

# BMJ Open Scaling the Peaks Research Protocol: understanding the barriers and drivers to providing and using dementia-friendly community services in rural areas – a mixed methods study

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**To cite:** Marshall F, Basiri A, Riley M, *et al.* Scaling the Peaks Research Protocol: understanding the barriers and drivers to providing and using dementia-friendly community services in rural areas—a mixed methods study. *BMJ Open* 2018;**8**:e020374. doi:10.1136/bmjopen-2017-020374

► Prepublication history and additional material for this paper are available online. To view these files, please visit the journal online (<http://dx.doi.org/10.1136/bmjopen-2017-020374>).

Received 31 October 2017  
Revised 29 December 2017  
Accepted 25 January 2018



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## ABSTRACT

**Introduction** Scaling the Peaks is a cross-disciplinary research study that draws on medical ethnography, human geography and Geospatial Information Science (GIS) to address the issues surrounding the design and delivery of dementia-friendly services in rural communities. The research question seeks to understand the barriers and drivers to the development of relevant, robust, reliable and accessible services that make a difference among older rural families affected by dementia.

**Methods and analysis** This mixed methods study recruits both families affected by dementia who reside within the Peak District National Park, Derbyshire, and their service providers. The study explores the expectations and experiences of rural dementia by adopting a three-part approach<sup>1</sup>: longitudinal ethnographic enquiry with up to 32 families affected by dementia (aged 70 years plus) who identify themselves as rural residents<sup>2</sup>; ethnographic semistructured interviews and systematic observations of a range of statutory, third sector, private and local community initiatives that seek to support older people living with dementia<sup>3</sup>; and geospatial visual mapping of the qualitative and quantitative data. The ethnographic data will be used to explore the ideas of belonging in a community, perceptions of place and identity to determine the factors that influence everyday decisions about living well with dementia and, for the providers, working in a rural community. The geospatial component of the study seeks to incorporate quantitative and qualitative data, such as types, locations and allocation of services to produce an interactive web-based map for local communities to determine the future design and delivery of services when considering dementia-friendly services.

**Ethics and dissemination** The study is approved by the Leeds and Humberside Health Research Authority 16/YH/0163. The study is also approved by other participating organisations as required by their own governance procedures. The study includes people with dementia and as such adheres to the ethical considerations when including people with dementia. A publicly available interactive visual map of the findings will be produced in relation to current services related to location and, by default, identify gaps in provision. Formal reports and

## Strengths and limitations of this study

- Scaling the Peaks is one of the first and largest rural community-specific dementia research studies in England.
- The study draws on the expertise of local practitioners and organisations beyond health and social care to include agricultural, pastoral, business and third sector in collaboration with clinical and academic expertise from human geographers, dementia specialists, occupational psychologists and organisational theorists.
- The study will help to develop further understanding of rural dementia care needs, the future design and delivery of services and contribute to the literature.
- A limitation is that this is a mixed method exploratory design and as such cannot provide a robust measure of effectiveness of support (such as a full economic costing would) as this was beyond the available remit of the resources.

dissemination activities will be undertaken in collaboration with the study advisory group members.

**Study progress** The recruitment began in September 2016. The data analysis commenced June 2017, using 59 provider interviews and 27 family participants. Data collection will be completed June 2018.

**Note on terminology** Please note that the term ‘families affected by dementia’ is the preferred term of usage by the family members of the Scaling the Peaks Study Advisory Group. The group wish to emphasise that they consider this term to be more representative of their lives than the term living with dementia.

**Trial registration number** NIHR IRAS 188103; Pre-results.

## INTRODUCTION

Dementia is a condition that mostly affects older people, and it is expected to increase as more people live longer.<sup>1</sup> Since there is

no cure for dementia, understanding the ways in which well-being can be maintained and enhanced is important for those living with dementia. To date, there has been little work that has focused on the ways in which living with dementia in a rural region can be supported in ways specific to rurality, despite the global rates of rural population ageing exceeding urban and metropolitan populations.<sup>2</sup> Older adults are more likely to be living in rural areas worldwide, while younger people are moving out to the urban areas.<sup>2</sup> Russ *et al*<sup>3</sup> tentatively identified a higher incidence of Alzheimer's disease among those who are established rural dwellers, which raises questions about the epidemiological aspects of dementia in rural areas and the importance of geographical context especially for families affected by dementia and service providers.

Rural areas are characterised by low population density compared with land mass, with high levels of agricultural industry. Providing equitable, high-quality dementia services to rural areas presents challenges that are complex and often poorly understood.<sup>3–6</sup> The stereotype of a rural idyll contrasts with descriptions of isolation such as 'beautiful prisons'.<sup>7,8</sup> Barriers to the provision and uptake of health and social care services in rural areas include increased costs in time and travel, limited facilities, sparse workforce/service providers, limited choice of providers and lack of sustained support.<sup>9</sup> There may also be local issues, for example, lack of infrastructure to support remote communication, fuel and transport poverty and lack of privacy in small communities.<sup>10</sup> Providers are concerned about the economies of scale, fragile infrastructures and ensuring dementia-friendly approaches to service design and delivery.<sup>11</sup> As a result, provision may not be well aligned to the nuanced needs of rural communities<sup>7</sup> or the varied lives older people lead, resulting in unmet health and social needs.<sup>12</sup> This can lead to cultures, among both families and providers, of implicit low expectation and subsequent demand, thus perpetuating hidden need and a reliance on family carers. There is an urgent need for a better understanding of the relationships between rural place, living with dementia and access to services.<sup>13</sup>

Many obstacles may affect access to dementia care in rural communities, such as: cultural values about dementia (ignorance and stigma), working life and using services<sup>12</sup>; concerns about gossip, privacy and interference<sup>14</sup>; limited access to general practitioners (GPs) who are knowledgeable about dementia<sup>15</sup>; limited access to memory assessment services<sup>16</sup>; and limited access to health and social services due to location, lack of public transport, timing and signposting.<sup>4,10</sup> Also, it may be assumed that families will provide more care or that indeed needs are low because overt demands for support are not being made. Technology that could help may be impracticable because of patchy erratic signal reception and limited broadband connectivity.<sup>17,18</sup> All these obstacles are likely to lead to gaps in understanding the real needs within isolated communities; fragmented and inadequate health and social services; and poor information, support and

outcomes for people with dementia and their families.<sup>19</sup> A comprehensive study of all these factors is required in many rural areas, of which The Peak District National Park (The Peak) is an exemplar of rural living in England.

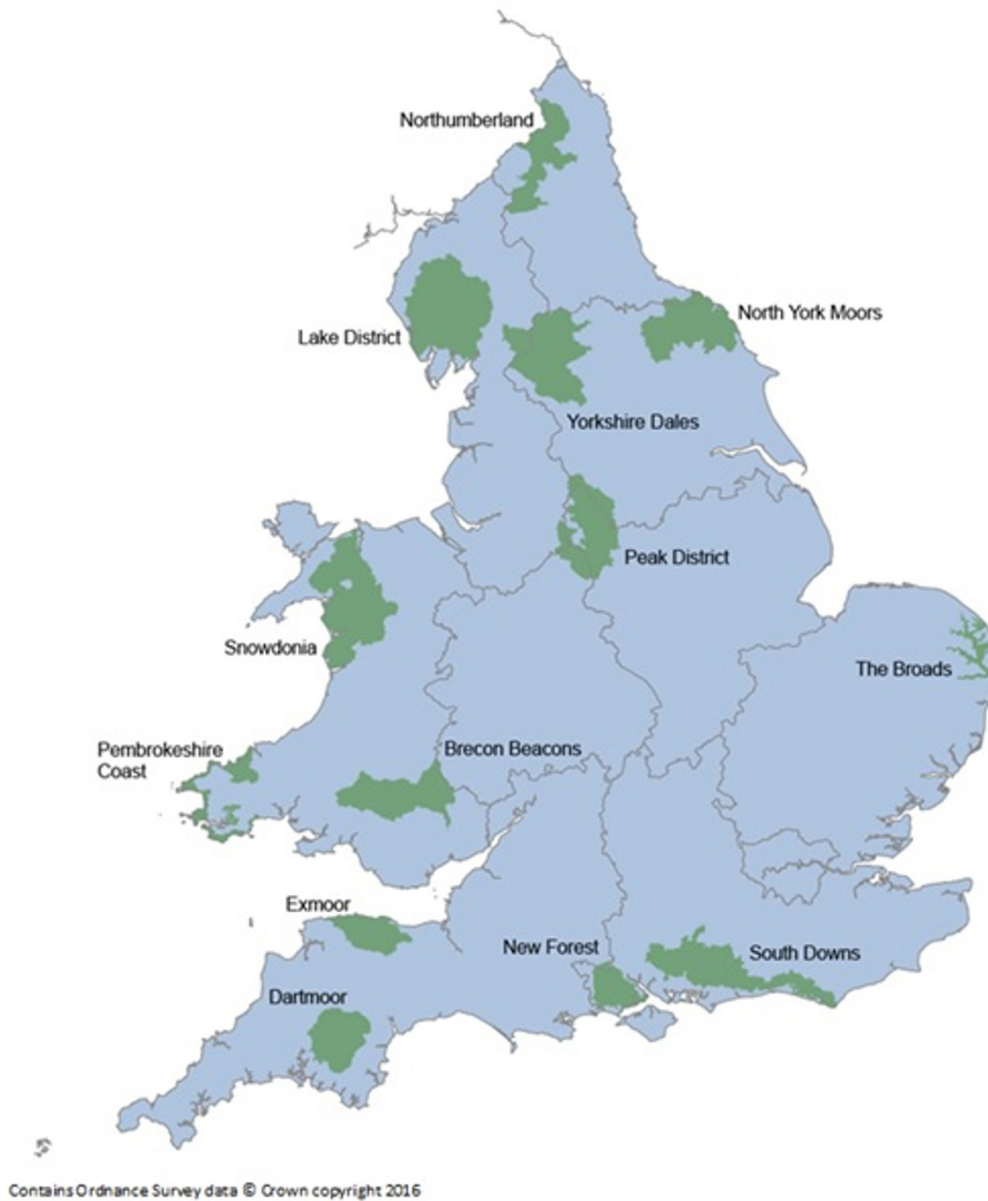
For the purpose of the study rurality is defined using the Office for National Statistics (ONS) categorisation of rural and remote<sup>20</sup> with larger townships lying alongside the boundary of The Peak to the North East, East and South of the area. [Figure 1](#) provides a visual map of the location of the national parks in England and Wales, including The Peak District.

### The Peak

The Peak area (143646 hectares) of Derbyshire is a typical remote rural area of England. Its population (37 900) has remained fairly stable in numbers but with significant changes in age structure: around 33% of the population aged over 65 years and only 21% aged 25–40 years. By 2028, 49% will be over 65 years with over 85s increasing by 186%.<sup>18</sup> These demographics are similar to other UK National Parks and coastal regions where retiree migration is common.<sup>20</sup> Numbers of older residents rise because of immigration of midlife and older retirees while, concurrently, there is net outward youth migration towards urban areas for higher education and employment.<sup>21</sup> The ageing population and diminishing workforce have significant implications for meeting older people care policy demands in the UK that predominantly promote own home care.<sup>22</sup>

Because of the age structure of the Peak population, a higher number of people live with dementia than would be expected for the total number of people in the area. Using the National Health Service England dementia prevalence calculator V.3, the prevalence of dementia (of whole adult population) is 1.48% in North Derbyshire, 1.53% in Derbyshire Dales, 1.44% in North Staffordshire and 1.6% in East Cheshire, compared with 1.1% for England as a whole. It is impossible to give a prevalence figure for individuals aged over 65 years in the Peak because of the organisational boundaries, but a conservative estimate suggests around 1300 people aged over 65 years currently live with dementia in The Peak area.<sup>23</sup> Provision of care for older people and those with dementia is characterised by a low number of care homes, diminishing community hospital beds, a lack of comprehensive home care services and consequential reliance on family carers, chronic care beds and/or earlier relocation to care home provision outside of locality.<sup>23,24</sup>

The cultural and organisational issues involved in ensuring dementia-friendly services in rural communities are complex. The concepts of a dementia-friendly community (and by extension services) are open to differing definitions. In the UK, the term dementia friendly is often associated with physical and social accessibility, political activism and a drive towards attributed status as being 'dementia friendly'.<sup>25</sup> Emergent literature, from human geographers, explores the more emotional and embodied experience of living with dementia.<sup>26</sup> At the outset of the



**Figure 1** A visual map of the location of the national parks in England and Wales, including The Peak District.

study, the study advisory group decided to dismiss the term dementia friendly in favour of '*familiar places and friendly faces*' to reflect the idea of '*everyday in every way*' inclusion in a community regardless of dementia (quotes belong to group members). These phrases indicate the need for flexible localised approaches in which a sense of continuity and familiarity persist. We need a better understanding of how families affected by dementia go about their everyday lives and how they manage within their familiar places and spaces. The way forward may be greater use of generic services or everyday environments such as pubs, churches, hairdressers, allotments and supermarkets to provide flexible and effective support to these families.

Working towards dementia-friendly rural communities is an important approach that can stimulate novel and localised models of service provision.<sup>27</sup> Rather than focus

on aged care services in isolation, Menec advocates that communities as an entire system need to contribute.<sup>28</sup> While statutory services tend to be compartmentalised, the potential for consolidated resource sharing at local levels may help to foster intergenerational social capital and growth in often isolated rural communities.

### Significance of the research

This study will provide an understanding of the current status of dementia care services in The Peak and examine the perceptions of those living with dementia in some of its most rural locations. The study examines what matters most to these residents and the service providers to support dementia-friendly communities. Understanding the nuances of managing the challenges associated with growing old with dementia in rural areas can help future decision making by providers to secure the best use of

resources that meet the needs of this community. It is anticipated that the findings from this study will be transferable to other rural regions of the UK, especially those with similar demographic and geographic profiles.

This research builds on existing studies with people living with dementia and their family carers in rural areas.<sup>29–34</sup> However, rather than simply obtain more data on inequalities, there is a need to understand the complexities of the specific issues about dementia care. The study will concurrently explore the perspectives of all key stakeholders: those living with dementia, family caregivers and service providers. It will also compare the experiences and perceptions of care among two significantly different groups: those who are established residents and those who have retired to the area. A study like this has not been conducted before in England, and it will make a contribution to the care of people with dementia and family caregivers in England but would also have considerable impact internationally.

### Public participant involvement

From inception of the ideas, this work has included a study advisory group who are all rural-dwelling family members affected by dementia. This includes individuals who consider themselves to have dementia, those who have cared for a spouse with dementia and those who are continuing to care for a loved one with dementia. None of the members had been involved in research before, in part because of their geographical location. These members of the group have changed over time and provide valuable suggestions and critical insights. The group meet on a regular basis for a walk and talk to discuss matters relevant to the study at a location of their choice. This paper has been reviewed by two members prior to submission.

### Study design

This is a mixed methods study located within the rural area of The Peak.

The study is composed of two main components: ethnographic enquiry and Geospatial Information Science (GIS) analysis.

There are five main areas of enquiry:

1. Geospatial analysis of UK national and local data sets to (A) identify and visualise the locations of factors which impact on the lives of people living with dementias in the Peak such as proximity to resources, carers and services and (B) devise a model of interaction to identify the correlations between users and providers.
2. An observational study of the ways in which people living with dementia and their carers manage their everyday lives in terms of navigating services to support their needs.
3. An interview study of the ways in which people living with dementia and their carers consider and decide about the ways in which they manage their everyday lives in relation to dementia-friendly communities and services.

4. An observational study of how service providers manage their resources and meet the needs of those living with dementia who reside in the Peak.
5. An interview study of key providers to obtain their perspective of the ways in which they manage to meet the needs of people living with dementia.

### Philosophical approach

This study adopts a social constructivist approach that draws on the work of Cultural Historical Activity Theory (CHAT) as derived from the cultural-historical school of Russian psychology.<sup>35</sup> This approach considers that the worlds in which we live are dynamically constructed by our histories, present and futures within environments by interactions with and between, via the use of artefacts, tools and people.<sup>36</sup> Activity systems applications have extended this approach further to consider the multifaceted nature of the complexity of being in a particular context and how these are attributed by individuals, groups and societies, which all influence the ways in which decisions and actions are determined. These transactional, multiple level and highly contextualised interactions can be considered highly relevant in seeking to understand the complexities of rural communities and growing old in place. The inclusion of the historical importance attached to the context seems to lend itself to the particular life course of growing old in place, especially for those families affected by dementia because of the importance attached to memories and emotions. This approach supports multidisciplinary perspectives as it primarily considers the ways in which people are shaped and shape the worlds in which they live—in short how they navigate their everyday lives.

### Research design and methods

This study is composed of two distinct parts: geospatial mapping and qualitative enquiry.

First, a geospatial mapping approach will be used to produce an interactive map that amalgamates area-specific information such as geography, demographics, population clusters, accessible networks, facilities and service locations such as GPs, community hospitals, agency working, support groups and their respective geographical boundaries. This will provide a visual interactive map that can be interrogated by authorised users to model possible future outcomes. Drawing on previous human geography-related studies, we hypothesise that such representations of data can act as powerful seeds for changing dementia care services in rural areas by:

- ▶ geospatial uncertainty modelling: identifying where there are gaps in provision, possibly indicating unmet need<sup>37</sup>
- ▶ time–distance–weather–terrain–infrastructure analysis to identify underserved and potentially vulnerable areas, such as those requiring more than a 30 min drive to GP surgery<sup>38</sup>

- ▶ service area analysis to support decisions about resource allocation, including the location and type of clinics such as mobile memory clinics<sup>39</sup>
- ▶ identify areas of high vulnerability in dementia care where local health and care responses can be targeted<sup>40</sup>
- ▶ prompt grassroots action for change and support the case for improved services in local areas such as maintaining reliable bus services to access services<sup>41</sup>
- ▶ provide a baseline to advocate for change and measure future progress<sup>42 43</sup>
- ▶ promote collaborative working within and between organisations who share decision making in future service design and delivery at local levels.<sup>43</sup>

Uniquely, this study will also incorporate the more ethnographic data into the GIS mapping to produce a visual representation of the more personal accounts of living in rural and remote communities, thus providing a personalised story of living with dementia.

The techniques for undertaking the geospatial uncertainty modelling and development and deployment of an interactive web map application (as a spatial decision support system) for identification and plan for a dementia-friendlier areas will be supported by Dr Anahid Basiri within the Centre for Advanced Spatial Analysis at University College London. Specific health geography expertise will be provided by Dr Mark Riley, University of Liverpool. Derbyshire County Council and Rural Action Derbyshire have agreed to host the interactive map and to support the updating of information via their informatics team. It is also anticipated that the map could also be available within the study dedicated website and a link provided on the Alzheimer's Society UK website. The depth of the publicly available information will be anonymised with the intention that users can explore the findings and obtain contemporaneous information about local resources that include accessibility information such as 'real journey' times based on actual routes taken and the weather.

Second, the bulk of the study will use qualitative approaches to investigate the expectations and experiences of users *and* providers of services. Interviews will seek to meet the objectives of the study by establishing the connections between users and providers as a qualitative mapping of dementia care. Identification of potential provider participants will be by prospective sampling, using chain referential sampling (snowballing),<sup>44</sup> which will provide opportunities to identify services and groups that may be unknown to the more formalised providers. This technique will enable access to voluntary groups that are operating in dementia-friendly ways but not formally recognised as supporting dementia care or identify themselves as operating as being dementia friendly.

Consent will be sought from all participants in accordance with the statutory UK National Health Research Ethics Committee guidance and the Good Clinical Practice and any other regulatory requirements that might be introduced during the course of the study. All participants will be provided with written consent. While most

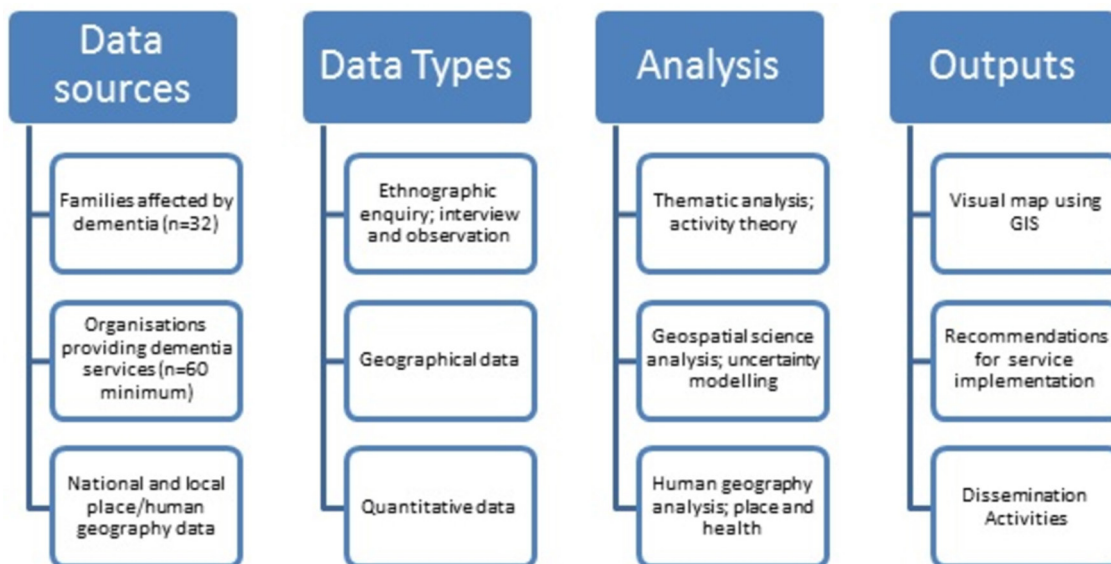
participants will have the capacity to consent to take part in the study, some may not due to cognitive impairment such as advanced dementia. For participants who lack capacity, the researcher will approach and inform the identified family caregiver about the study. Carers who indicate that they are willing to act as a potential personal consultee will be given the opportunity to consider signing the declaration to act as a consultee in accordance with the approved procedure.

The user component will actively promote seeking the views of those living with dementia by inclusion in discussions with carers present to support. Specifically, enquiries will be made about the interconnections between locality, expectations and access to dementia-friendly services. Opportunistic conversations will be used with sensitivity to help understand perspectives of everyday life. Observations of everyday and seasonal activities such as walking, attending church, sheep shearing and shopping will be made with the families by the researcher as a naturalistic endeavour to support the participants in sharing their lives with ease; Talking Mats or similar symbol based language techniques will be used to support communication if required.<sup>45</sup>

This will include the use of a newly emergent tracking technique among up to 32 families living with dementia or memory difficulties. The participant tracking comprises up to four interviews over 12–18 months to establish the realities of living with dementia in a rural location and the obstacles to access and using local services over time. This technique has been used and refined in three previous studies<sup>46–48</sup> by the author and shown to provide a powerful insights about continuing and fluctuating health and care needs among older people. The final contact with each family will be concluded by the giving of a thank you card to confirm the ending of the data collection period. Cards can provide tangible aide memoirs for families to discuss their participation in the study.

The provider component of the study will involve inviting key provider representatives to take part in a semistructured interview to explore perceptions about working in dementia care and the everyday factors that impact on delivering high-quality, relationship-centred care. This will include the examination of individual and organisational aspects of work and the work environment. These will be explored within a model of 'healthy work' provided by the British Government Health and Safety Executive<sup>49</sup> and include participant reports of work demands, control and support, relationships, roles and organisational change. In addition dementia and rural specific issues related to working lives will be included in the framework. This will help to inform the future model requirements of the service providers in the context of rural dementia provision.

Figure 2 provides an outline of the study design by data sources, data generation, analysis and outputs.



**Figure 2** Scaling the Peaks Study design by data sources, data generation, analysis and outputs. GIS, Geospatial Information Science.

### Sample

The family dyad sample will include a family caregiver and a person who is considered to have dementia (n=32 dyads). A formal diagnosis of dementia will not be required in recognition of the decisions many families make not to seek a formal diagnosis. Families will be recruited by study information leaflets displayed in public places such as churches, libraries and cafes. The researcher will also promote the study at local agricultural shows and seasonal events. Word of mouth contacts will be sought via local dementia and older people-related groups. No family participants will be recruited by health or social care professionals.

The inclusion criteria for the families are that they consider themselves to be living with dementia, are aged over 70 years, live in The Peak and have a regular caregiver (unpaid). The person living with dementia will be able to give consent to take part in the study or have a main caregiver who is willing to provide consultee advice if necessary. It is assumed that the majority of people will be cognitively capable to consent to take part in the study on an individual basis and sign their own consent form. Over time, it is possible that this cognitive ability to consent to take part in the study may change and so the researcher will ensure at all times with each participant that they understand the role of the researcher and that they are a study participant. The researcher is competent in ensuring that any signs of distress or withdrawal, such as body language, are responded to and that the well-being of every participant is attended to regardless of their individual capacity to consent. We selected 70 years as this is the age of eligibility for local older people services in the region. The consent process is outlined in the [figure 3](#) provided below:

Family caregivers are eligible to participate if they provide care for at least 4 hours per week for the person

with dementia. The definition of care will be self-defined by the caregiver. The caregiver will be aged over 18 years, able to consent and provide assent if required to take part in the study.

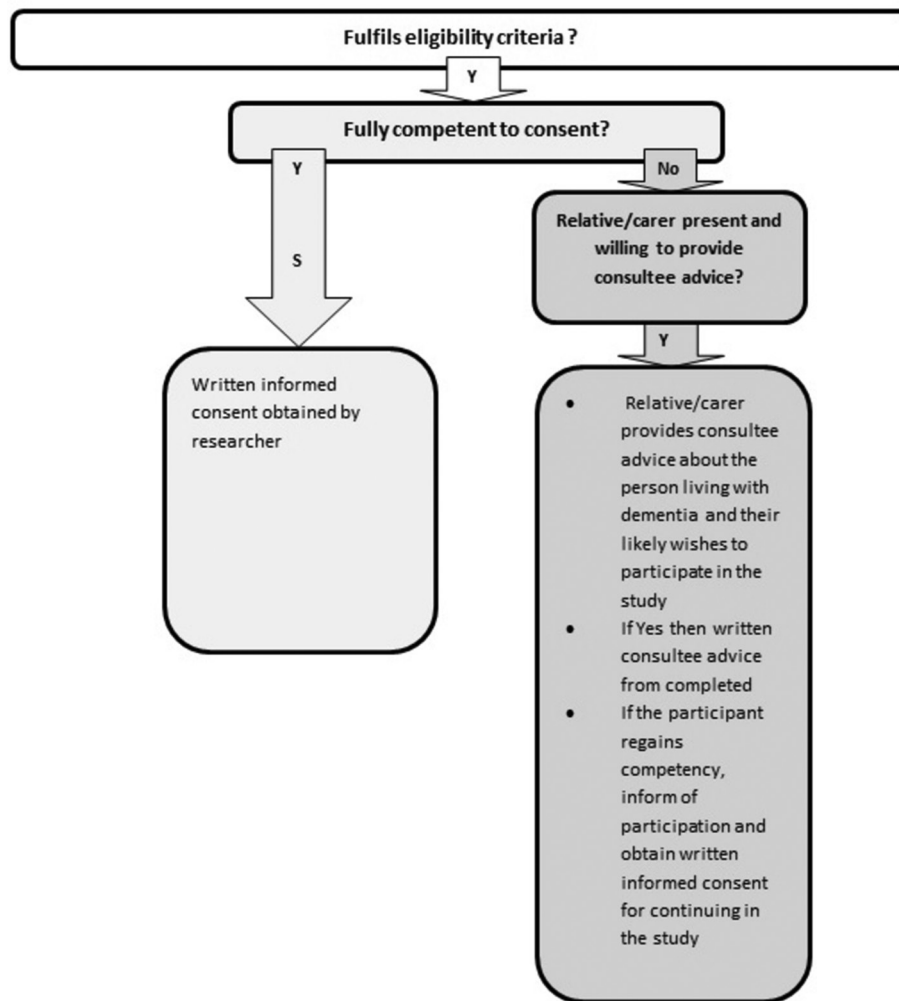
The exclusion criteria for families living with dementia will be if both members of the dyad are considered to have dementia and not able to consent for themselves to take part in the study, terminally ill, if they are moving out of area and/or they have severe communication difficulties such as severely hard of hearing.

The Provider sample will be recruited according to the requirements of their organisation; statutory providers require formal approvals and local site access permissions before any professionals can be recruited. Other providers, especially large Third Sector organisations, adhere to their own protocols for research studies, compared with smaller organisations. Private organisations tend to allow local-level decision making. Use of chain referential sampling will be used to enable 'hidden' providers, especially those who do not regard themselves as dementia specific to be approached; examples would be cafes, mobile hairdressers and food producers. All providers will be given key written information about the study and the opportunity to consider and discuss prior to giving any consent.

The inclusion criteria for service provider staff, including voluntary organisations, will be that they are employed within the statutory sector or provide services on behalf of a charitable/voluntary/private organisation towards older people in The Peak.

### Methods of data collection

The study consists of three main components. All of these components will be undertaken over a data collection period of 24 months.



**Figure 3** Flow diagram to show the consent process with the person with dementia and their carers to participate in the study.

*Component 1:* observations and semistructured interviews with families by use of longitudinal approaches over a maximum of 18 months per family dyad.

*Component 2:* observations and semistructured interviews with key service providers by use of longitudinal approaches over a maximum of 12 months per site.

*Component 3:* data gathering to combine multiple data sets to construct geospatial map of The Peak. This will include data collected from the interviews and observations to determine decision making in relation to time and place such as distance to GP services. Additionally, publicly available data such as public service locations, public transport networks, real-time climate data and topology will be incorporated into the GIS mapping process.

All interviews will follow the interview guide approved by the ethics committee and piloted prior to data collection. The guides include general-themed questions regarding the things that matter most to the participants. The COREQ online supplementary form outlines the design of the interview components.

### Analysis

Concurrent data analysis during the data collection will take place to enable refinement of the qualitative

data collection in particular and enable organisational changes in the local configuration of services to be identified and (re)considered if necessary. The longitudinal design of the study will support the notion that living with dementia and the associated changes of need is a dynamic process that often follows a jagged trajectory.

Qualitative data will be analysed with the support of the NVivo V.11 software to organise and generate general categories, patterns and themes from the textual data, using a broad CHAT approach.<sup>50</sup> The observational and interview data will be analysed using an activity theory approach that aims to explore the transactive relationships between individual actions, material and social environments. CHAT has been used extensively in organisational studies and is closely aligned to actor–network theory. CHAT provides the framework for rich data, such as ethnographic data, to be analysed at various levels from meso to macro. This is achieved by use of three planes of sociocultural analysis: personal, interpersonal and community planes and the division of activities within these planes as bounded activities to support analysis. Analysis will proceed in parallel with data collection until no new themes are emerging. By associative mapping between the themes,

explanations will be developed from the findings enabling theory generation, using an adaptation of the methods proposed by grounded theory.<sup>51</sup> Within the qualitative software, NVivo V.11, these bounded activities can be organised to support analysis that can explore the relationships within and between the three planes of analysis and the levels of activities. The use of these bounded activities that can then be used for use in visual mapping techniques such as GIS to enable the codevelopment of cross-disciplinary research.

Quantitative data will be analysed using a distinctive GIS modelling approach by using combinations of compatible multiple data sets. This will include geographical data from national data sources such as the Ordnance Survey Mater maps, Google Earth, ONS, National Travel Survey and OpenStreetMap. Specific data related to the places the participating families access will also be considered by the construction of a dedicated database that will maintain the privacy of individual households by use of a radial place measure. Further details of this approach will be detailed during the dissemination phase of the study.

The spatial databases will be used to store and retrieve the data, and GIS software and analysis will be customised to devise and model the ways in which participants navigate their social contact. This will be by a standard method using the open source ArcGIS software to construct a visual map of the region and as importantly support the analysis of multiple data sets to determine geostatistical relationships, including associations, between the variables presented by the data.<sup>38</sup>

It is expected that using emergent spatial data modelling that both qualitative and quantitative data can be combined to determine relationships with variables by ascribing a value system to each variable.<sup>38</sup> This approach can help support the identification of the current ways in which participants and providers prioritise their needs and responses and so help in decision making by providers.

### Outcomes

The study will provide understanding of rural communities, dementia-friendly communities and living with dementia as a rural dweller. These understandings will also consider the views and practices of a range of providers to determine the services that are generally considered to match the needs of families living with dementia. This information will help to establish current and future provision.

Specifically the results from this study will be used to:

1. *Provide* spatial and qualitative evidence to support users and service providers to respond to the local needs of those living with dementia in rural communities. This evidence will be open sourced and kept updated to promote collaboration within communities.
2. *Identify* where there is scope for improvement by contributing towards theoretically sound and evidence-based rural care delivery models through working in collaboration with local statutory health, social

service, public health, third sector and private sector providers.

3. *Support* the development of a quality outcomes framework that will include the needs of service providers and service users such as meeting training needs, technologies to support remote information systems, dementia-friendly provision that is responsive to the needs of users.<sup>40-42</sup>

It is considered that the use of the map will support users in collaborative decision making based on evidence related to the combination of multiple factors. Previous decision making may have been prone to more urban centric thinking and possibly not reflective of members of the community living in remote areas of the Peak. As such, this method of data presentation may help support the future design and delivery of services based on a more sophisticated understanding of needs and so help to ensure the efficient and equitable distribution of services.

We consider that the use of cross-disciplinary research approaches offers future potential for solving many of the difficulties faced by commissioners and providers face in allocating resources in equitable ways. GIS mapping offers both the assimilation of and visual presentation of data in a highly concise format that can support robust decision making. Use of an interactive web map, which can be incorporated into any website, will support transparency in decision making and also provide a dynamic map that can be updated to reflect the inevitable changes in service configurations.

### DISCUSSION

This mixed methods study will provide important information on the everyday lives of families living with dementia who wish to remain in their familiar rural places and spaces. It will further our understanding of what matters most to families living with dementia and help to consider the meanings of dementia-friendly communities as dynamic and heterogeneous.<sup>52 53</sup> The study considers the links with time and changes in living with dementia as a reflection of the longitudinal nature of dementia and caregiving.

Previous studies have tended to focus on statutory service provision with little consideration of the plethora of other innovative instances where dementia-friendly practices help to support the family to live well with dementia.<sup>52 53</sup> Rural communities can provide enriched understandings of the ways in which everyday lives are lived in prosperous ways that may not require a reliance of more established and traditional ways of dementia care provision. In summary, the study findings will provide an important basis for the design and delivery of future services in The Peak at a local level and may act as a template for other rural communities to consider ways of developing and sustaining local dementia-friendly communities. In the current challenges facing dementia care, evidenced-based decision



making is a priority for all providers.<sup>54</sup> The study will contribute towards the possible future design of national and international studies in the fields of rural dementia.

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**Contributors** FM is the principal investigator and led the writing of the study protocol and the manuscript. AB wrote the GIS component of the study protocol. TD and JG contributed to the original study design and protocol. AB, MR, AG and SL developed their own work packages. Members of the Scaling the Peaks Study Advisory Group supported the development of the protocol and the ongoing study.

**Funding** Scaling the Peaks was funded by the Alzheimer's Society as part of the Senior Research Fellowship Award Scheme 2015-19. Grant reference AS-SF-2014-005. The study is registered with the NIHR IRAS 188103.

**Competing interests** None declared.

**Patient consent** Not required.

**Ethics approval** HRA Leeds and Humberside REC.

**Provenance and peer review** Not commissioned; externally peer reviewed.

**Data sharing statement** No unpublished data available from the protocol.

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