Rural deprivation: reflecting reality

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SUMMARY

In the United Kingdom (UK) there is currently an upsurge of interest in rural affairs. This brings the potential to address some of the gaps in rural health care research. The appropriate description and measurement of rural deprivation is one area consistently identified by UK rural practitioners and policymakers as urgently requiring evidence. Appropriate identification and measurement of deprivation within a rural context is important so that primary care resources can be targeted at those with greatest need. It is believed that current measures of deprivation are inappropriate for rural settings, but relationships between life circumstances and health are only beginning to be addressed by empirical research. In this paper we propose an approach to researching rural deprivation. It is important to be clear about definitions of rurality and deprivation and about the purpose of measurement. The requirement to test a range of indicators for their association with health status and health care need in rural areas and to gather more locally relevant data within primary care settings is highlighted. The relevance, for primary care, of exploring rural deprivation is suggested, along with ideas about a way forward in generating knowledge that can help to characterise and measure rural deprivation in a more sensitive manner.

Keywords: *rural health care; rural deprivation; deprivation indicators.*

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Introduction

A FIFTH of the population of England[1] and a third of the population of Scotland live in rural areas.[2] According to one definition, around 16% of general practitioner (GP) practices in Scotland provide services within a rural setting.[3] In the past 30 years, rural areas have witnessed significant social and structural change. Destabilising social effects caused by migration patterns have resulted in the 'gentrification' or 'geriatrification' of some rural areas.[4] Incomes in most rural counties of England are well below national average. In rural Scotland, prices tend to be higher and incomes lower, with 60% of the population living below the poverty threshold, a slightly higher proportion than in urban areas.[2] Employment in traditional sectors has been declining[5] and public transport is often poor.[6] Research by a charity for homeless young people recently noted: 'a lack of awareness among key policymakers and service providers of the needs of socially excluded young people in rural areas'.[7]

While public health in urban areas has been scrutinised, rural health issues have been largely neglected in the United Kingdom (UK). There has been a lack of exploration of health service provision from the perspective of rural communities.[8] This is compounded by implementation of centralist policies without adequately evaluating their impact on rural health.[9] The traditional focus on urban problems by urban-based researchers is symptomatic of the wider policymaking context.[10] Researchers observing the realities of rural life have described how 'the concept of rural deprivation *per se* lacks credibility in English culture'[11] because in an urbanised society there is a need for people to escape to an idyllic green and leafy 'village of the mind'.[12]

However, times are changing. Rural health professionals have become more vocal in trying to understand and communicate their problems. The Royal College of General Practitioners Rural Group was set up in 1993, with the aim of raising the profile of rural medicine in the UK through education, research, and the dissemination of good practice in rural health care.[13] The World Organisation of Family Doctors (WONCA) has highlighted problems of recruitment and retention and the need to address education and support.[14] The British Medical Association is supporting research into issues affecting rural practice. In Scotland, the Acute Services Review[15] highlighted the dearth of research and development work in rural health care with the result that the Remote and Rural Areas Resource Initiative (RARARI) and the Highlands and Islands Health Research Institute have been established.

This activity may be viewed as part of a wider societal concern for inclusion of rural communities. Central government recently published a White Paper on rural issues and states '… our vision is for a living, working, protected, and vibrant countryside … where people have access to the jobs and services they require. We want to give a fair deal in public

services, to support a diverse and successful rural economy, and to protect and enhance the environment. We want a countryside that can shape its own future … '.[6]

Alongside this interest, rural practitioners and policymakers identify a number of areas that they think are priorities for research. One theme consistently identified is the need for valid and measurable indicators of rural deprivation.[16] It is said that 'Rural deprivation affects health, but it is often hidden. Existing indices of deprivation do not adequately define rural deprivation, so there is poor targeting of scarce resources'.[17] Area-based measures using routinely gathered data to describe socioeconomic status do not highlight the heterogeneity of sparsely populated rural areas, but have a tendency to produce meaningless area averages. Deprivation may also be hidden in rural areas because people are reluctant to reveal need owing to cultural differences; for example, lower expectations or concern at being 'labelled' as poor. These are aspects of the 'dark underside' of rural life observed by Clark.[18]

The reasons for inadequate information about rural deprivation are understandable. Its identification and measurement is fraught with complexity. First, there is the issue of defining rurality. Secondly, deprivation needs to be defined. Thirdly, there may be confusion over the focus for measurement; some people are interested in characterising the relationship between deprivation and health care need, others in examining the relationship between deprivation and demand. The belief that existing deprivation indices are inappropriate for use in rural areas is widely held among rural practitioners and policymakers. Carstairs, whose seminal work has shaped resource allocation in Scotland in recent years, herself stated that 'further work is required to identify ways of measuring deprivation in rural areas'.[19] In a recent paper, Martin *et al* highlighted that this work had not yet been conducted, suggesting that 'a feature of national standardisation in a primarily urban country is that the resulting indicators are standardised around typical urban values'.[20] The relationship between current deprivation indicators and health in rural areas is only beginning to be tested empirically. Studies emanating from a rural development perspective have suggested factors indicative of rural disadvantage. However, associations between these and health care need (ability to benefit from health care) and health status (ability to function physically, emotionally, and socially with or without aid from the health care system) have not been researched. We believe that a systematic approach can be made, leading ultimately to more sensitive means of characterising and measuring rural deprivation.

Rurality

If there is a need to measure deprivation differently in rural areas, it is first necessary to define 'rural'. There is currently no absolute agreed definition of rurality although various approaches have been proposed, based on: descriptions of rurality; sociocultural characteristics; structural features (e.g. type of industry, population density); and personal constructions of rurality.[21] Health services researchers have tended to use definitions that focus on distance to key health facilities.[22] For example, Hays *et al* defined rural practices as those being one or more hours travel from support services.[23] Weinert and Boik used population density plus distance to emergency care to construct their Rurality Index.[24]

These two definitions, one from Australia and one from the United States, highlight the need to use measures of rurality that take account of regional geography and culture. This important consideration is noted by Hoggart *et al,*[25] who describe how in mountainous regions, such as Greece, only a small proportion of land is amenable to farming — thus rural populations tend to be clustered around urban centres. In countries such as France and Denmark, the rural population is more dispersed. Many different definitions of rurality are used across the European Union and within member states, with the only consistent theme being that rural is non-urban space characterised by population sparsity, 'the core idea that infiltrates the way people from a variety of nations and social backgrounds see rural areas is that of open country areas punctuated by periodic settlements'.[25]

The Organisation for Economic Co-operation and Development (OECD) project 'Creating Rural Indicators' reached similar conclusions and selected population density, calculated as inhabitants per square kilometre, as the most relevant and practical way of identifying rurality at the community level.[26]

Means of defining rurality for health care planning range from the highly sophisticated to the more pragmatic. The Accessibility/Remoteness Index of Australia (ARIA) uses geographical information system (GIS) technology to bring together information on distance, roads, locality, and services.[27] Localities are rated on a scale of highly accessible, accessible, moderately accessible, remote, and very remote. ARIA represents the product of a decision to invest in a system of defining rurality that is 'comprehensive, sufficiently detailed, as simple as possible, transparent, defensible, and stable over time'. At the other end of the scale, perhaps, is the measure of remoteness adopted in the revised *Fair shares for all* review of resource allocation in Scotland.[28] This allocates resources for hospital and community health services, according to the number of road kilometres per 1000 population in the health board area. Interestingly, the proposed remoteness formula for general medical services is based on a combination of population density, small settlement size, and proportion of patients living at a distance from their general practice. These differences, within the one exercise on resource allocation, reflect the need for different definitions depending on the project in hand.

Indeed, researchers continue to be advised to use definitions of rurality that appear most sensible for the issue being examined.[29] For the early stages of research into rural deprivation and health need, a practical definition of rurality will suffice (for example, the NHS in Scotland Information and Statistics Division's definition of rural general practices as those where a third or more of patients attract rural practice payments). Rural deprivation research is likely to progress in phases. As it does so, more sophisticated measures of rurality may also be developed. Waiting for the ideal measure of rurality should not stall studies into rural deprivation. In the interim there is a need to adopt a measure of rurality based on sound evidence and logic that will serve well for research undertaken.

Deprivation

The term 'deprivation' is also ambiguous. To some, deprivation is understood wholly in terms of poverty or material deprivation. The Carstairs-Morris Index,[19] that comprises factors of overcrowding, male unemployment, social class, and car ownership, measures material deprivation. A definition that relies heavily on factors that act as proxies for low income in urban populations may be inappropriate for use in rural areas. For example, in rural areas, a car is not a luxury. For some, the necessity of owning a car may exacerbate material deprivation, restricting resources that can be spent on essentials such as food and housing. Also, while employment is higher in some rural areas, average incomes are lower. Lack of choice in employment may mean having to work part-time when full-time work would be preferred. Opportunities for career advancement are restricted. Deprivation in a rural context must involve a complex interplay between factors associated with income, social circumstances, access to services, and choice. While those with resources access a range of services using private transport and mail order shopping, those with lower income live within a context of restricted access to services, limited choice, and high living costs.[30] Phillips and Williams have described this extra dimension of rural deprivation as: 'an absence, or in a rural context unavailability because of distance, of goods and services, but it can also relate to a lack of well-being. This could be caused by an uneven distribution or unavailability of … public goods such as health care, education, and welfare services, but also by a lack of choice … to obtain good housing at a fair price, to enjoy cultural and recreational activities, and to have access to the range of jobs, services, and information available to urban residents'.[31]

Cox highlights the need to address the complexity of rural deprivation by taking a multidimensional view.[32] The concept of 'social exclusion' seems more appropriate in encompassing the way that understanding of rural deprivation should be approached. Social exclusion is an amorphous term that is easier to comprehend intuitively than to explain. It emerges from a view that, while global and European change has benefited many, it has also served to disadvantage certain groups.[33] Within the context of social exclusion, deprivation is multi-faceted and relates to the poorer status and functioning of some individuals, in relation to the majority in their social and structural environment. While social exclusion was originally seen as a concept related to populations in declining urban areas, recent work has examined how social exclusion is manifested in rural areas. Shucksmith and Philip[34] found that factors associated with social exclusion in rural areas were different to urban factors. Persistent low pay leading to low pensions, poverty in self-employment, lack of social housing, car dependency, poor public transport, and the greater visibility of disadvantage were found to be particular problems associated with social exclusion in rural areas.

In our opinion a holistic perspective that looks at deprivation factors and their effects on health, in the context of location, is needed if we are to begin to understand who might benefit from targeting of health care resources in rural areas. We need to understand the extent to which rural and urban disadvantage differ; or whether, indeed, certain types of urban area share some of the problems of rural areas; for example, problems of access and choice may also be problems for large urban housing estates.

Our — admittedly limited — attempts to explore the identification and measurement of rural deprivation within an international context led mainly to intrigued expressions from overseas colleagues. In part this is owing to differences of terminology in describing the concept of deprivation and partly to differing motivations for collating data about life circumstances. Different policymaking purposes have led to measures with particular foci; for example, measurement of poverty, employment, and socioeconomic development. The dearth of evidence about how ordinary people live across the rural areas of Europe has been highlighted.[35] It seems that seeking out and collating international evidence about rural deprivation, health, and indicators of disadvantage would be a useful knowledge-generating research project in itself.

Measuring rural deprivation

As well as ensuring that the right deprivation indicators are measured, it is crucial for rural areas that measurement is conducted at a meaningful level. Current deprivation indices employ data from large routine datasets to produce area-based measures.[36] This can lead to ecological fallacy; 'the drawing of inferences about individuals directly from evidence gathered about a group'.[37] In rural areas, ecological fallacy is particularly troublesome. In terms of key socioeconomic factors, rural populations are more heterogeneous than urban populations.[38] For example, the distribution of income is greater than in urban areas.[39] In area-based measures, higher incomes tend to cancel out the effect of low incomes. Thus, a promising area-based score might mask significant pockets of deprivation. To identify those who are in need (and who therefore may be targeted for particular interventions), deprivation in rural areas should be measured at a more local level. Again, the philosophy of social inclusion is relevant here as it urges an emphasis on understanding what processes are at work within neighbourhoods, so that marginalisation and its effects can be tackled. Evidence about comparative experience within communities is needed to assist primary care in targeting resources to combat health inequalities.

Purpose of measurement

It is important to be clear about why deprivation is being identified and measured. Our interest is in examining associations between health care need and deprivation, so that resources can be appropriately targeted locally.

However, a confounding factor in discussions of deprivation within UK primary care is the provision of 'deprivation' payments to general practices.[40] These serve to confuse the relationship between need, deprivation, and demand (in terms of general practice workload). The Jarman system of payments links deprivation to demand for medical services, as its aim is to recompense practices for workload pressures caused by social factors.[41] Practices receive payments according to incidence of the following circumstances within their practice population (as measured using Census

data): elderly living alone; population aged under-five years; one-parent families; social class V; unemployed; overcrowded; changed address in the last year; ethnic minorities. Evidence suggests that the Jarman Index is not an accurate predictor of GP workload[42] and is weighted in favour of London practices.[43]

Rural GPs are much less likely to qualify for deprivation payments than their urban-based colleagues. In Scotland, 92.6% of urban practices attract deprivation payments, compared with 52.8% of rural practices. Of urban practices receiving payments, 38% attract more than £1000 per 1000 patients, compared with only 4% of rural practices.[44]

Jarman deprivation payments are unlikely to bring resources to more remotely located practices, as their workload pressures are more characterised by factors associated with isolation. These include: the need to maintain and deploy a broad range of fairly specialised skills to counteract lack of access to other health and social services;[45] having to be on-call much of the time;[46] difficulties of getting away from the community for training and meetings with professional peers owing to problems in obtaining locum cover; having to make risk assessment decisions;[47] and dealing with social, emotional, and governance problems within the community owing to lack of presence of other community structures.[48] While deprivation payment continues to be related to demand, as indicated by social factors pertaining to urban workload pressures, rural practices will lose out. While the level of deprivation payments to rural practices is low, there is an implication of less health care need in rural areas. This is the outcome of a situation where neither deprivation in relation to need nor deprivation in relation to demand and workload is characterised and measured in relation to the realities of rural contexts.

Indicators of need

In the UK, the identification of factors associated with poor health status or health care need in rural areas is limited by the paucity of systematic evidence about the general health of rural populations. This is in contrast with more systematic programmes of research into the health of rural people in Australia and the United States. In a review of the literature on rural health status, Rousseau and McColl found some evidence suggesting that mortality is lower in UK rural populations.[49] Literature on rural/urban morbidity was inconsistent, with some studies showing better rural health and others highlighting remoteness as a factor associated with poorer health. The researchers questioned the reliability of findings in light of inconsistent definitions of rurality and the validity of aggregating data. Others have highlighted the problems of using some routine data sets to compare rural and urban health, because sparsely populated remote and island areas may be excluded.[50] A systematic programme of research on health status and health care need in UK rural areas is required. This could perhaps bring together work in Scotland by RARARI and the Highlands and Islands Research Institute, the Welsh Institute of Rural Health, and interesting studies being developed by researchers within the disciplines of health, planning, and geography throughout the UK.

Qualitative studies from a rural development perspective suggest a number of factors may be indicative of rural deprivation[51-56] (Table 1). Relationships, if any, between these factors, health status, and health care need in rural areas have not been well established.

Traditionally, health services researchers have viewed rural health inequalities as being strongly associated with difficulties in accessing health services. Studies have shown poorer access to services is associated with declining uptake — distance, inferior roads, and lack of public transport are expected to impact on perceived costs to rural patients of attending primary care.[57] Studies have also linked distance from specialist services with poorer outcomes; for example, Campbell *et al* found that 'increasing distance from cancer centres was associated with less chance of diagnosis before death for stomach, breast or colorectal cancers'.[58] In addition to direct impacts on health, patients and their families can incur social and emotional, as well as financial costs associated with difficulties in accessing specialist care.[59] Doctors and patients must balance risk and convenience to make decisions about treatment. Carr-Hill *et al* noted a 'deterrence' effect when doctors assessed the opportunity costs for patients of referral to specialists at a distance.[60] There has been a tendency to focus on access to key healthcare facilities, rather than looking at services with a less obvious link to health status. Thus, the effects on health of limited choice in primary care provider are poorly understood, as is the impact of poor access to leisure and cultural facilities.

In the UK, researchers are only beginning to examine relationships between health and life circumstances in rural areas.[61] They are probably still far from understanding how isolation and socioeconomic factors interact with each other and relate to health status and need for health care. We propose that there is a need to test currently used deprivation indicators, and those suggested by rural development studies, for their utility in determining any relationships with health care need in rural areas.

Collecting data

The need for data about socioeconomic status at local (neighbourhood) level raises the question of whether useful data can be collected and used in primary care. General practice would seem a logical location for the collection, maintenance, and use of such data, although this would involve major ethical, legal, and organisational issues. Given deficits in systematic recording of primary health care activity within the UK, are health professionals likely to be willing to collect data about patients' life circumstances? Collection of data within small rural practices might be particularly difficult, owing to lack of administrative support staff and issues related to the sensitivities of holding data about patient circumstances within close-knit communities. Smeeth and Heath[62] discussed the value of maintaining socioeconomic data in general practice and highlighted the importance of determining which data to collect. It is impossible to know how willing and able general practices will be to collect data on deprivation without first identifying what the key indicators are.

Table 1. Factors suggested as being associated with rural deprivation.

Theme	Can be characterised by:
Income	Low pay High living costs Low expectations Low benefit take-up
Employment	Long hours Seasonal work Poor childcare provision Limited choice Vulnerable industries Limited transport
Housing	Poor quality In need of repair Insecure tenure Lack of social housing Inflated prices in some areas Limited choice
Lack of access to:	Public transport Health services Leisure and cultural facilities Shopping
Sociocultural issues	Lack of confidence In/out migration Tensions between locals and incomers

Conclusions

In the course of our discussion we have suggested the importance for general practice of finding a way forward in characterising and measuring rural deprivation. It is important to understand the factors associated with health care need in rural areas, so that primary care resources can be targeted at local health inequalities. If recruitment and retention to rural areas is becoming problematical, appropriate resource allocation is crucial in attracting staff to work in isolated areas, where patients are highly dependent on the quality of their primary care professionals. If local collection of socioeconomic data seems as if it will be important then primary care staff need to become part of the dialogue so that feasibility can be assessed. From the perspective of primary health care policymaking, it is important to consider whether there should be separate ways of measuring deprivation in rural and urban areas; the alternative being an index that was sensitive to disadvantage across the range of location types. Which is more appropriate? At present, the information required to make that decision is lacking because rural deprivation, and its relationship with health, requires systematic investigation.

Therefore, we argue that a programme of research into rural deprivation and health care need should commence that:

- employs a sound and logical definition of rurality in its early stages and then tests findings across a range of locations;
- explores the identification and measurement of rural deprivation within an international context;
- examines the association between a range of potential indicators of deprivation (such as those included in currently used indices, those suggested from rural development research, and those related to access to services) and health care need, in rural areas;
- leads to a means of characterising deprivation that identifies those with greatest health need; and
- explores the feasibility of collecting and using data in primary care.

Our proposed approach requires some of the current rhetoric about the importance of rural health and rural communities to be converted into focused action. We think we have identified the issues and a way forward. We argue that without concentrated work, claims about rural deprivation will continue to be unsubstantiated and some people living in rural areas will experience health inequalities owing to a lack of means to target resources. We need to know more about the effects on health of isolation from a range and choice of services and how that may compound problems of material and/or social disadvantage, as manifested in rural areas. The village of the mind needs to reflect the realities of the village on the ground. At the moment, we need to generate some knowledge to achieve this.

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