Rural and Remote Health
FRAME
ARHEN
ISSN 1445-6354
The International Electronic Journal of Rural and Remote Health Research, Education, Practice and Policy

REVIEW ARTICLE

The planning of rural health research: rurality and rural population issues

MR McGrail, R Jones, A Robinson, CM Rickard, M Burley, M Drysdale
Monash University School of Rural Health, Moe, Victoria, Australia

Submitted: *31 March 2005;* ***Resubmitted:*** *4 August 2005;* ***Published:*** *14 October 2005*

McGrail MR, Jones R, Robinson A, Rickard CM, Burley M, Drysdale M
The planning of rural health research: rurality and rural population issues
Rural and Remote Health **5: 426. (Online), 2005**

Available from: http://rrh.deakin.edu.au

ABSTRACT

Rurality and rural population issues require special consideration when planning both qualitative and quantitative health research in rural areas. The objective of this article was to explore the issues that require attention when planning the research. This is the first of two articles and focus on issues that require consideration when undertaking rural health research. The diversity of study populations, the feasibility of a research topic, the selection of a research team, and the cultural traditions of Indigenous communities, are all aspects of rural health research planning that require attention. Procedures such as identifying the characteristics of the population, the selection of measures of rurality appropriate for the research topic, the use of local liaison persons, decisions on the use of 'insider' or 'outsider' researchers, and the identification of skills resources available, increase the quality of the research outcomes. These issues are relevant to both qualitative and quantitative research. Procedures are available to address issues of particular concern in developing appropriate methods for rural health research. While we have concentrated on Australian issues and solutions, rural localities in other countries may face similar issues. Attention to rurality and rural situations when planning rural health research, results in studies that support the continued improvement of health in rural communities.

Keywords: qualitative research, quantitative research, rural research, research methods, rural health.

Introduction

Rural health is an expanding area of research in Australia due to concern about the health status of rural and regional Australians and a political shift in emphasis towards rural areas. The resulting expansion of Rural Clinical Schools and University Departments of Rural Health[1,2], discussion of rural health problems, and greater emphasis on recruitment of doctors, nurses and allied health professionals to rural

areas[3,4] have all contributed to an increase in rural health research. This is the first two articles on research issues of rurality that are important for researchers to consider when undertaking rural health research. Its focus is the 'Planning' stage of the research. It is aimed at health researchers unfamiliar with issues specific to research in rural communities.

There are two distinct elements to the term 'rural'. One is the concept of rural as different from that of metropolitan, which has predominantly been addressed by distinguishing between city and country, and focusing on cultural concepts and population numbers. The other concept is of accessibility to services and remoteness[5]. There is no essential rural or metropolitan, but a concept of rural or metropolitan based on a continuum in regard to population numbers, accessibility of services, and attitudes or values[6].

In this article we will use an understanding that defines rural as those towns and communities outside of the major metropolitan and regional cities. The article is not attempting to address the nature of 'rural' or 'urban' but focuses on aspects of rurality and rural populations that need to be considered when investigating rural health issues. It addresses those aspects of rural research that often differ from health research with a general or metropolitan focus.

The research topic

Any issue that impacts on rural communities provides a potential topic for rural health research. Rural health research is important, and the views and experiences of rural people often provide a different perspective to that of urban or metropolitan residents. However, some communities have been the subject of numerous studies because of their culture[7], isolation, or specific area of interest. To avoid respondent's burden, working with these communities should be carefully considered.

The research topics can be categorised in two ways. First, there are areas of investigation that could be termed 'rural specific', such as the health of those in rural industries like dairy farms or forestry. Second, non-rural specific topics may be researched in a rural setting. In these cases, researchers provide data that may be relevant to health care in rural and metropolitan areas. For example, results from a study on falls prevention in elderly hospitalised patients undertaken in a small rural hospital[8], may be just as relevant to any healthcare setting. Sometimes there is a degree of overlap between the two approaches. A study of the lived experience of depression in rural areas may provide insights into the rural-specific context of mental illness, but also furthers our knowledge about depression in general.

Some research topics may be more or less feasible to undertake in rural areas. Quantitative researchers must consider whether an adequately large sample may be obtained to test statistical hypotheses. Research involving rare or highly specialised patient conditions or treatment modalities are unlikely to recruit adequately large rural sample sizes and should be overlooked in favour of more frequently occurring phenomena. For example, injuries are higher in rural than metropolitan areas, and rates from coronary heart disease are also slightly higher[9]. Details of prevalent conditions and the consequent treatment modalities can be obtained from publications such as, 'Health in rural and remote Australia'[9].

A useful approach for both practising rural clinicians and clinical researchers, when considering study topics is to ask: 'What sort of therapies, investigations, procedures and patients do I encounter in my daily practice?' Clinical scenarios commonly encountered in rural practice, and therefore amenable to the recruitment of sufficient sample sizes, may include: pain relief, oxygen therapy, peripheral intravenous catheters, electrocardiography, and plain film radiography. Despite lower patient numbers in rural areas, clinicians who carefully select a topic may find that there are additional factors that can increase rural recruitment. For example, there is usually limited competition for patient recruitment due to less research in rural areas, and rural people tend to support their local health services and

providers, which may translate into higher research participation rates.

Conceptualizing the study population

When planning rural research, a key issue is that most rural communities are not homogenous either within or among communities. Too often the designation of rural is considered sufficient in itself when obtaining a population sample, without consideration of the diversity that exists in rural areas[5]. Features of rural areas that need to be considered when conceptualising the potential study population include:

- Variations in the population of rural towns in Australia. Large regional towns such as Townsville may have populations of 100 000, while 14% of Australians live in rural areas with a population of less than 1000[5].
- A 'sea change' has occurred in some rural communities with city and metropolitan residents relocating mostly to rural towns, particularly those in coastal areas and within approximately 200 km of metropolitan areas[5].
- Economic rationalism has reduced populations and changed the nature of many rural towns; previously thriving businesses have closed following the withdrawal of larger services from towns.
- Over representation of aged people in many rural towns, and associated under representation of young adults in many rural towns.
- A large Indigenous or ethnic population in some rural towns.
- Tourism, which brings seasonal changes in numbers to mountain localities in winter and seaside resorts in summer.

We need to have a clear understanding of the characteristics of a rural area in order to understand health issues. Indexes are a means of understanding and identifying the characteristics of rural and remote populations.

Rurality indexes

Rurality indexes provide a proxy measurement of the difficulty of accessing services outside of large metropolitan centres, whether this is due to large distances or remoteness, or small local populations. The following is a summary of the major rurality indexes used in rural research in Australia.

Rural, Remote and Metropolitan Area (RRMA)

First developed in 1991 by the Department of Primary Industries and Energy (DPIE), Rural, Remote and Metropolitan Area (RRMA) was revised in 1994[10]. RRMA categorises all Statistical Local Areas (SLA) of Australia into seven levels, mostly based on population size. It is still widely used, although a key disadvantage is that the populations of most SLA are not homogeneous. Its greatest advantage is that the categorisations are simple and easy to understand.

Accessibility/Remoteness Index for Australia (ARIA)

Accessibility/Remoteness Index for Australia (ARIA) was developed in 1997 by the National Key Centre for Social Applications of Geographical Information Systems (GISCA), as a strictly geographic measurement of remoteness[11]. ARIA uses road distance from four levels of neighbouring service centres to calculate a remoteness score which is then categorised into five levels of remoteness, instead of the population size that RRMA is based on.

Australian Standard Geographical Classification (ASGC) Remoteness Areas

Australian Standard Geographical Classification (ASGC) Remoteness (also known as ARIA+) was released in 2001 by the Australian Bureau of Statistics, with calculations based on ARIA scores[12]. However, while it is like ARIA in that it uses five levels of remoteness, although with different category boundaries, it is unlike ARIA in that it uses distance from five rather than four classes of service centres.

Perhaps the greatest difference is that, unlike ARIA and RRMA, it is now a standard, recognised national geographical boundary.

Both ARIA and ASGC Remoteness can be adapted to any geographical boundary; (for example, towns, postcodes, SLA) while RRMA is limited only to SLA. All three indexes are now widely used in Australia, but there is no clear answer as to which is preferable because they have been based on different indicators and criteria[12]. Therefore, anomalies occur and in each index towns can be classified very differently. For example, the Victorian town of Mirboo North, with a population of 1382[13] and located approximately 150 km from Melbourne, is classified by ARIA in the least rural category as Highly Accessible[14], by ASGC Remoteness in the second least rural category of Inner Regional[13], and by RRMA in the fifth category of Other Rural[10].

Indexes of socio-economic factors

Socio-economic indexes are important indexes for understanding rural populations because they are over-represented in most classifications of disadvantage. Below is a summary of the most common indexes.

Socio-Economic Indexes for Areas (SEIFA)

The Australian Bureau of Statistics produces Socio-Economic Indexes for Areas (SEIFA) from each Census of Population and Housing[13] to reflect the socio-economic wellbeing of an area. SEIFA is available for areas as small as census Collection Districts, and as large as whole States or Territories. Four SEIFA indexes have been produced using the 2001 Census[15]. The most general of these is the Index of Relative Socio-Economic Disadvantage, which includes indicators such as income, education, employment and occupation. The Index of Relative Advantage/Disadvantage compares the proportion of high incomes and skilled workforce with low incomes and unskilled workforce. The Index of Economic Resources reflects the income and expenditure of families, but does not include education and occupation, or aspects such as savings or equities. The Index of Education and Occupation covers the level of qualifications and skilled occupation.

Jesuit Social Services Index

This provides an index of inequality and includes indicators of disadvantage, such as the socio-economic gradient, unemployment, crime, low birth weight, childhood injuries, education, and income[16]. The Jesuit Social Services Index has been created only for New South Wales and Victoria, with the most recent version released in March 2004.

Other population data resources

Other resources available for identifying a sample population vary from State to State. The following selection illustrates the diversity of resources available. AusStats[17] is another resource produced by the Australian Bureau of Statistics. It provides access to a range of social and demographic data, including raw census data[13]. Numerical information on population characteristics is available, including: age, income, occupation, housing and welfare. Among a number of studies examining burden of disease is an Australia-wide publication produced by the Australian Institute of Health and Welfare[18]. Some states also produce mortality and morbidity data; however, information is not always aggregated in geographic categories. The Robin Hood Index assesses the crude mortality rate of an area, and can be used as a measure of the expected health care needs for that area[19]. It has been used to demonstrate an inequitable distribution of GPs in Australia. However, its effectiveness as a measure of need in small areas is debatable[20].

Monash University publishes the Echidna website[21], which makes available relevant health information on rural communities in Victoria. Most other States have similar resources.

Selecting the research team

Workforce shortages and professional isolation are two recurrent themes of rural practice and may impact on the development of a research team. The ability of rural practitioners and researchers to undertake rural health research in Australia has been enhanced and supported by the establishment of rural research networks. These include rural campuses of university departments, university departments of rural health[1] and rural clinical schools[2] across Australia. Rural practitioners and researchers interested in research in rural areas should endeavour to make contact with academics in their nearest university department and explore the resources available for research training and support. Similarly, many rural professionals travel to attend professional conferences, and these provide the opportunity to make face-to-face contact with rural and metropolitan based peers with similar interests who may be keen to participate in the research project, either as a mentor or co-researcher.

The selection of the appropriate researcher in any study has implications for the quality of the research. When planning rural research, especially when using qualitative methods, there are particular issues which impact on researcher selection. The status of researchers in relation to the community being researched is one factor to be considered. The 'insider' researcher is part of the community being researched, participating in the same social or professional networks. The 'outsider' researcher, alternatively, has no substantial connection with the community in which the research is conducted[22].

Where possible, a research team including a combination of 'insiders' and 'outsiders' may be ideal to allow for the intrinsic advantages and disadvantages of each position. For the 'insider' these are a strong understanding of the local issues, and often the trust of the participants; disadvantages are that the researcher may have difficulty establishing objectivity, and may find that participants are unwilling to disclose personal or private information to someone perceived as a peer[22].

If an 'outsider' is selected as researcher the opposite applies. Maintaining objectivity may not be as difficult as an independent researcher, and more information may be offered by participants. Although the 'outsider' may also find that they are not trusted by interviewees because some rural people tend to be suspicious of 'city folk' coming to their community[23,24]. The 'outsider' may also struggle with a lack of understanding of local issues[22].

The problematic nature of 'insider' research in rural communities is illustrated by the premature termination of research undertaken by a clinician/academic in a small town in Australia. The researcher who was examining hospital closure was also the town GP[25]. This research was terminated on ethical grounds, due to concerns about maintaining participant confidentiality and patients feeling an obligation to participate. There were also concerns about prejudicing the pre-existing doctor-patient relationship and harming the existing health services.

A 'local liaison person' can assist with key issues relevant to the planning of the project if an insider researcher is not available. This person will have an interest in or knowledge about the issues to be discussed. This person can be invaluable in providing researchers with knowledge of the key organisations and the issues of most concern to the community that will provide insights into the research topic.

Collaborating in clinical research

A potential barrier, notably for clinically based research, is sample size, and one way to overcome this is to collaborate across a region. Although rural hospitals or clinics have a limited number of patients, several small rural facilities in a larger geographic region can work together to successfully complete a research project. For example, EQuIP[26], the national hospital accreditation program, encourages small

hospitals in the same region to combine clinical indicator data to provide sufficient numbers for analysis.

The collaboration of one or more rural hospitals with one or more larger centres is another alternative. A recent study of delirium in intensive care units was undertaken by a collaborative group of both rural and metropolitan hospitals[27]. Such collaborative approaches have been facilitated by modern communication channels, including more affordable long distance telephony, email, and the growing availability of the internet. Multi-site research is scientifically stronger than a single-site study regardless of the rural/urban locale. Properly undertaken, it significantly controls for the selection and information bias inherent in a sample recruited from one facility alone[28]. Joint agreement on a topic and the development of a protocol can be implemented at all participating sites, providing a collaborative approach that can have far greater benefits than merely the ability to recruit an adequately powerful sample size, and the satisfaction of a team approach.

Research with rural Indigenous communities

Indigenous communities have cultural traditions that are very different from non-Indigenous communities[29]. In rural Indigenous communities, cultural traditions continue to be enacted much more strongly than in metropolitan Indigenous communities. When conducting research in rural Indigenous communities, non- Indigenous researchers need to develop cultural understanding of these communities. They require extra knowledge above that held for researching non-Indigenous communities[7]. When interviews or focus groups are planned there is a need for additional understanding of the particular community to be researched.

Good communication is needed. The best way to get an idea across to an Indigenous community is by calling a public meeting, being open and honest about the intention of the research, and evaluating if people are interested in the ideas and willing to participate. If people are not interested then perhaps more time is needed so the community can discuss the proposal in private. Proposing the research may also require several community and individual face-to-face meetings. Research must be in the best interest of the communities, not that of the researcher[29].

Informed consent, as with all research, is important for research in rural Indigenous communities. In Indigenous communities this can be done through individual consent or a more formal Memorandum of Understanding with the community organisations. Community consultation takes time; there is a need to sit down and listen rather than take a controlling role whereby the project is run purely to the researcher's timetables and agendas[30]. It is important to identify within the community spokespersons or leaders and to ensure they, as well as other people, are involved in the project and have a clear understanding of the goals. By taking time, a rapport is established with community members. It is a valuable experience when partnerships are formed and respect becomes a two-way process. People who agree to be involved in the project need to be valued and paid for their time, and there is a need to ensure the budget is adequate to do so[29].

Budgetary considerations

Time and cost are important considerations when planning research in rural areas because they are often greater than for research in a metropolitan location due to the large geographic distances involved. Unless the research focuses on a limited geographic area close to the researcher's work base, interviewees and focus group participants may be located at a distance both from the researcher and from each other. Sufficient time, accommodation and travel costs must therefore be allocated when planning a research budget. One solution is to plan consecutive multiple interviews or focus groups in one rural area. Some interview based studies can also use telephone interviews to include participants from a wide geographic area[24]. However, researchers need to be aware that it may be more difficult to develop rapport between interviewer and participant in a telephone interview.

Telephone interviews also exclude the possibility for collection of 'ethnographic' data such as participant observation field notes[31].

Conclusion

Aspects of research specific to the rural situation require special consideration when planning both qualitative and quantitative health research in rural areas. Issues such as the sampling of rural populations; identification of diversity within rural communities; the advantages and disadvantages of utilizing existing contacts and networks within rural areas; and the particular requirements for working with rural Indigenous communities must be acknowledged.

Identifying the characteristics of rurality and rural situations ensures that the research is soundly based, does not harm the communities involved, and contributes to the body of knowledge on improving rural health. The result is quality rural health research, and rural communities that feel both comfortable and empowered when participating in research.

While this article has focused on issues to be considered in planning rural health research, we acknowledge that the issues we have raised may also be relevant to research in some urban and metropolitan areas.

Acknowledgements

Thank you to Sue Whyte from Monash University School of Rural Health for editing the article. Thank you also to the Monash University School of Rural Health 'authorgroup' for constructive criticism during compilation of this article.

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