. *Nurse Education Today* 2013; **33**: 281-285. DOI link, PMID:22732124

68 Robinson CA, Pesut B, Bottorff JL. Issues in rural palliative care: views from the countryside. *Journal of Rural Health* 2010; **26**: 78-84. DOI link, PMID:20105272

69 Gibb H, Forsyth K, Anderson J. Culture of rural nursing practice: a critical theoretical analysis of determinants of power in nursing. *Australian Journal of Advanced Nursing* 2005; **23(2)**: 34-39.

70 Heidelberg D, Carson DB. Experiences of non-resident nurses in Australia's remote Northern Territory. *Rural and Remote Health* 2013; **13**: 2464. Available: [web link](#) (Accessed 10 December 2020).

71 Montour A, Baumann A, Blythe J, Hunsberger M. The changing nature of nursing work in rural and small community hospitals. *Rural and Remote Health* 2009; **9(1089)**: 1-13. Available: [web link](#) (Accessed 10 December 2020). DOI link

72 Conger MM, Plager KA. Advanced nursing practice in rural areas: connectedness versus disconnectedness. *Journal of Rural Nursing and Health Care* 2008; **8(1)**: 24-38. DOI link

73 Newhouse RP. Exploring nursing issues in rural hospitals. *Journal of Nursing Administration* 2005; **35(7)**: 350-358. DOI link

74 Birks M, Mills J, Francis K, Coyle M, Davis J, Jones J. Models of

health service delivery in remote or isolated areas of Queensland: a multiple case study. *Australian Journal of Advanced Nursing* 2011; **28(1)**: 25-34.

75 Farmer J, Dawson P, Martin E, Tucker J. Rurality, remoteness and the change process: evidence from a study of maternity services in the north. *Health Services Management Research* 2007; **20(1)**: 59-68. DOI link, PMID:17270067

76 Farmer J, Philip L, King G, Farrington J, MacLeod M. Territorial tensions: misaligned management and community perspectives on health services for older people in remote rural areas. *Health & Place* 2010; **16**: 275-283. DOI link, PMID:19906556

77 Joseph GM, Skinner MW, Yantzi NM. The weather-stains of care: interpreting the meaning of bad weather for front-line health care workers in rural long-term care. *Social Science and Medicine* 2013; **91**: 194-201. DOI link, PMID:22944147

78 Kulig JC, Andrews ME, Stewart NL, Pitblado R, MacLeod MLP. How do registered nurses define rurality? *Australian Journal of Rural Health* 2008; **16(1)**: 28-32. DOI link, PMID:18186719

79 Muula AS. How do we define 'rurality' in the teaching on medical demography? *Rural and Remote Health* 2007; **7**: 653. Available: [web link](#) (Accessed 10 December 2020).

80 Wakerman J. Defining remote health. *Australian Journal of Rural Health* 2004; **12**: 210-214. DOI link, PMID:15588265

81 Wakerman J, Bourke L, Humphreys J, Taylor J. Is remote health different to rural health? *Rural and Remote Health* 2017; **17**: 3832. Available: [web link](#) (Accessed 10 December 2020). DOI link

82 Milligan C, Kearns R, Kyle RG. Unpacking stored and storied knowledge: elicited biographies of activism in mental health. *Health & Place* 2011; **17(1)**: 7-16. DOI link, PMID:23251925

83 Wicks A, Whiteford G. Conceptual and practical issues in qualitative research: reflections on a life-history study. *Scandinavian Journal of Occupational Therapy* 2006; **13**: 94-100. DOI link, PMID:16856466

84 Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care* 2007; **19(6)**: 349-357. DOI link, PMID:17872937