Using a Realist approach to explain Outdoor Activities and Mobility in care homes:

The ROAM Study

Amanda King BSc. MA

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Abstract

Background: Whilst outdoor activities and mobility are believed to be beneficial for older care home residents, UK best practice guidance is based on occupational therapy-led expert consensus. This thesis reports research which aimed to provide theory-driven explanations about residents' occupational engagement in the gardens and outdoor spaces of UK care homes.

Method: A systematic mapping review was used to identified gaps in the evidence base, which informed the research to be undertaken. A multi-phase, realist theory development cycle incorporated: identification of initial context, mechanism and outcome (CMO) components guided by the review literature and expert stakeholder consultation; CMO configuration (CMOc) using data from non-participant observations, Dementia Care Mapping (DCM) values, plus characteristics questionnaires; theory refinement which involved using a retroductive approach to triangulate and synthesise observational and staff focus group data and finally, theory articulation, in which the overall findings were interpreted in the context of the broader literature and substantive theories to produce a middle-range theory for further testing.

Results: Contextual barriers to residents' outdoor use were reported frequently in the mapping review articles, but explanations about why or how these operated as such were largely absent. A realist approach was selected to address this.

Observational data provided by 50 residents and 35 care staff from three care homes, plus questionnaire data indicated that residents' outdoor use was influenced primarily by the practice context rather than by intrinsic resident mechanisms. Data from three focus groups (14 staff) confirmed that staff reasoning about supporting outdoor use was characterised by risk aversion, which was partly a consequence of organisational and building design constraints. A middle-range theory posited that cognitive dissonance about outdoor use was experienced by a particular staff reference group – those who shared person-centred values and an outdoor ethos but felt that they lacked time to enact these. This dissonance was mediated by widespread attitudes about the influence and impact of weather on residents which resulted in outdoor opportunities being restricted to periods of sunshine and warm temperatures.

Conclusion: As an unintended consequence of the prevailing social structures in the care home context, it is possible that many UK residents are being denied year-round opportunities to use care home gardens and outdoor spaces. To support practice change in this area, population-level, practice environment and resident-focused recommendations were produced. This study is the first to explore how and why residents' use of care home gardens and outdoor spaces came about using a realist approach. Occupational therapy practitioners and researchers are well-placed to contribute to the evidence-base in this area.

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Table of abbreviations

ACT	Activity in Context and Time
AGAT	Alzheimer's Garden Audit Tool
AMED	Allied and Complementary Medicine
ART	Attention Restoration Theory
ASSIA	Applied Social Sciences Index and Abstracts
ATOSE	Assessment for Occupation and Social Engagement
BCC	Behaviour Category Code
BGS	British Geriatrics Society
BNI	British Nursing Index
BPSD	Behavioural and psychological symptoms of dementia
CCRC	Community care retirement communities
CHERRIES	Checklist for Reporting Results of Internet E Surveys
CINAHL	Cumulative Index to Nursing and Allied Health Literature
CM	Context mechanisms
CMAI	Cohen Mansfield Agitation Index
CMO	Context-mechanism-outcome
CMOc	Context-mechanism-outcome configuration
CMOP-E	Canadian Model of Occupational Performance and Engagement
CONSORT	Consolidated Standards Of Reporting Trials
COPM	Canadian Occupational Performance Measure
COREQ	Consolidated criteria for reporting qualitative research
COT	College of Occupational Therapists
CQC	Care Quality Commission
CTS	Continuous time sampling
DCM	Dementia Care Mapping
DoLS	Deprivation of Liberty Safeguards
EHE	Enhancing the Healing Environment
EMBASE	Excerpta Medica dataBASE
ENRICH	Enabling Research in Care Homes
EQUATOR	Enhancing the QUAlity and Transparency Of health Research
GP	General Practitioner
HDRC	Housing and Dementia Research Consortium
ICF	International Classification of Functioning, Disability and Health
IRR	Inter-rater reliability
ME	Mood and Engagement
MEDLINE	Medical Literature Analysis and Retrieval System Online
MeSH	Medical Subject Headings
MOHO	Model of Human Occupation
MOHOST	Model of Human Occupation Screening Tool
MRC	Medical Research Council

NHS	National Health Service
NICE	National Institute for Health and Care Excellence
NIHR	National Institute of Health Research
OT	Occupational therapist
PAL	Pool Activity Level
PEOP	Person-Environment-Occupation-Performance Model
PIS	Participant information sheet
PM	Programme mechanisms
POEs	Post-Occupancy Evaluations
PPI	Patient and Public Involvement
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
RAMESES	Realist and Meta-narrative Evidence Syntheses - Evolving Standards
RCOT	Royal College of Occupational Therapists
RCT	Randomised controlled trial
RGF	Research Governance Framework for Health and Social Care
ROAM	Realist approach for Outdoor Activities and Mobility in care homes
SCIE	Social Care Institute for Excellence
SOS	Seniors Outdoor Survey
STH	Social and therapeutic horticulturalist
STROBE	Strengthening the Reporting of Observational Studies in Epidemiology
TESS	Therapeutic Environment Screening Survey
TREND	Transparent Reporting of Evaluations with Non-Randomised Designs
WHO	World Health Organisation
WIB	Well and ill-being profile

1 Background

1.1 Introduction

This thesis reports a programme of research which aimed to better understand resident engagement in outdoor activities and mobility in UK care homes for older people and make useful recommendations to increase residents outdoor engagement. The choice of topic was informed by the author's clinical experience as an occupational therapist working in community therapy services for older people. From an occupational therapy perspective, older people living with dementia in care homes are viewed as occupational beings, with the right to access and engage in meaningful activity in an environment of their choice and the potential to therapeutically benefit from this. This professional positioning is congruent with current UK policy and legislation[1, 2 3] and best practice guidance[4].

1.2 Policy and best practice

Following the implementation of the Health and Social Care Act 2012[2], and in accordance with statutory obligations to improve 'wellbeing' as outlined in the Care Act 2014[5], NICE have been tasked to drive up the quality of health and social care in care homes. Published in 2013, Quality Standard 50: mental wellbeing in care homes[4] acknowledges research findings that many older people living in care homes are depressed, dissatisfied and lonely

and that low levels of life satisfaction and wellbeing are widespread[6]. Referring to the Alzheimer's' Society 'Home from Home' report[7], NICE emphasise that many care homes are still not providing person-centred care for residents.

A frequently reported concern was that residents lacked sufficient opportunities to engage in activities or meaningful ways to occupy their time, including using the outdoor spaces. Many family carers reported that their relative either did not have access to an outdoor space or that inadequate staff numbers prevented them from being supported outdoors. In the UK, there are no regulatory requirements for care homes to provide a suitable outdoor space(s) or daily outdoor access for residents[8], although European standards afford these rights to other cohorts living in institutional settings, such as psychiatric patients and prisoners[9]. Outdoor access and engagement, is perhaps not only good practice in long-term dementia care, but also a matter of social justice[9].

The Alzheimer's Society appear to take a similar, rights-based stance. Referring to the NICE dementia clinical guidelines[10], their position is unambiguous: "The Alzheimer's Society strongly supports the guideline's conclusion that it might be considered that all people with dementia in residential care should have the option to spend time in a safe outdoor environment."[7](p.19).

The detrimental impact of lack of activity on mental wellbeing is acknowledged in the NICE guidance. 'Participation in meaningful

activity'[11] is identified as the first of six quality statements intended to improve quality in care homes. Meaningful activity is described as any social, leisure or physical activity tailored to an individual's needs and preferences and should be carried out in an appropriate environment. This may include the use of outdoor spaces.

This definition is referenced to the Royal College of Occupational Therapists (RCOT) (the professional body for occupational therapy in the UK) who are listed as a partner organisation to NICE for promoting quality standards to commissioners and service providers[4]. The Health and Social Care Act 2012[2] sets out a clear expectation that the care system should consider NICE quality standards in planning and delivering services.

As healthcare practitioners with particular expertise in facilitating recovery, health and wellbeing through the medium of activity, or occupation, NICE Quality Standard 50[4] places a duty on occupational therapists to: "Ensure that they offer older people in care homes, opportunities during their day to participate in spontaneous and planned activity…". This duty may involve working directly with residents or in a training and advisory capacity with care home staff[12].

The connection between health and participation in activity is now well established due to the launch of the World Health Organisation's (WHO) International Classification of Functioning, Disability and Health (ICF) (2001)[13]. This provides a standard

language and framework for the description of health and health-related states. The ICF views health as a dynamic interaction between participation, which refers to the things that people do, health status, contextual factors and personal characteristics. The influence of daily occupations on health, disability and function in population and community-based practice is emphasised[14].

1.3 Occupational context

Occupational therapy is underpinned by occupational science principles that view meaningful activity and occupation as essential to human existence, quality of life and health and wellbeing[15-17]. Empirical evidence suggests that older people who engage in meaningful activity and social interaction, experience enhanced occupational functioning, physical and mental health and life satisfaction[18-22].

Within occupational therapy, there are a number of models of occupational performance that have been developed to underpin and guide practice. In a paper comparing models of occupational performance, Wong and Fisher[23] have identified the Canadian Model of Occupational Performance and Engagement (CMOP-E)[24], the Model of Human Occupation (MOHO)[25] and the Person-Environment-Occupation-Performance Model (PEOP)[26] as amongst those most frequently taught in occupational therapy curricula and used in Western countries[25]. Person-centred principles are inherent in each model and occupational outcomes are conceptualised as

the result of a transaction between the person, occupation and the environment[23]. Table 1 summarises how each model classifies these dimensions.

Table 1: Summary of transactional dimensions of CMOP-E, MOHO, PEOP

Transactional dimensions	CMOP-E	MOHO	PEOP
Person	Cognitive, affective, physical, spirituality	Volition, habituation, personal capacity	Psychological, neurological, spiritual, physiological and motor
Environment	Physical, institutional, cultural and social	Objects, spaces, occupational forms and social, cultural and political factors.	Social support, social and economic systems, culture and values, built environment and technology, natural environment
Focus of occupational intervention	Person - environment - occupational (self-care, leisure, productivity) fit ⟶ occupational performance	Volition, habituation ⟶ occupational competence and identify	Enablers and barriers ⟶ occupational performance
Desired Occupational outcome	Occupational performance and engagement	Occupational adaptation	Occupational performance and participation

Clearly, it is not necessary to invoke the principles and practices of occupational therapy for residents to be meaningfully occupied and derive quality of life from occupation. However, occupational models provide a useful framework for understanding outdoor activity and mobility in care homes, given their significant emphasis on environmental factors, which are understood to be highly impactful for the health, wellbeing and quality of life of

residents[4]. Ren Wong and Fisher[23] note that the latest version of PEOP and CMOP-E places similar emphasis on person-environment fit and the importance of addressing environmental barriers at differing levels, that is, individual, practice environment, community and population.

Not all UK care homes have access to statutory occupational therapy services. The NICE mental wellbeing guidance[4] also reflects concerns highlighted by the British Geriatrics Society (BGS)[27] about unacceptable variations in care home access to National Health Service (NHS) primary and secondary healthcare services. Some evidence for these concerns has been provided by surveys of UK healthcare provision. In a 2001 survey[28] of therapy provision in 346 care homes, (England, Scotland and Wales), 10% of residents were in receipt of physiotherapy, whilst only 3.3% were receiving occupational therapy.

In a more recent review of surveys of generalist and specialist NHS provision in England, six of the 15 surveys identified provided data on occupational therapy[29]. Whilst the situation appears to have improved since 2001, access to and quality of healthcare are still considered to be highly variable[27]. In 134 care homes with and without nursing in Nottinghamshire County (2010), 23% could not access occupational therapy. Of 115 care homes in Oxfordshire and Warwickshire (2009), only 41.7% reported using an occupational therapist.

Overall, provision is likely to be patchy and focused on crisis prevention, rather than preventative approaches that support mental and physical wellbeing[30]. The implication here is that if occupational therapy input in care homes is absent, limited or in many cases, restricted to individual referrals for specific physical health-related issues, there is little opportunity at a whole systems level to increase awareness of the importance of meaningful occupational engagement for resident health and wellbeing[31].

1.3.1 Residents

Approximately 4% of people aged 65 and over are resident in UK care homes, rising to 20% for those aged 85 or more[27]. In the broader population, the numbers of people aged 85 and over are increasing rapidly and are predicted to rise from 1.4 million in 2010 to 3.5 million by 2035[32]. Whilst UK policy initiatives aim to divert older people away from care home admission and support them to remain in their own homes for longer[33], it is unlikely that the demand for placements will diminish in the near future.

The complex health and social care needs of the frailest and most dependent older people in the UK population pose significant resource and service provision challenges[34]. The typical UK resident is in their mid-eighties or older and approximately three quarters are women. 70% - 80% have some form of cognitive impairment and there is a high incidence of dementia, poor mobility, falls, polypharmacy, depression, behavioural disturbance, malnutrition,

incontinence and multi-morbidity in this population. For women, the average length of care home admission is two to three years and for men, one to two years. Increasingly, older people are dying in care homes rather than in hospital. Care homes have become a major provider of end of life care[27].

A census report from BUPA (2012), a major independent provider in the UK, provided data on 12,724 UK residents. 87% were found to have 'high support needs', defined as one or more of: dementia, confusion, challenging behaviour, sensory impairment and total dependence in mobility. 91% of residents were admitted for dementia care and over 75% required some assistance with mobility or were totally dependent[35]. The majority of residents were highly reliant on care staff for personal care, social interaction, moving around the care home and activity engagement.

Studies investigating time use, activity levels and quality of life in UK care homes have provided strong evidence that levels of inactivity and immobility in care homes remain unacceptably high[36]. In an observational study of 18 residents in one care home, Sackley et al. found that residents were immobile during 97% of observations and inactive for 60.7% of the time. Residents interacted with care staff in only 2.5% of observations[37]. This was echoed by an Alzheimer's Society study of 12 care homes with nursing. Dementia Care Mapping (DCM) was used over a six hour

period and it was found that the median resident engaged in communication with staff less than 2% of the time[7].

In a cross-sectional study of 238 residents, Hancock et al. identified daytime activity as an unmet need for 76%[38]. In research by Ballard et al. of 17 long term care facilities in England, DCM was used to evaluate the quality of care of 218 residents with dementia. Over a six hour, day-time observation period, residents interacted with staff or others for 14% of the time and were engaged in meaningful activities for less than 3% of the time[39].

Physical inactivity and immobility pose particular health risks for the care home population, including: pain, pressure ulcers, joint stiffness and contractures, increased risks of falling, incontinence or other bladder/bowel problems, and low mood[40]. Sedentary behaviour has also been correlated with risk factors for chronic disease and all-cause mortality[41].

Whilst people with dementia may experience deteriorating physical, cognitive, functional, sensory and communication abilities, their innate need for occupational participation does not diminish[14, 42]. For residents of care homes, lack of engagement in meaningful activities and social interaction has been associated with functional deterioration, poor quality of life, escalating behavioural problems, depression and social isolation, all of which may increase with condition progression[43, 44].

Qualitative studies exploring quality of life from the perspective of residents have consistently emphasised the importance of meaningful activity. A recent synthesis of 34 studies by Han et al. identified that for residents, feeling connected, either to self, others or the environment was the primary motivation for activity engagement[45]. However, lack of opportunity for meaningful engagement in the indoor environment, the local community and care home outdoor spaces has been frequently reported[7, 46-48].

Whilst staff unavailability appears to be the main barrier, research comparing the perspectives of residents, relatives and staff suggests that these groups have differing priorities and perceptions about what is meaningful[49]. Whilst staff and relatives perceived activities that maintained physical function and abilities as meaningful, residents valued those that addressed their psychological and social needs. In addition, staff and relatives valued staff organised social activities more than familial contact, whereas residents preferred to spend time with families.

A key finding of Han et al.[45] was that mismatches between the perceptions of residents with dementia and care staff about meaningful activity was cause for conflict and frustration. The authors highlighted the importance of staff identifying residents underlying motivations for activity so that these could be matched with satisfying and benficial activities.

1.3.2 The care home environment

It has been estimated that 150% more care home places will be required over the next 50 years[50], although this model assumes no change in the prevalence of dependency. When disability tariffs were applied to prevalence data on 483 medical diagnoses from the Global Burden of Disease Study[51], a 30% increase in physical dependency was predicted over the same time period. Using a similar model, a government-commissioned analysis of the UK long term care market impact on economic growth forecast that 780,000 care home places will be required by 2040[52]. Barring a radical change to the structure of UK health and social care, it can be surmised that care homes will constitute an important and expanding component of long-term care provision for the foreseeable future.

As demonstrated by the NICE guidance for mental wellbeing in care homes[4], quality of care in UK settings continues to be highly variable. The aspirational model of provision in dementia settings is 'person-centred care' which was pioneered by Tom Kitwood in the mid-1990's. In his dialectical model of dementia, Kitwood asserted that whilst disease might be the dominant cause of neurological impairment (NI), there are other important aspects of a person's life that influence how well they live with dementia, for instance: health and physical well-being (H), biography (B), personality (P) and social psychology (SP).

Kitwood posited that Dementia = NI + H + B + P + SP and used the concept of 'personhood' to emphasise the importance of seeing beyond the dementia condition: "It is a standing or status that is bestowed upon one being, by others, in the context of relationship and social being"[53](p.8). The interactions between the person with dementia and those around them are considered to be the precursors to well-being or ill-being, not the dementia condition.

In Kitwood's model, occupation is recognised as one of six essential psychological needs of people living with dementia and plays a central role in Dementia Care Mapping (DCM), a practice development intervention recognised in NICE guidance[4]. A structured observational tool is used to identify mood and engagement values, which are interpreted in terms of what people are doing, as well as their interactions with care providers.

Resonant with the occupational models described above, well-being or ill-being are conceived to be contingent upon a dynamic interplay between the behaviours and occupations residents are engaged in and their interactions with the environment, in this case, care providers. Professor Murna Downs of the Bradford Dementia Group has contended that there is now an international consensus that care for people living with dementia in care homes should be person-centred rather than task-centred[54](p.17).

However, despite the enshrinement of person-centred principles and practice in UK legislation, policy and regulatory standards, the

literature suggests that much service provision continues to prioritise basic care routines and the physical health and safety needs of residents. High resident-to-staff ratios, lack of time and the way care is structured and organised continue to be reported as the main barriers to resident engagement in meaningful activity.

Whilst this state of affairs is reflective of a historical lack of investment in the sector and variable support by community and statutory organisations[55, 56], some care homes seem to have been able to embrace and sustain the shift from the 'old' to the 'new culture' of care, envisioned by Kitwood. In the new culture, ensuring a safe environment, meeting basic needs and providing physical care competently are important. However, care is focused primarily on maintaining and enhancing personhood[53]. As noted by Baldwin and Capstick[57], this rather crude binary model belies the reality that any real world care context will share characteristics of both cultures and "…any change which is brought about will be gradual and contingent, dependent on a multiplicity of variables, many of which are unpredictable"[57](p.266).

In Rendell and Carroll's study[58] of the outdoor spaces of 17 care homes, the authors, who are landscape designers, asserted that the single most important factor in shaping residents having a meaningful interaction in the garden was the person with them. It was suggested that in the care homes with a relationship-centred care ethos, outdoor engagement was perceived as part of everyone's role. This was reported to be far more contingent upon

organisational mindset and culture than financial resources and staffing[58]. In this context, outdoor occupational engagement, as one dimension of meaningful activity, is conceptualised not only as an important marker for quality of life, but as an expression of relationship-centred care provision.

Whilst this research very usefully emphasises that care home culture may be more influential for outdoor engagement than how visually appealing gardens are, the strategies for supporting care homes to develop a culture of greenspace engagement are restricted to 'The Care Culture Map and Handbook', which at a cost of £95:00 is not freely available. 'Relationship-Centred Design' is described as a new approach in which garden designers, or other outside specialists work collaboratively with care settings to develop a culture of garden engagement.

Occupational therapists may be well-positioned to take up the role of 'outside specialist'. However, Morgan-Brown and Chard[59] argue that there is little published evidence that practitioners are supporting whole residential home environments to develop an embedded culture of occupational engagement. Occupational therapists are urged to utilise any learning from occupationally-focused research to promote change, and influence policy at a societal level[59, 60]. Karin Tancock, (RCOT Professional Affairs Officer for older people and long-term conditions, 2014) contends that much more needs to be done in terms of commissioning statutory occupational therapists to work within the sector[30].

1.3.3 Occupational justice

Within occupational therapy, social justice ideologies have been extended to consider the myriad ways in which citizens are prevented from engaging in meaningful occupations due to external factors[61]. Whilst social justice refers to reducing inequities across particular societies, occupational justice also acknowledges the rights, responsibilities and freedoms of individuals and communities. In particular, to experience health, wellbeing and quality of life through engagement in meaningful occupation. In an occupationally just environment, individuals and communities have access to sufficient opportunities and resources to engage in occupations that are not just necessary, but also meaningful to them.

Wilcock and Townsend[60] describe the concept of occupational justice as deriving from a synergy of ideas based on their research relating to occupational science and client-centred practices, respectively. The authors' exploratory theory incorporated ideas, beliefs and principles about occupational justice, a consideration of how this differed from social justice and reasoning about occupational forms, determinants and outcomes. The theory was further elaborated to define four different types of occupational injustice: alienation, deprivation, imbalance and marginalisation.

Occupational alienation occurs when the rights of populations and individuals to experience life enhancing and meaningful

occupations are restricted[62]. Occupational participation may occur but be forced or limited to occupations which lack meaning, for instance, via slavery, refugee confinement or immigration regulations. Townsend and Wilcock include care home residents in their example, which perhaps resonates with comments by Tancock from the Royal College of Occupational Therapists (RCOT): "Some residents may love singing, bingo and light entertainment but many do not"[30]. Incidentally, all three of these activities were either observed in the ROAM study care homes or included in the activity schedules on display.

Occupational deprivation is defined by Whiteford as: "a state in which a person or group of people are unable to do what is necessary and meaningful in their lives due to external restrictions"[63](p.200). This may occur due to factors such as geography, incarceration, institutionalisation, disability, sex-role stereotyping, refugeeism and unsatisfactory working conditions (unemployment and under/over employment). Causey Upton, who proposes a model of occupational justice to improve quality of life in care homes via enabling leisure continuity[61], gives the example of resident who has valued reading as a lifelong activity but is unable to read over a prolonged period of time due to the care home not providing a large print books.

On a societal level, occupational imbalance refers to inequity of opportunity in respect of labour and economic production[60]. On an individual level this refers to excessive time spent in certain

occupations at the expense of others[62]. The research exploring time use in care homes (see section 1.3.1) illustrates this phenomenon in the sense that some residents may spend the majority of their time passively engaged or asleep and only a small proportion of time engaged in social interaction and meaningful activity.

Townsend and Wilcock describe occupational marginalisation as "the need for humans to exert micro, everyday choices and decision-making power as we participate in occupations"[60](p.81). They emphasise that discrimination may not be overt, but injustice is perpetrated by normative, standardised judgements about the particulars of participation, for instance, how, when and where this 'should' occur. Causey Upton[61] gives the example of a resident missing a morning activity due to staff insisting that personal care must occur before the resident leaves their room.

Aligning with the social justice approach, Townsend and Wilcock[60] go on to suggest a range of different ways to apply occupational justice at a population-level. For instance, clinicians are advised to seek practice opportunities with groups as well as with individuals. Educators are recommended to ensure issues of justice are explored in the curriculum and researchers are urged to use quantitative and qualitative methods to measure occupational participation and explore experiences of injustice, respectively. The use of action research, emancipatory and critical theory approaches are suggested for use with client collaborators to analyse and address social inequities.

At the other end of the continuum, Wolf et al.[64] have proposed a framework which seeks to facilitate a more localised approach for occupational therapists to use in daily practice with individual clients. In the early stages of the process, occupational therapists are encouraged to reframe the issue as an occupational justice, naming the specific type of injustice[60] and consider possible reasons for this. A continuous 'but why?' questioning technique is suggested for this latter stage.

The next stages of the process involve recognising practitioner spheres of influence and then developing strategies for action within these spheres. Wolf et al.[64] recommend using the Client-Centred Strategies Framework developed by Restall and Ripat[65], which proposes five different processes to support therapists' to overcome barriers to client-centred practice and implement strategies from differing perspectives. These include: personal reflection, client-centred processes, practice settings, community organising and coalition advocacy and political action.

In later research, the authors surveyed and interviewed occupational therapists to evaluate the clinical applicability of the five categories[66]. Based on the findings, these were redefined in terms of influencing client-centred processes at three levels: micro (reflection and client-centred), meso (practice settings and community organising) and macro (coalition advocacy and political action). It was apparent that therapists were most knowledgeable and confident in operationalising micro-level client-centred

processes. They were less prepared and less likely to assert influence at the meso and macro levels due to lack of opportunity, knowledge and skills. However, supporting practice settings, coalition advocacy and political action were perceived to be important, both in terms of skills and for contributing to improved outcomes for clients. Hence, at these levels, there was a gap between therapists' perceptions and implementation.

In their proposed framework, Wolf et al.[64] provide two examples of how to apply the stages to individual cases and invite readers to devise their own set of action plans. However, the authors might have also considered demonstrating how the framework could be applied to groups or communities, given that processes aimed at influencing these levels are considered to be more challenging to apply[66]. Using the framework in this way would also be congruent with the principles of the Canadian Model of Occupational Performance and Engagement (CMOP-E)[24] and the Person-Environment-Occupation-Performance model (PEOP) which are reported to be appropriate for use with individual and groups.

Also, it is perhaps incongruous with principles of social justice that the frameworks discussed are privileged for use by occupational therapists. Notwithstanding the use of occupational concepts, it is contended that these could be used in more generic ways by others impacted by occupational injustice in care homes. For instance, care home staff, volunteers, and other statutory health and social care workers. Care home staff might substitute the term client-

centred with relationship-centred and act upon suggestions described in each of the categories using the tools, resources and materials that have been devised for use in adult social care settings.

Causey Upton[61] emphasises that there is a need for education about occupational justice, not only within but also outside of the occupational therapy profession. The author suggests that theory and practices are confined to promotion and publication within the occupational literature and argues that other disciplines must be involved for the principles to be more widely understood and applied in practice. For the ROAM study, it was speculated that any proposed strategies for increasing outdoor use were not likely to be useful or effective if their implementation was contingent upon direct occupational therapy input, which in UK services tends to be individualised, focused on crisis rather than prevention and highly variable in terms of access and quality[27, 30].

Applying processes and strategies at micro, meso and macro levels of influence, as described above[64, 66] was considered to be a useful approach for developing outdoor use recommendations. However, it was speculated that positive change would be contingent on a range of care home stakeholders, not just residents, activity coordinators and care home staff. Therefore, the recommendations outlined in section 6.4.2 are structured to invite differing stakeholders, both within and external to the practice environment to become involved in promoting change and occupational justice.

In the occupational literature, lack of opportunity for residents to engage in physical and meaningful activities is often conceptualised as occupational deprivation, one form of occupational injustice[31, 42, 46, 61, 64]. However, up to this point, occupationally-focused research in care homes has failed to address the extent to which residents are deprived of opportunities to engage in occupations outdoors and the potential impact of this on their health, wellbeing and quality of life. Nonetheless, there here has been a growing interest in the health-related benefits of 'green spaces' and natural environments in the disciplines of health environment design, landscape design, public health and psychology.

1.4 Outdoor engagement

A mixed methods systematic review by Whear et al.[67] revealed a small body of work exploring the impact of gardens on the physical and mental wellbeing of residents with dementia. The methodological quality of the quantitative studies was reported to be poor and meta-analysis was not possible. However, there was some indication that decreased levels of agitation might be associated with garden use. Findings indicated that there are potentially health enhancing mechanisms at play other than those associated with inherent responses to the natural environment. For example, outdoor bright light exposure may positively affect disrupted circadian rhythms (physical, mental and behavioural changes that follow a 24-hour cycle, responding to light and dark)[68]

and increase vitamin D production. Deficiency in humans has been associated with osteomalacia[69].

None of the quantitative studies included in the review were conducted in the UK. However, a recently published UK study[70] of 28 nursing home residents has explored the impact of exposure to a nature garden. Marked improvements in carer-rated mood were associated with outdoor durations of only 20 minutes. The greatest benefits were conferred by spending 80-90 minutes in the garden, but there were no measurable improvements beyond this. The findings must be interpreted with some caution, not least due to the small sample size and lack of controls. The article does not explicate what residents were doing outside and also, the carer-rated assessment was not a validated measure, comprising a one to three scoring system to represent 'poor', 'medium' or 'good'. Like Whear et al.[67], the authors recommend further study on the specific mechanisms of benefit seemingly conferred by outdoor spaces.

There are two main theories which have attempted to identify the psychological and cognitive mechanisms impacted by specific qualities in natural outdoor environments[71]. The Kaplan's Attention Restoration Theory (ART)[72] and Ulrich's psycho-evolutionary theory[73] both describe an innate ability in humans to attend to features of the environment like vegetation and water, which were necessary to survival and evolution. Whilst both theories view

natural environments as particularly restorative, there are competing explanations of the processes at work.

ART suggests that humans have the capacity for two types of attention, directed attention and involuntary attention, which they termed 'soft fascination'. Directed attention is used in executive functioning to solve 'modern' problems and requires mental effort. Its capacity is finite, and overuse may lead to fatigue which can be ameliorated by the use of 'soft fascination'. This can be triggered in natural environments which contain some stimuli and arouse curiosity but require little mental effort. Restorative environments are characterised by a number of factors. 'Being away' represents an escape from normal routines. 'Soft fascination' enables effortless engagement with environmental features. 'Extent' refers to the scope to experience immersion in the environment and 'compatibility' involves the ability to appreciate the environment and want to be exposed to it[74].

A recent systematic review identified 31 studies that have evaluated the attention restoration potential of exposure to natural environments[75]. Meta-analyses provided some empirical support for ART, with significant positive effects in relation to three measures. The analysis of ten other attention outcomes did not show significant beneficial effects. The majority of these studies involved participants under the age of 30 and most were students. Only one was conducted with care home residents and participants were cognitively intact[76].

Ulrich[73] has suggested that responses to natural environments are not initially mediated by cognitive processes, but by a preconscious, immediate affective response which impacts on physiological responses, behaviour and attention differently, depending on whether it is positive or negative. This response is adaptive and catalyses approach-avoidance behaviour necessary for wellbeing or survival. It is claimed that unthreatening natural environments trigger a positive affective response capable of reducing the physiological stressors associated with autonomic arousal, such as increased heart rate and high blood pressure. This state of stress recovery is viewed as a necessary precursor to the enhancement of cognitive capacities and positive emotional states.

Ulrich's pioneering study of hospital patients recovering from gall bladder surgery found that participants with window views of nature experienced less pain, had fewer post-surgical complications and were discharged sooner than those with views of walls[77]. A systematic review[78] identified over 20 well conducted studies that demonstrated the significant effects of nature views (actual and virtual) on health outcomes, particularly on stress reduction. For Ulrich, involuntary attention, as a cognitive process, is too slow to play a role in restoration and attentional decline is explained as a consequence of physiological stress. Therefore, for people with health-related problems, restorative environments are health enhancing via the mechanism of stress recovery.

Rappe and Topo[79] have suggested that Ulrich's theory has two significant implications for people with dementia. Firstly, if exposure to unthreatening natural environments elicits an autonomic response, cognitive processing skills are not required for passive experiences. Therefore, even those with the severest symptoms can respond to natural cues without cognitive demand. Secondly, natural environments have potential to evoke positive affective responses, which might alleviate the stress-related symptoms of dementia such as, low motivation, depression and agitation.

Drawing on evidence from differing psychology disciplines and behavioural medicine, Ulrich went on to develop the 'supportive garden theory' to describe the potential benefits of outdoor spaces in healthcare facilities[80]. The theory espouses that activities, experience and relaxation are the mechanisms for well-being in garden spaces that offer four restorative resources, including: sense of control and access to privacy, access to nature and other positive distractions, social support and physical movement and exercise. Evidence regarding the relevance and validity of these resource dimensions has been forwarded by Cooper Marcus who conducted over 100 hours of observations in gardens around the world[81]. For Ulrich, the emphasis is on the restorative psychological benefits of these experiences although the theory does acknowledge that benefits are mediated through both passive and active engagement in the outdoors.

Whilst Ulrich's theories can seemingly accommodate the trajectory of dementia progression, the relevance of ART to the field of dementia care is less clear. Although 'soft fascination' may be evoked with little or no cognitive demand, one postulation is that this provides the necessary recovery space for attentional restoration, and consequently other executive functions[74]. The benefits for people with irreversible loss of cognitive function are less clear and do not appear to have been investigated, thus far[75].

This brief theoretical overview has provided some useful insights about how natural outdoor environments might act on mental wellbeing, although it is not yet clear if care home residents are able to experience outdoor environments restoratively. Residents are unlikely to experience any potential benefits from outdoor use if they lack opportunities to access outdoor environments. The review by Whear et al.[67] also highlighted barriers to residents use of garden spaces in relation to staff availability and the physical environment. Only one of the review studies was conducted in the UK[82] and whilst residents did report needing to ask 'permission' to go outside, there was no discussion about other barriers relating to outdoor use.

In a recent UK prospective cohort study involving 50 care homes and 510 residents exploring the impact of the physical environment on depressive symptoms of care home residents[83], access to the outdoor space was the only significant predictor of depressive symptoms. Residents reported a number of restrictions including

locked doors, steps, uneven paths and requiring permission or assistance to go outside. UK studies evaluating the impact of built environment features of care homes on quality of life have emphasised wide diversity in environmental design, which might account for some variation in outdoor access opportunities.

In one project conducted in 38 care homes in Sheffield and Rotherham, the building provenance of the care homes varied[84]. The smaller homes (<30) tended to be conversions of Edwardian or Victorian family houses set in mature gardens. The medium sized homes (31 to 40) were former local authority homes and the larger sites (41>) were usually corporately owned and purpose built. Many service providers may have little choice but to deal with legacy spaces, not primarily designed for care provision.

Clearly, not all outdoor engagement takes place in natural environments or care home gardens. However, so far, there do not appear to have been any UK evaluation studies investigating resident engagement in local communities. NICE guidance for therapy interventions to improve the mental wellbeing of over 65s[12] recommends community walking schemes, plus tailored activity programmes, which include using community resources. However, recommendations are based on expert consensus. It is acknowledged by NICE that no evidence has been found of effective or cost-effective interventions to improve the mental wellbeing of those living in care homes. Nonetheless, there is a recommendation to involve "…occupational therapists in the design

and development of locally relevant training schemes for those working with older people".

1.5 Implications for further enquiry

Overall, there appeared to be a paucity of published research regarding care home residents engagement in the outdoor environment. A systematic review focused on evidencing health and welling benefits was limited to care home gardens and there was a lack of robustly conducted studies[67]. Taking the broadest possible view of the 'outdoor environment', there was a possibility that studies involving care home residents have ventured beyond care home outdoor spaces. For instance, parks, other green spaces and urban spaces which reflect the local communities of care homes. Such studies may not meet the rigid criteria imposed by systematic review methodology but might nevertheless yield some useful insights about care home residents outdoor engagement.

To gain a comprehensive overview of the field of research relating to outdoor activity and mobility in care homes, a broad and inclusive cross-disciplinary review of research was conducted. This was the first project in a three-year programme of research activity and the findings were used to determine subsequent research activities.

1.6 Summary

In this chapter, residents outdoor engagement has been considered from an occupational perspective. The majority of research in relation to the health, wellbeing and quality of life of residents has focused on the indoor environment, despite policy and best practice recommendations which emphasise the importance of residents spending time in outdoor environments.

A broad and inclusive literature review focused on the outdoor engagement of care home residents was justified. The research aims for this were:

- To provide an overview of the research evidence that has investigated the health, wellbeing and quality of life of older care home residents in relation to outdoor activities and mobility.

- To identify gaps in the evidence base.

2 The Rehabilitation for Outdoor Activity and Mobility in care homes Mapping Review

2.1 Introduction

Chapter 1 concluded that a broad and inclusive literature review of the research evidence regarding outdoor activities and mobility in care homes was required. This chapter describes this review.

2.2 Objectives

- Map and describe the research undertaken that refers to care home residents' access to and/or engagement in outdoor activities and mobility.

- Map and describe the research undertaken which has evaluated the impact of outdoor activities and mobility interventions on the health, wellbeing and quality of life of older care home residents.

2.3 Methodology

2.3.1 Mode of review

To meet the review objectives, it was necessary to select an appropriate review mode. Scoping reviews and systematic mapping reviews aim to identify the nature and content of existing literature within a field of research and map and describe rather than conduct in depth scrutiny and quality appraisal[85]. Whereas scoping reviews

usually serve as a preliminary exercise within a larger project with pre-planned activity outputs, systematic mapping reviews can represent a stand-alone piece of work or might result in another review or primary research - the outputs are influenced by the findings. Given that the direction of research was unknown because of the degree of uncertainty about the prevalence and nature of outdoor activity and mobility practices in care homes, systematic mapping was selected as being the most appropriate tool.

Whilst systematic review, which aims to collate the best available evidence on the effects of interventions, is arguably the cornerstone of evidence-based practice (EBP)[86], using pre-specified criteria and rigid quality appraisal[87] would likely have excluded studies relevant for addressing the review objectives.

Building on the systematic mapping methodology originally developed by the Evidence for Policy and Practice Information Co-ordinating Centre for education research[88], the Social Care Institute for Excellence (SCIE) has developed guidance for the social care context. SCIE descriptive maps, developed by using keywording tools and quality assurance mechanisms, provide a means by which studies can be described and categorised, for instance, by country, language, theoretical framework, context, methodology, methods and results. It should be noted that in the context of this review, 'keywording' refers to a methodological process and is distinct from the term 'keyword' used in relation to database searching.

Guidance on systematic mapping reviews suggests that, depending on the aims of the individual project, literature content and quality can be analysed in depth or more superficially. Data extraction in the form used in systematic reviews, syntheses of findings (numerical or narrative) and formal quality appraisal are not considered essential elements of systematic mapping methodology[89]. For the review here, the SCIE systematic mapping guidance was used as a reference document and the core keywording tool was adapted in line with the scope and the aims of the review. Whilst mapping occurs in sequential stages, aspects relating to quality assurance and checking are non-sequential and may occur at any point, particularly in the more iterative stages. For instance, when developing the inclusion/exclusion criteria and the keyword strategy.

2.3.2 Supervisory team

In the SCIE guidance[90], there is repeated emphasis on the importance of team planning and cross-checking at various stages of the mapping process in order to safeguard consistency of approach, rigour and quality. The PhD supervisors supported these functions for the review. The team were: Amanda King (AK), an occupational therapist and PhD student, Professor Pip Logan (PL), a clinical academic occupational therapist, Dr Neil Chadborn (NC), a research fellow, Associate Professor Adam Gordon (AG), an academic geriatrician and Professor John Gladman (JG), an academic geriatrician.

AK led the development of the search and keywording strategy, conducted all searches of the bibliographic databases, screened all abstracts, acted as first reviewer for all of the full–text articles retrieved, and maintained the spreadsheet for coding and analysing the search results. JG's key role was providing detailed feedback on early drafts of the review as a whole. PL, NC and AG contributed to identifying relevant definitions and concepts and the development of the inclusion/exclusion criteria, search and keywording strategy. They provided guidance during the abstract screening phase and each acted as second reviewer for one of the full-text articles retrieved. This was to determine that articles met the eligibility criteria and to provide a quality assurance check of the keywording strategy.

2.3.3 Systematic map questions

To establish the parameters of the map and to facilitate the search strategy, the map questions were adapted from the review objectives and were as follows:

- What primary research has been undertaken in relation to older care home residents' access to and/or engagement in outdoor activities and mobility?

- What primary research has been undertaken which has evaluated the impact of outdoor activities and mobility interventions on the health, wellbeing and quality of life of older care home residents?

2.3.4 Sources of data

SCIE systematic mapping guidance recommends the use of a range of data sources including: government department websites (for policy context), journal hand-searching, electronic tables of contents in journals and research registers. However, bibliographic database searching comprises the major part of searching[89]. As the extent of existing health literature regarding outdoor activity and mobility and care home residents was unknown and unlikely to be held in therapy-oriented databases alone, a range of databases with differing disciplinary and methodological emphases were selected by the supervisory team.

These included: MEDLINE (Medical Literature Analysis and Retrieval System Online)[91], EMBASE (Excerpta Medica dataBASE)[92], the Cochrane Library[93], CINAHL (Cumulative Index to Nursing and Allied Health Literature)[94], AMED (Allied and Complementary Medicine)[95], PsycINFO[96], ASSIA (Applied Social Sciences Index and Abstracts)[97] and SCIE Social Care Online[98]

2.3.5 Inclusion/Exclusion criteria

In accordance with SCIE guidance[90], the following categories were agreed by the supervisory team: scope, population, country, study design, study focus, outcomes/findings, language, publication date and publication status. Only English language articles were to be included as no translation resources were included in the PhD funding.

Scope: Studies were included if they investigated at least one of the following, whether as a primary or secondary focus of attention:

- The impact of outdoor activity and mobility on the health, wellbeing and quality of life of care home residents.
- Care home residents' access to and/or engagement in outdoor activities and mobility.

Population: Studies were included if they focused on older care home residents. These were defined as people aged 60 and over who are permanently resident in care homes due to functional dependency. No exclusion on gender or ethnicity. Studies of mixed populations were included provided that at least one of the populations was comprised of care home residents.

Country: No exclusions were made based upon which country the research was conducted in.

Study design: Studies describing primary research were included, plus literature and systematic reviews where the included studies met the review inclusion criteria. Studies which described project evaluations without a formal research component were excluded.

Study focus: All studies which explored outdoor activities and mobility in care homes were included.

Outcomes/findings: Studies which measured the health, wellbeing or quality life of care home residents or provided

commentary regarding residents' access to or engagement in outdoor activity and mobility were included.

Language: Only English language articles were included.

Publication date: There were no restrictions for dates of publication and databases were searched from inception.

Publication type: Only studies published in peer-reviewed journals were included. All other material, e.g., books, opinion pieces, good practice guidance and unpublished theses were excluded.

2.3.6 Search strategy

The next stage of the mapping process involved operationalising the definitions of terms and concepts into relevant search terms. As the review aimed to map any findings and methods used in the topic area, there was no possibility of limiting the searches by specific health-related outcomes or research designs. The remaining options were to search by population type (care homes for older people and variants) and the topic of interest which was broken down into the component terms of: 'outdoor', 'activity' and 'mobility'.

Considerable time was spent reviewing the controlled language tools for each database and a list of search terms was produced for each database, denoting whether each term had a Medical Subject Heading (MeSH) or subject heading or should be searched as a

keyword (or both). The supervisory team agreed on the search terms to be used. Taking account of the inclusion and exclusion criteria, search strings were developed and then tested on the Medline and CINAHL databases, using a combination of MeSH and subject headings, sub-headings, keywords, truncation and Boolean operators. The resulting topic coverage was evaluated, and the search strings were modified as appropriate and then adapted for the remaining databases.

For population type, MeSH were used for Medline and subject headings were used for Embase, CINAHL, PsycINFO, AMED, and ASSIA. Social Care Online does not index using subject headings so relevant keywords were identified. Table 2 shows how the population terms were adapted for each database.

Table 2: Population search terms by database

Database	Population search terms	
	MeSH/subject headings	Key words
Medline	Residential Facilities Nursing Homes Long Term Care Homes for the Aged	
Embase	Residential Facilities Nursing Homes Long Term Care Homes for the Aged	
CINAHL	Residential Care Residential Facilities Nursing Homes Skilled Nursing Facilities Long Term Care	
AMED	Residential Facilities Nursing Homes Long Term Care Homes for the Aged	
PsycINFO	Nursing Homes Residential Care Institutions	
ASSIA	Residential Home* Residential care Nursing Home* Long Term Residential Care* Older People	Care Home* Older Adult* Older Person*
Social Care Online		Care Home Residential Home* Nursing Home* Long term care AND Older People Older Adult* Older Person Old Age*

Not all of the search terms for 'activity' and 'mobility' corresponded with MeSH or subject headings so keywords were identified for all of the databases. Where terms did map to subject headings, these were included in the search. Table 3 shows the search terms used to represent 'activity' and 'mobility'.

Table 3: Search terms used for 'activity' and 'mobility'

Keyword	Terms with MeSH/subject headings
Activit*	
"Activit* of daily living"	Activities of daily living
"Meaningful adj1 activit*"	
"Physical adj1 activit*"	
Exercis*	Exercise
Mobili*	
Walk*	Walking or dependant ambulation
Wheelchair*	Wheelchair
Leisure	Leisure activities
Recreation*	Recreation
Shop*	
Hobb*	
"Day trip*"	
Excursion*	
Outing*	
"Occupational therap*"	Occupational Therapy/Therapist
Rehabilitat*	Rehabilitation

None of the search terms identified for the 'outdoor' category corresponded with MeSH or subject headings. These were subject to keyword searches across all of the databases. Table 4 shows the search terms used to represent 'outdoor'.

Table 4: Keyword search terms used for 'outdoor'

Keyword
Outdoor*adj1 area* OR space* OR environment*
"Out-of-home"
"Outside-the-home"
Outside adj1 area* OR space* OR environment*
Open adj1: area* OR space*OR environment*
Green adj1 space* OR environment*
Greening
Green* adj gym*
External adj1 space* OR environment*
Natural adj1 environment*
Restorative adj1 environment" *
Garden*
Park*
"Indoor*outdoor*"
Homebound
Housebound

2.4 Method

2.4.1 Search methods

All databases were searched from inception to March 2015 and limited for English language. For CINAHL, Medline citations were excluded. For each database, all variant terms for care homes were combined with the OR command. For ASSIA and Social Care Online the OR command was used to combine the variant terms for older people and these results were then combined with the care home terms using the AND command.

For each database, the terms for 'activity' and 'mobility' were combined with the OR command. The terms for 'outdoor' were combined with the OR command. The results from each category were then combined with the AND command to produce the final search results for each database.

All of the search results were imported into EndNote by citation and abstract. Duplicates were deleted manually, and the remaining abstracts were screened against the inclusion/exclusion criteria. Full text articles were retrieved for those deemed as initially meeting the inclusion criteria. Literature and systematic reviews were not excluded, and the bibliographies were screened to identify relevant titles. Abstracts were then reviewed, and full text articles were retrieved and retained if they met the inclusion criteria. The abstracts of relevant titles were screened and where relevant, full text articles were sourced and retained if they met the inclusion

criteria. For each article included in the review, forward citation chaining was conducted, that is, other literature citing the article was reviewed.

2.4.2 Keywording strategy

Based on the review aims and objectives, a keywording strategy was developed with the supervisory team. To ensure the relevance and utility of this framework, PL, AG and NC used a pre-prepared spreadsheet when second reviewing the full-text articles. After piloting, several categories were added, including reporting guidelines which was intended as a measure of quality of control, plus intervention-related data (numbers and attrition), to aid comprehensiveness. Table 5 shows the finalised keywording tool which included 11 main categories and 19 sub-categories.

It is not routine in systematic mapping reviews, to do more than simply complete the keywording framework in order to map the literature. A conscious decision was made, however, to identify and describe key outcomes and findings of each of the studies to inform subsequent parts of this thesis. It was agreed that the data would be described in tabular/graphical and brief narrative form using this amended framework. Disagreements regarding the coding of articles and whether the inclusion criteria were met were resolved by consensus.

Table 5: Keywording tool

Main categories	Sub-categories
Year of publication	
Country of origin	
Method types	
Reporting guidelines	inclusion/exclusion criteria
Setting	types
	number of facilities
Participants	number of resident subjects
	resident demographic data
Outdoor location of study	
Interventions	location
	type
	provider
	outdoor component of intervention
	target
	outcome measures
	intervention arm
	control (yes/no, type, number)
	attrition
	findings
	follow up
Descriptive Studies	aim
	health, wellbeing and quality of life findings
	outdoor activities
Frequency of outdoor use	
Barriers to outdoor use/activities	
Total: 11	Total: 19

2.4.3 Map structure

Following the SCIE systematic map reporting protocol[89], the map results have been structured as follows: search results, map composition, limitations in the map, gaps in research and implications of the map. In this section, the map findings and gaps in the evidence base were used to inform the research question and subsequent research activities which comprised the remainder

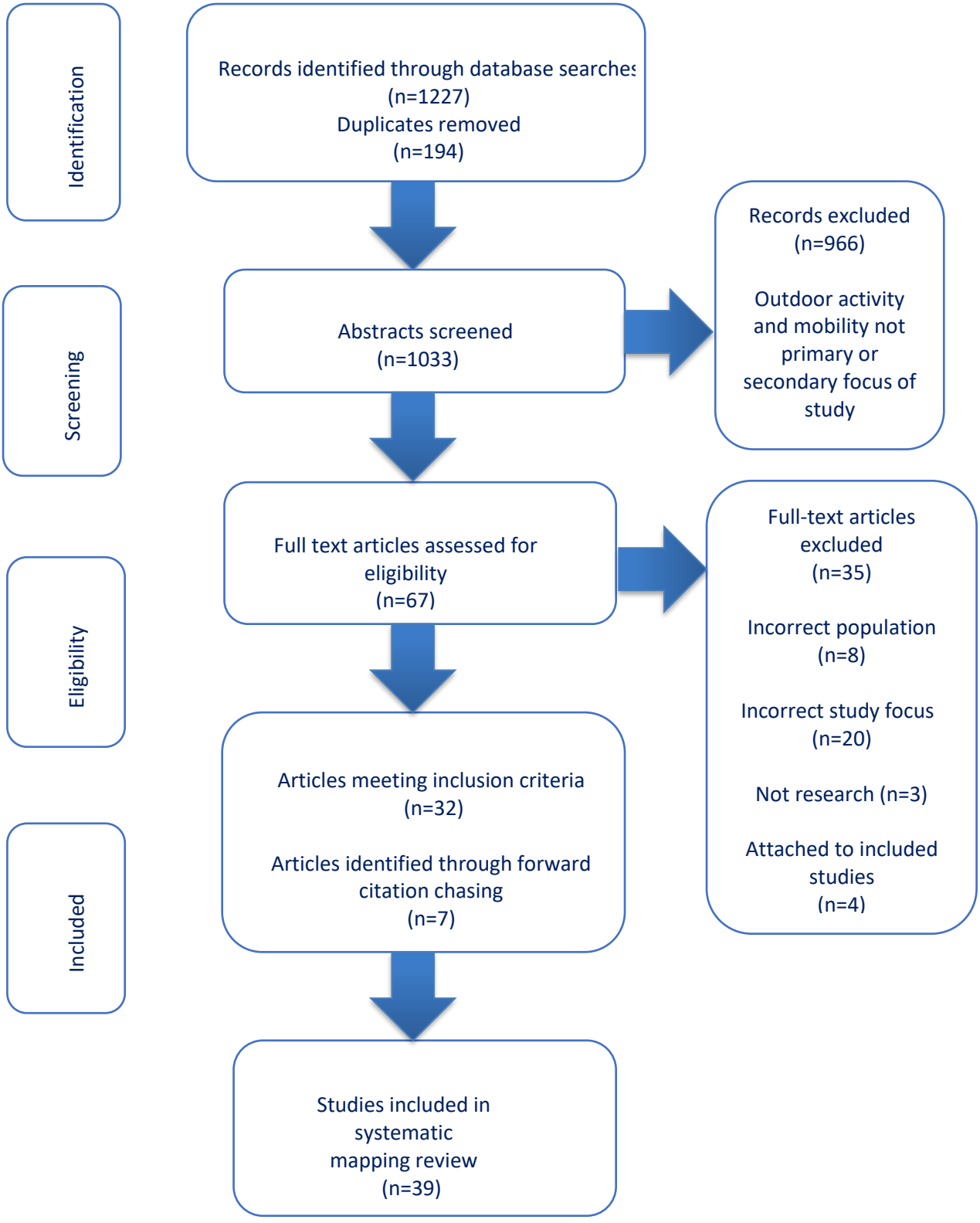
of the PhD. The methodological rationale for these, based on learning from the map, is provided in later chapters. The map concludes with a statement about what it was used for.

2.4.4 Search results

Figure 1 shows a PRISMA diagram with the systematic mapping review results. 1227 records were identified from the database searches and after manually removing 194 duplicates, 1033 abstracts were screened against the inclusion and exclusion criteria. 966 records were excluded. A significant number were excluded across multiple categories, but all were excluded because outdoor activities and mobility were not a primary or secondary focus of the studies. 67 abstracts were identified for full-text review and 35 were excluded. Forward citation chasing was conducted on the remaining 32 articles and seven met the inclusion criteria.

Ten literature and/or systematic reviews were captured by the searches, but none directly addressed the map questions. In total, 39 articles were included in the review. These are summarised in Appendix 1.

Figure 1: PRISMA diagram for systematic mapping review

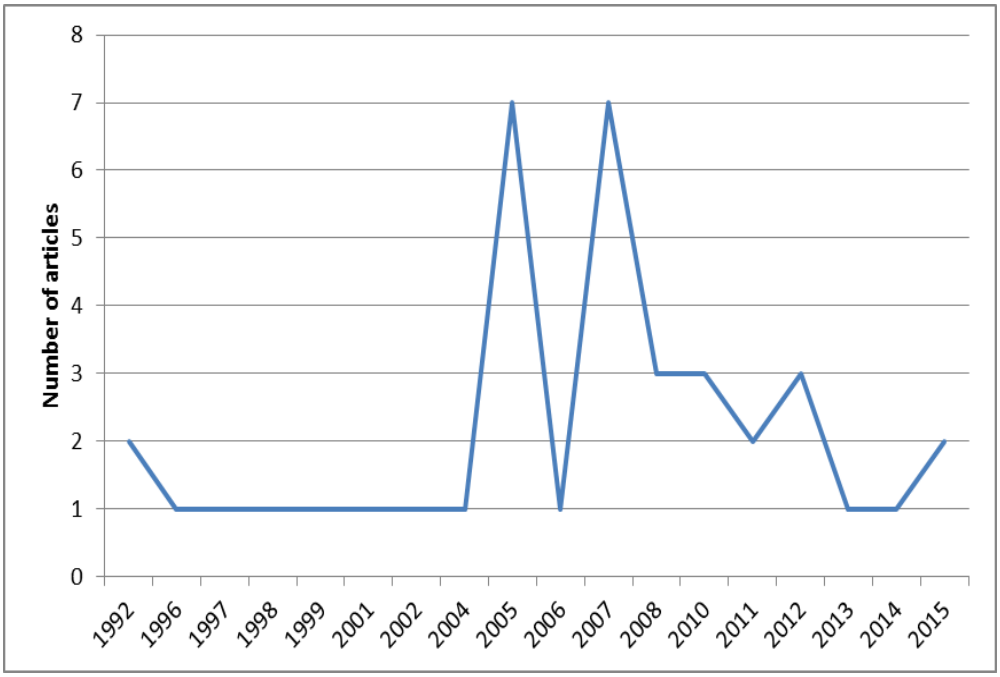


2.5 Results - map composition

2.5.1 Year of publication

Publication dates ranged from 1992 to 2015. The years with the most articles were 2005 and 2007 with seven articles each. Figure 2 shows the publication rate by year.

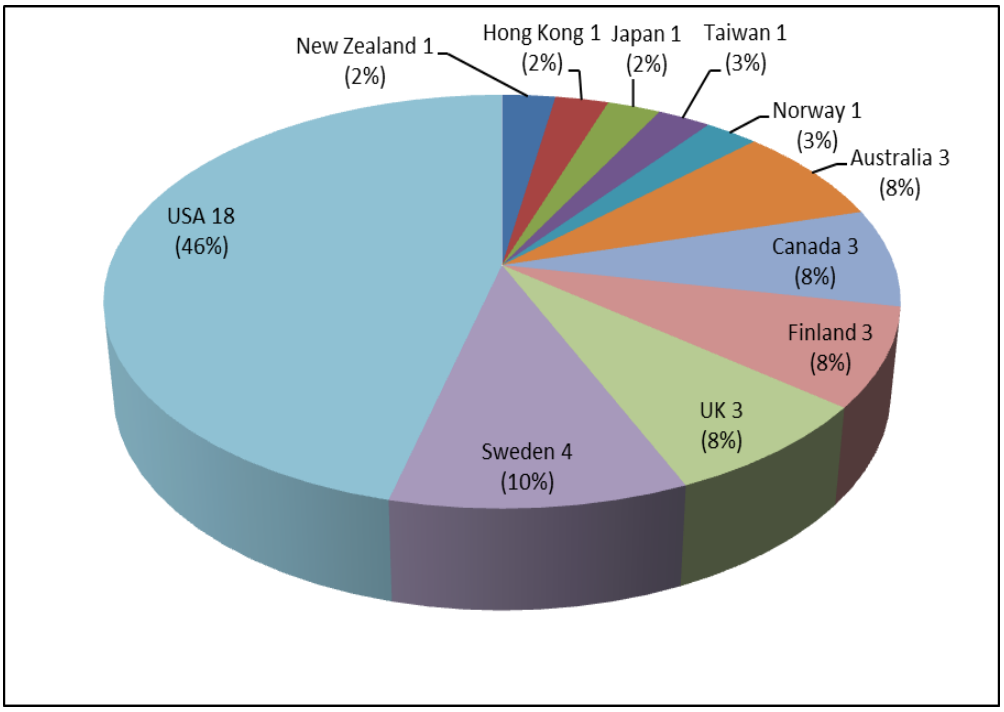
Figure 2: Number of articles published by year



2.5.2 Country of origin

The majority of articles were published in the USA (18) followed by four in Sweden, three in Australia, Canada, Finland and the UK. These findings are summarised in Figure 3.

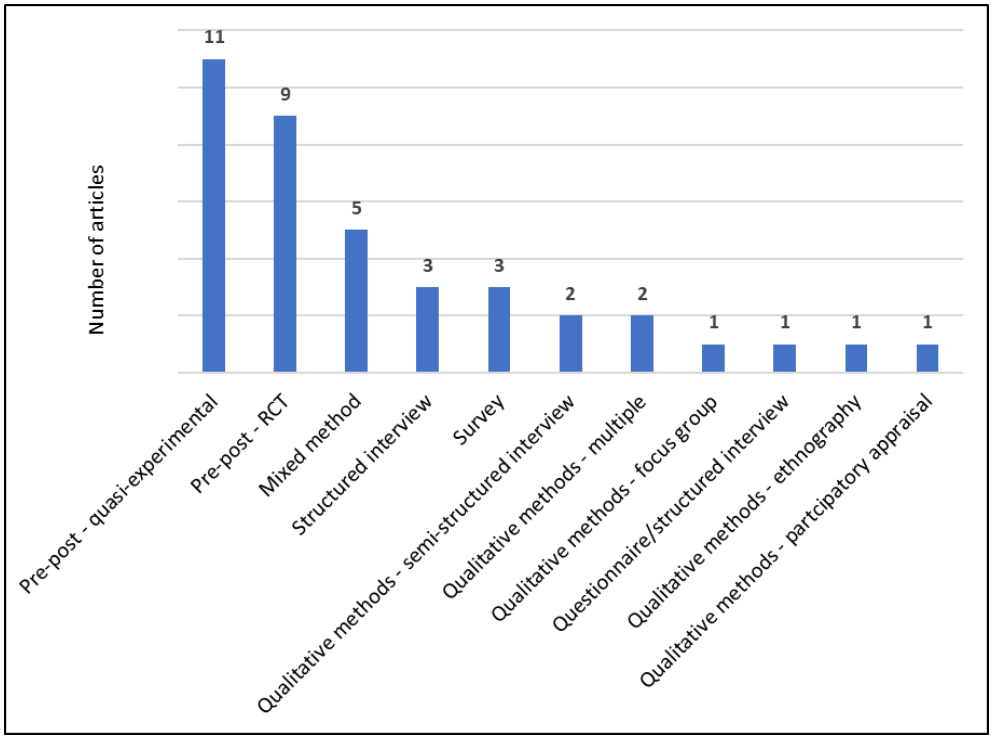
Figure 3: Number of articles published by country



2.5.3 Methods

Figure 4 demonstrates a breakdown of study methodology by number and percentage. There were 20 pre-post studies; nine randomised controlled trials (RCTs) and 11 quasi experimental studies (one of these was a prospective cohort study). There were 19 descriptive studies. Of these, seven studies used qualitative methods. Five articles reported on quantitative and qualitative mixed methods, three on surveys, three on structured interviews and one on questionnaires/structured interviews.

Figure 4: Number of articles by study methods



2.5.4 Reporting guidelines

The literature reviewed was reported to a variable standard and where applicable, the key reporting guidelines specified by the EQUATOR (Enhancing the QUAlity and Transparency Of health Research) Network were used as a measure of quality of reporting[99]. The EQUATOR Library provides an up-to-date collection of reporting guidelines, policy guidance and articles related to health research reporting.

For the purposes of the map here, only guidelines with itemised checklists were used. Where EQUATOR recommended a checklist for a given methodology identified in the study, it was used to appraise quality as part of the systematic mapping review.

There were no itemised quality checklists for postal surveys, questionnaires, structured interviews, mixed methods and qualitative methods that were not interviews and focus groups. Therefore, of the 39 studies, 13 used methods not currently covered by guidance with itemised checklists in the EQUATOR Network. Of the remaining 26 articles, only five structured their report according to current reporting standards.

Four out of nine articles adhered to the CONSORT (Consolidated Standards Of Reporting Trials) guidelines[100]. One out of ten articles adhered to the TREND (Transparent Reporting of Evaluations with Non-Randomised Designs) guidelines[101] which are closely aligned to the CONSORT guidelines. Of those articles that did not adhere to these guidelines, there were various issues of reporting including: inadequate descriptions of the recruitment process, lack of sample size calculations, inadequate description of allocation and randomisation procedures, lack of diagrams reflecting the flow of participants through the studies, inadequate descriptions of blinding procedures, inadequate descriptions of the intervention, plus how this was delivered, and lack of data regarding intervention adherence.

None of the five interview and/or focus group study articles adhered to the COREQ (Consolidated Criteria for Reporting qualitative Research) guidelines[102]. The only article reporting an internet survey did not conform to most items in the CHERRIES (Checklist for Reporting Results of Internet E Surveys)

guidelines[103]. Finally, one article reported a prospective cohort study, and this did not adhere to the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) guidelines. Eligibility criteria and the number of participants were not provided and the rest of the report either omitted data or provided inadequate descriptions for most items in the guidelines.

Overall, 33 out of 39 studies provided inclusion criteria and of these, eight also provided exclusion criteria. Six studies did not report inclusion and/or exclusion criteria.

2.5.5 Types of setting

There is no universal definition of 'care homes for older people' and this was reflected in the articles which revealed 11 different descriptors. The most frequently used term was 'nursing home' (19). There were 1046 residential facilities involved in the studies. Four articles reported on mixed site studies. Of these, all included day centre settings and one also included people with dementia living in their own homes.

2.5.6 Participants

2974 resident participants were involved in the studies, although four articles did not report the number of resident participants. Three of these were descriptive studies and one was the prospective cohort study. There were no resident participants in

five out of the 39 studies. Table 6 shows the number of facilities and resident participants by type of setting.

Table 6: Types of setting and number of facilities and residents

Type of setting	**Number residential facilities**	**Number of resident participants**
Nursing home	196	1692
Aged care facility	51	602
Care home	11	286
Dementia unit	33	154
Residential care home	5	149
Long term care facility	323	40
Multi-level care facility	1	17
Residential complex for ageing	1	17
Geriatric home	1	17
Continuing care retirement community	398	0
Assisted living facility	26	0
Total	1046	2974

Table 7 shows the number of resident participants by country. The greatest number was reported in the USA articles (1567). There were over five times more resident participants in the USA studies than in the UK studies (312). 116 of the UK residents were participants in an evaluation of an occupational therapy intervention and outdoor activities were not the main focus of the study or evaluated separately.

Table 7: Number of resident participants by country

Country	Number of resident participants
USA	1567
Australia	638
UK	312
New Zealand	149
Finland	125
Taiwan	77
Sweden	37
Japan	28
Canada	27
Hong Kong	14
Norway	0
Total	2974

Of the 34 articles reporting on resident participants, there was considerable variation in the amount and type of baseline information reported including: gender, mean age, ethnicity, length of stay, walking ability/aid, medications, diagnoses, marital status, education, level of cognitive functioning, level of activities of daily living functioning and Body Mass Index (BMI).

Gender and mean age were the only consistently reported variables. 15 articles provided gender data for the total sample. There were 932 (68%) female and 437 (32%) male resident participants. For 1695 participants, gender data were incomplete or omitted. 23 out of 34 articles provided a mean age for the total number of resident participants. The range of mean ages was 77.3 to 86.8 years and the overall mean age was 83.6 years.

2.5.7 Outdoor location of study

The outdoor locations reported in the studies varied. Table 8 shows the type and frequency of outdoor locations by number of articles.

Table 8: Type and frequency of outdoor locations by number of articles

Outdoor location	**Count of outdoor location**
Garden/outdoor area	28
Neighbourhood, garden/outdoor area	4
Neighbourhood, park, garden/outdoor area	2
Park	1
Garden/outdoor area, park, botanical gardens	1
Garden/outdoor area, park	1
Woodlands	1
Neighbourhood	1
Total	**39**

2.5.8 Pre-post studies

Appendix 2 shows the pre-post study characteristics. Not all categories were applicable across all study types, but generally, studies were reported by: intervention description, intervention arm, control, outcome measures, attrition, reason for attrition, follow up and findings. For the outcome measures, see the Glossary of Outcome Measures in Appendix 3. Unless specified, statistical significance in the studies was set at P =<0.05. 15 of the pre-post studies were evaluations of specific or timed interventions and five involved observing residents when they chose to enter the outdoor space after being given access.

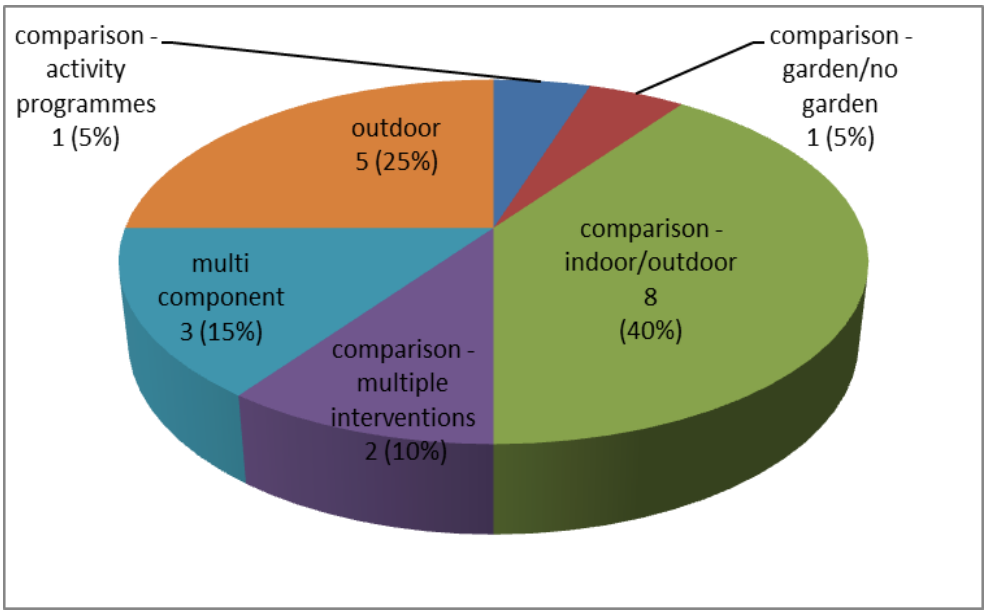
Of the 20 studies reported, the majority were conducted in the garden/outdoor area (17). Table 9 shows the pre-post study outdoor locations by number of articles.

Table 9: Pre-post study outdoor locations by number of articles

Outdoor locations	Count of location of study
Garden/outdoor area	17
Neighbourhood, garden/outdoor area	2
Park	1
Total	**20**

There were a variety of study types reported with the majority being comparison studies. Of these, eight compared the indoor/outdoor environment, two compared multiple interventions, one compared sites with and without gardens, and one compared activity programmes. There were five studies focused on the outdoors only and three multi-component interventions. Figure 5 shows the study types by number and percentage of articles.

Figure 5: Pre-post study types by number and percentage of articles



The majority of the pre-post study personnel were reported as generic research staff (12), but in four studies, researchers were clinicians or other specialists. Only one study involved occupational therapists. Five of the articles reported engaging usual care staff to deliver interventions. Table 10 shows the frequency of pre-post study personnel by number of articles.

Table 10: Frequency of pre-post study personnel by number of articles

Study personnel	**Count of personnel**
Research staff	12
Research occupational therapists	1
Usual care staff	2
Gerontology research nurse/usual care staff	1
Research physical therapists	1
Horticultural therapy facilitators, usual activity facilitators, research staff	1
Usual care/recreation staff	1
not reported	1
Total	**20**

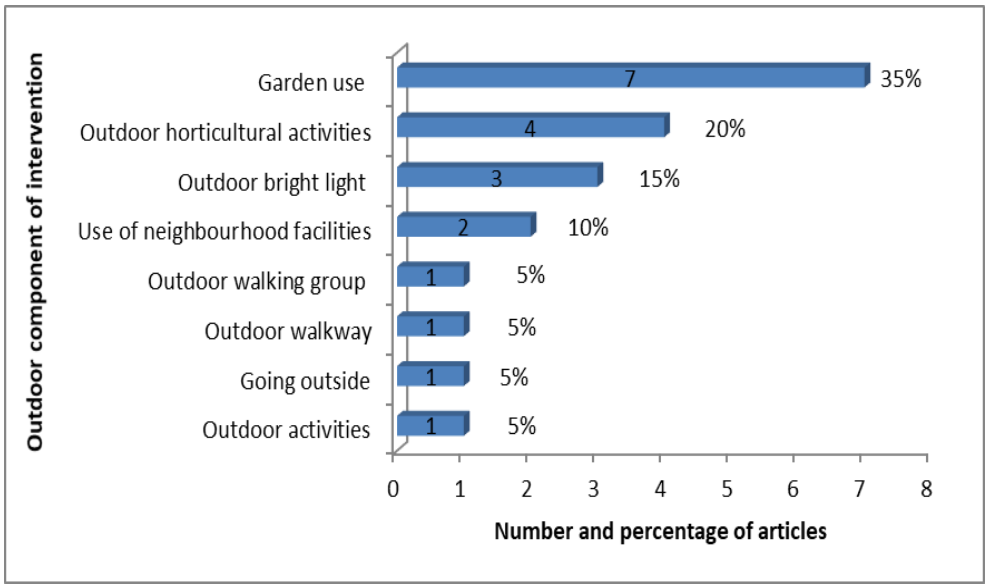
The 20 pre-post studies incorporated a range of outdoor components and in five studies, the outdoor environment was not the primary focus of the study and/or evaluated separately. Two of these studies were evaluations of occupational therapy/functional activity programmes, one compared horticultural activities with traditional activities, one offered 'going outside' as one of 24 non-pharmacological interventions and one offered outdoor group walking as part of an individualised exercise programme, but the emphasis was on group interaction.

Of the remainder, garden use was the most frequent component (seven), followed by outdoor horticultural activities (three),

outdoor bright light (three), outdoor walkway (one) and outdoor activities (one). Of these 15 studies in which the outdoor environment was evaluated in some way, only four incorporated planned outdoor activities. Although an element of all of these studies occurred outdoors, the variables of interest differed. In two studies, the comparison of the outdoor environment with indoors was of interest. One study sought to determine the impact of horticultural group activities as compared with other group activities. One study aimed to establish if gardening activities in outdoor environments were an appropriate rehabilitation modality for nursing home residents with dementia.

Of the 11 studies that did not incorporate planned outdoor activities, the focus was on access to and/or time spent in the garden/outdoor area. In six studies, participants were actively escorted to this area and experienced some level of interaction with researchers (five) or care staff (one). The remaining five studies were observational, in which access to the outdoor space was provided and residents were observed for the period they chose to go outside. In all 11 articles, it was unclear if other persons were present in the garden/outdoor areas (staff and relatives) or what happened when relatives or others visited. In four of the articles, exposure to bright light was reported to be the variable of interest whilst for the remaining seven, the impact of garden/outdoor area use was of interest. Figure 6 shows the outdoor component of all of the pre-post studies by number and percentage of articles.

Figure 6: Outdoor component of pre-post studies by number of articles



There were 29 distinct health and/or wellbeing and/or quality of life outcomes for resident participants. The most commonly cited outcomes were behavioural (11). The mean number of outcomes per study was 2.3. Table 11 shows the frequency of outcomes by number of articles.

Table 11: Frequency of outcome by number of articles

Pre-post study outcomes		Count of study outcomes
1	Behaviour	11
2	Sleep	3
3	Quality of life	3
4	Mood	2
5	Affect	2
6	Depression	2
7	Concentration	1
8	Mobility	1
9	Level of assistance eating/drinking	1
10	Confusion	1
11	Dependency	1
12	Activities of daily living	1
13	Participation in social conversation	1
14	Life satisfaction	1
15	Perceived efficacy in behaviour change/interest	1
16	Blood pressure	1
17	Physical function	1
18	Participation in activities	1
19	Anxiety	1
20	Adaptive behaviour	1
21	Physical activity	1
22	Falls	1
23	Frequency of PRN medication	1
24	frequency of intervention choice	1
25	Salivary cortisol level	1
26	Health status	1
27	Vitamin D levels	1
28	Heart rate	1
29	Independence with intervention activities	1
Total		**46**

The length of session or 'dose' of the studies was not applicable in five of the studies which conducted observations when participants chose to go outside. In two studies, the interventions were individually tailored and therefore varied. For the remaining 12

studies, the dose ranged between 16 and 70 minutes. The duration of the intervention or observation period was reported for all interventions and ranged from one day to one year. Table 12 shows the frequency of intervention dose by number articles and Table 13 shows the duration of the interventions by number of articles.

Table 12: Frequency of intervention dose by number of articles

Intervention dosage	Count of Dose
N/A (observation studies)	5
30 minutes daily	2
30 minutes x 2 weekly	2
20 minutes x 2 weekly	1
60 minutes	1
2.5 hours	1
30 minutes x 2 daily	1
60 minutes daily	1
Variable - daily	1
Variable	1
x 2 sessions daily	1
16 minutes	1
30-40 minutes daily x 5 days	1
40-70 minutes x 3 weekly	1
Total	**20**

Table 13: Duration of interventions, by number of articles

Duration of study	Count of Duration
6 weeks	3
1 year	4
10 days	2
6 months	2
4 weeks	1
50 hours	1
5 days	1
12 days	1
1 day	1
14 days	1
9 sessions	1
2 days	1
20 days	1
Total	**20**

Of the 20 pre-post studies, attrition of participants was not reported in seven studies. In one study, it was unclear if attrition had occurred. Of the 12 articles reporting attrition numbers, 316 participants did not complete the studies. Table 14 shows attrition numbers and frequency of attrition by number of articles. Only one of the studies conducted longer term follow up, which was at three and six months.

Table 14: Resident participant attrition numbers and frequency by number of articles

Attrition data	Frequency	Attrition numbers
Unclear	1	0
None reported	7	0
1	2	2
5	1	5
2	3	6
4	2	8
10	1	10
25	1	25
116	1	116
144	1	144
Total	**20**	**316**

2.5.9 Descriptive studies

Because the review was designed to be broad and inclusive, it was unsurprising that there was considerable diversity amongst the designs, methods, aims, objectives and findings of the descriptive studies. 12 out of the 19 studies focused specifically on gardens/outdoor areas attached to care homes. Of the remaining seven studies, five made some reference to the neighbourhood, four to the park, one to botanical gardens and one to woodlands. The ethnography was the only study not to mention the garden/outdoor area attached to the care home – this study focused specifically on 'neighbourhood' in terms of community integration. The studies investigated a range of phenomena in relation to the use of outdoor space, including experiences, preferences, satisfaction, availability, accessibility and utility, as well as therapeutic benefits and the impacts on health and wellbeing.

The majority of the descriptive studies were architecture/design-focused and 13 of the 19 studies discussed implications and/or made recommendations for design. These studies tended to be conducted by architect, landscape design and health environment researchers. The starting point for all 19 articles was to describe the relevance of garden/outdoor areas or outdoor use to the health, wellbeing or quality of life of care home residents. 14 articles reported benefits directly described by participants. Appendix 4

presents the focus of each of the descriptive studies alongside the reported health, wellbeing and quality findings, where applicable.

All of the descriptive study articles reported on outdoor activities and/or mobility, although two did not provide a breakdown of the activities. Due to the diversity amongst the articles and the differing terminology in use, it was necessary to categorise some activities. The most frequently reported activity was walking (13). Ten articles referred to residents 'socialising' but this term was not clearly defined. Where 'interaction' was referred to, this was categorised as socialising, but where distinct terms were given e.g., talking, family visits, attending social gatherings etc., these were coded separately.

Ten articles reported on residents 'observing surroundings'. This category included references to looking at scenery, plant life, other people, birds, and animals plus 'interacting with nature' and sensory stimulation, for example, smelling and touching plants/flowers. Nine articles referred to sitting, seven to gardening and six to visits with relatives. 'Neighbourhood visits', which included any activities done in the community for instance, shopping, visiting hairdressers, eating out, attending church etc., and 'day trips' were each cited in three out of 19 articles, reflecting that the majority of the studies were focused on the outdoor environment immediate to the care home. Table 15 shows the

frequency of outdoor activities by number of articles where two or more were reported.

Table 15: Type and frequency of outdoor activities in descriptive studies by number of articles

Outdoor activities	Count of outdoor activities
Walking	13
Socialising	10
Observing surroundings	10
Sitting	9
Gardening	7
Relatives visiting care home	6
Sunning	5
Exercise	4
Social gatherings	4
Talking	4
Drinking tea/coffee	4
Getting fresh air	3
Day trips	3
Neighbourhood visits	3
Parties	3
Barbecues	3
Golf	2
Eating out	2
Picnics	2
Reading	2
Eating	2
Reading newspaper	2
Meals	2
Reflection	2
Reported but not specified	2
Relaxing	2
Pet care	2

2.5.10 Frequency of outdoor use

21 out of 39 articles referred to frequency of outdoor use in some way. Of the 18 that didn't, 11 were pre-post studies. In two of the 11 cases, this was not applicable because the studies were of one-

off visits to the outdoors. Three of the studies were multi-component interventions and did not aim to evaluate outdoor use/activity. One study compared activity groups and although some sessions were conducted outdoors, this was not a variable of interest and environmental differences were not controlled for. For the remaining five of these studies, which aimed to measure the impact of outdoor use/activities in some way, the reporting of frequency data related to intervention adherence would have been appropriate. Due to the diversity of study aims and methods, the frequency data that was provided was not comparable.

2.5.11 Barriers to outdoor use

Twenty-five articles reported on the barriers and challenges of residents using outdoor spaces. In the case of the intervention studies, the barriers cited tended to be in relation to the outdoor component of the intervention, rather than outdoor use per se. 14 of the articles did not report any barriers at all. Due to the diversity amongst the articles, it was necessary to categorise the barriers. Overall, barriers were cited 84 times in 25 articles.

Regarding the broader environment beyond the care home, weather was cited as barrier in 15 articles. This included hot, inclement and cold weather and the consequences of weather conditions, for example, snow and ice.

In relation to the care home environment, organisational issues were the most frequently reported (29), followed by physical environment (26) and resident characteristics (14).

In terms of organisational issues, lack of staff support/time was cited 14 times and mainly referred to care staff being too busy and not having the time to accompany residents outdoors. These comments came from care staff themselves, residents, relatives and research observations. Ten articles referred to health and safety issues, for instance fire or building regulations which resulted in doors being locked and alarmed. Other issues related to physical safety being compromised, for instance, residents struggling with heavy doors and thresholds, uneven paths and the impact of inclement weather. Staff presence in the outdoor spaces or locked doors were the predominant safety measure. Lack of outdoor programming (3), competing programmed activities (1) and staff attitudes (1) were also reported as barriers to outdoor use.

In relation to the physical environment, 14 articles reported on visual and physical access barriers to the outdoors from inside. For example: lack of visibility of outdoor areas from bedrooms and main communal areas, long distances to exits, poor indoor signage and way finding cues, steps, stairs and lifts, raised thresholds and locked or heavy doors. Twelve articles emphasised outdoor design features that were problematic. These referred to inadequately

designed walkways, uneven paths/garden areas and a lack of various features included: covered areas to provide shade/protection from weather conditions, appropriate seating, private areas, accessibility to gardening activity areas and lighting.

Resident characteristics were also frequently mentioned as barriers and included: limited mobility, dementia and associated symptoms, poor health or feeling unwell, support needs requiring staff assistance, other appointments/commitments and family visits. There were a number of barriers related to individual differences in communication, mood and engagement that may not have been associated with BPSD, e.g., negative/taciturn, depression, fear, lack of motivation, refusals or unwillingness to go outside and weather sensitivity. Three of the pre-post studies mentioned that residents were more 'vulnerable' or dependent than anticipated which impacted on the time of research assistants and the durations of time spent outside.

Table 16 shows the frequency of reported barriers to residents using outdoor spaces, by number of articles.

Table 16: Frequency of barriers to outdoor use by number of articles

Barriers to outdoor space use	Count of barriers to outdoor use
Broader environment	
Weather	**15**
Organisation	
Lack of staff support/time	14
Health and safety issues/regulations	10
Lack of outdoor activity programming	3
Other programmed activities	1
Staff attitudes	1
Sub-total	**29**
Physical environment	
Visual and physical access	14
Outdoor design	12
Sub-total	**26**
Resident characteristics	
Mobility, health, dementia and symptoms, other commitments, communication, mood and engagement, support needs, family visits	11
More dependent (on 1:1 support) than anticipated (intervention)	3
Sub-total	**14**
Total	**84**

2.5.12 Gaps in research

There is a considerable gap in the international evidence-base in the field of outdoor activities and mobility and the health, wellbeing and quality of life of older people in care homes. Despite widespread research evidence of the benefits of outdoor activities and mobility in the general population, this is an under-researched area in care homes for older people.

There were no UK randomised controlled trials with a primary focus in this field and there is a general lack of UK research. UK-specific care home research is important because care is organised differently to that in other countries and other UK care settings, such as, sheltered housing. Important differences include policies which are designed to minimise restraint and promote free movement and resident entitlement to a National Health Service (NHS).

Although there was a paucity of research overall, very few studies investigated residents visiting areas beyond the care home boundaries, despite day trips and visits to the local area being greatly enjoyed and valued by some residents.

The numbers of UK participants in this research field is very low. Thus, the views and experiences of key stakeholders, for instance: care home residents, relatives, care home staff and health and

social care workers are not widely known and accounted for, in relation to outdoor activities and mobility.

There was a lack of participatory or co-production research that involved residents, relatives and care home staff in all stages of the research process. Thus, the outdoor-related research priorities for these stakeholders are as yet, unknown.

Where research has been conducted, much of this has been of such low quality that it has failed to address the areas of concern. Consequently, gaps in the evidence-base remain, for instance:

- There were no economic or process evaluations, so it is not clear if outdoor interventions in care homes are cost effective or how they work, under what circumstances and why.

- None of the studies with a primary focus on outdoor activities and mobility were conducted by researchers affiliated to occupational therapy, a profession considered to comprise primary expertise regarding occupational engagement and functional mobility for people in care homes[104].

- None of the intervention studies aimed to support care homes to optimise residents' access to and engagement in outdoor activities and mobility in the care home outdoor spaces, despite international consensus on the barriers, and these being widely documented.

- Insufficient attention was given to the processes or mechanisms that might render care home characteristics as

more or less constraining. For example, care worker and resident attitudes, reasoning and relationships.

2.5.13 Implications of the map

The map has achieved the stated aims. It has provided an overview of the research evidence that has investigated the health, wellbeing and quality of life of older care home residents in relation to outdoor activities and mobility. It has also identified gaps in the evidence base. There are a range of implications for future research in this field.

The impact of outdoor activities and mobility on the health, wellbeing and quality of life of care home residents remains unclear, therefore, more research is required.

The evidence base is characterised by disparate aims and objectives, ill-defined variables of interest and some conceptual confusion between the effects of 'spending time' outdoors and outdoor activities. The potential benefits conferred by various activities, such as: freedom from the indoor environment, exposure to outdoor bright light, walking, gardening activities, interaction/socialisation, sensory stimulation and exposure to natural or other features of the garden space might differ, thus it is important to clearly identify what exactly is being measured and how.

Residents who use outdoor spaces engage in activities that range from those described as 'passive', such as, sitting, observing

surroundings, eating and socialising to those described as more active, including, walking, gardening and exercising. The benefits and the processes or *causal mechanisms* that impart these remain unclear, but may differ relative to this continuum of engagement, and also relative to differing stages of dementia progression.

Some residents do not get out as much as they wish and are dissatisfied with this, however, these are mainly the views of relatives, care workers and those resident participants with sufficient cognitive ability to participate in interviews/focus groups. Given the prevalence of moderate to advanced dementia in care homes and the impact of disease progression on language and communication, it is likely that the experiences of a significant proportion of residents are vastly underrepresented in this area of research.

There is a strong theme in the literature that resident access to and engagement in outdoor activities and mobility is considerably limited, both in terms of the care home outdoor spaces and beyond.

Resident access to and engagement in outdoor activities and mobility in care home outdoor spaces varies significantly from home to home and this is reflective of the heterogeneity of care homes characteristics.

There has been little concerted research effort amongst health rehabilitation disciplines in the UK to increase resident opportunities to participate in outdoor activities (passive or otherwise) and mobility, or to support care homes to do this.

2.5.14 Limitations in the map

The map is a resource in its own right and the bibliography of sources can be used as a resource for those conducting research or service development in this area. Full methodological quality assessment of the literature has not been undertaken. Users of the map bibliography are advised to conduct quality assurance of studies if findings are to be utilised.

Some proportionate quality assurance of the coding process has taken place. However, due to the subjective nature of the material and resource constraints, keywording was open to individual interpretation as not all articles were coded by a second reviewer.

The review has mapped and categorised the research literature in the field of outdoor activities and mobility in care homes for older people. It comprises relevant pre-post and descriptive studies and as such, it does not reflect all of the work undertaken in this field, including: project reports and evaluations, good practice guidance, policy documents, commentary, books and unpublished theses.

The map reflects literature published in peer-reviewed, English language journals, indexed by selected USA and UK electronic databases. It is likely that the results were biased by the limitations imposed. The majority of the included articles were anglophone and there was a predominance of articles published in the USA.

An omission from the UK database selection was the British Nursing Index (BNI), a UK database providing coverage of over 400 UK journals and other English language titles. Given the multidisciplinary nature of the field, it is plausible that outdoor-focused studies have been indexed in BNI nursing journals not covered by the other databases.

The search strings were designed to be comprehensive and sensitive. Sensitivity was ensured by using search terms that returned citations related to the topic. This strategy was chosen over a specific search strategy that returns resources only if they are exactly on topic, e.g., "outdoor activity". Citations that were relevant but inappropriately indexed by the database providers may not have been returned by this search strategy.

There were some limitations to coding due to the variable quality of reporting of the articles. It was not possible to provide a full report of resident demographic data, the number of resident and other participants and frequency of outdoor use, where it would have been appropriate to do so.

Gaps in the map may be reflective of some of the limitations described, under-research in the field of outdoor activities and mobility, poor methodological quality of existing research or some combination of all of these factors.

2.5.15 Considerations for further enquiry

Whilst the evidence for outdoor activities and mobility in terms of the health and wellbeing of care home residents is mixed and largely inconclusive, there is considerable international consensus that access to and engagement in care home outdoor spaces is problematic and potentially restricting opportunities for many who might wish to use these spaces. As previously stated and perhaps surprisingly, there is a paucity of published research focused on supporting care homes to optimise outdoor activities and mobility for residents. This is despite frequent reports of like, contextual barriers across differing settings and a proliferation of best practice design literature that describes the features most likely to facilitate outdoor access, utility and satisfaction in long term settings.

Two of the UK studies in the review[105, 106] highlighted a range of constraints in terms of residents outdoor use, which despite the diversity and variation that characterises UK settings, may be widespread and affect residents in similar ways. There is little evidence that UK policy and good practice guidance, which recommends outdoor use as an entitlement within person centred

care practice and also, appropriately designed outdoor spaces, has been enacted. Therefore, whilst there may be a lack of clarity and evidence about the health and well-being benefits of residents' outdoor use, further investigation about access and engagement is considered justified on the grounds that residents are entitled to venture beyond the indoor environment if they wish to do so – and this would be reflective of individualised, person-centred care provision.

In the present evidence-based practice climate, there could be some currency in proposing a health outcomes-focused intervention for evaluation and research of this type is recommended in the Greening Dementia report commissioned by Natural England[107]. The authors suggest that robust, large scale evaluation research is essential in order to quantify the physical and mental wellbeing benefits of time spent in natural environments and greenspaces. This sort of non-pharmacological intervention might prove cost effective over time, by reducing burden on statutory health and social care services.

Aligning with the definition provided by the Medical Research Council (MRC)[108], such outdoor interventions in care homes are likely to be complex, involving a number of interacting components, range of behaviours required, groups and organisational levels and outcomes.

A range of intervention elements, such as: environment and practice culture assessment, care worker training and resident assessment and activity planning are likely to be required to affect the outcomes relevant to removing barriers, resulting in the potentially insurmountable challenge of identifying precisely what might be effective about the intervention. It is posited that for outdoor interventions to be sustainable in the long-term, this would involve enabling care teams to facilitate outdoor use, rather than research assistants.

Complexity skyrockets when factoring in the significant variation amongst care homes and their populations and it is posited that it is highly unlikely that one approach to increasing residents' access to and engagement in outdoor activities and mobility would be similarly effective in all settings, even supposing that most have gardens. Therefore, RCT and quasi-experimental methodology may not be appropriate within this field of research.

If broad-scale practice change in this field is to occur, a greater understanding of existing utility and practices are considered essential to this endeavour. The extent to which UK residents access community facilities and care home outdoor spaces and what they do whilst there is unclear. Furthermore, whilst barriers such as, poor weather, lack of staff time and lack of access might be anticipated and observable in UK settings, the underlying influences and processes that render such contextual features

more or less constraining are unknown and likely to vary between settings.

Further understanding could serve two important functions:

- Inform recommendations to support a range of care home stakeholders to increase residents' opportunities to spend time outside.

- Provide a starting point for the development of future non-standardised interventions to promote outdoor use, although such development is beyond the remit of this PhD programme.

2.6 Summary

By mapping and categorising the research evidence for outdoor activities and mobility in relation to the health, wellbeing and quality of life of care home residents, the gaps identified can be used to facilitate the planning of relevant primary research. There is insufficient primary research in this field to recommend further systematic reviews.

The map bibliography is available for use as a research tool in this topic area.

Within the context of this thesis, the map was utilised to develop a suitable research aim and to plan a programme of research. To identify differing ways to increase opportunities for UK residents to

access and engage in outdoor activities and mobility, it was considered important to address the knowledge gap about current outdoor use patterns, the underlying processes which influence these and the contextual factors that enable or constrain these processes. To achieve this, an exploratory investigation was planned: the Rehabilitation for Outdoor Activities and Mobility in care homes study (ROAM).

The conceptual and methodological framework for the study is described and justified in the following chapter, which commences with the research question, aims and objectives for the programme of research.

3 Methodology

3.1 Introduction

In the preceding chapter, it was suggested that the methodological approach selected for the programme of research should recognise the importance of understanding the complex and diverse nature of real-world settings. Effective strategies for investigating these and the underlying processes that impact on human behaviour and agency were considered essential to the research endeavour. Realist methodology was selected on the grounds that the conceptual framework and the range of investigatory strategies available were well-suited to the proposed exploratory study, which aimed to address a gap in the evidence base.

In Chapter 3, realist methodology is described and justified. In the first instance, the aims and research objectives of the study are stated. Following this, the key philosophical and methodological implications of using a realist approach to investigate outdoor space use in care homes are considered. The chapter concludes with an overview of the ROAM realist theory development cycle. The methods and results for each phase are reported in consequent chapters.

3.2 Research question:

- In care homes for older people, under what circumstances do residents use the care home outdoor spaces, how, why and to what extent?

3.3 Research aim:

- To provide an explanation for care home residents' outdoor space use and underpin this with a middle-range theory.

3.4 Clinical aim:

- To identify preliminary recommendations to support care home stakeholders to increase residents outdoor engagement.

3.5 Research objectives:

Outcomes

- Identify which residents use the outdoor space(s) of the care home, plus the frequency and duration of use.

- Describe the outdoor activities that residents engage in, and the experience of residents who use the outdoor spaces.

Mechanisms

- Explore the causal influences for residents' outdoor space use.

Context

- Clarify the contextual characteristics that enable or constrain the causal influences on residents' outdoor space use.

3.6 Concepts in Realist Evaluation

3.6.1 Introduction

Founded on scientific realism, realist methodology refers to an approach used to evaluate social programmes, that is, what works, under what circumstances, how, why and to what extent. Originally devised by policy and programme evaluators, Ray Pawson and Nick Tilley[109], the rationale for a realist-informed evaluation methodology pivots on a critique of experimental design for the evaluation of social programmes, in particular, the randomised controlled trial (RCT).

In their seminal text, Realistic Evaluation (1997), Pawson and Tilley[109] contended that the evaluation field was characterised by disparate aims and priorities and had failed to deliver productive and cumulative findings. Under the banner of scientific realism, their ambition then, was to develop an alternative, but still scientific approach - realist evaluation. The overall aim is to develop reusable conceptual platforms through identifying, refining, testing and articulating theories about what works across families of policies, programmes and initiatives. Thus, removing the need to reinvent the wheel for each supposedly 'new' social problem[109-111].

Over time, Pawson has gone on to use the principles of realist evaluation to develop methodological guidance for realist analysis of secondary data sources. The terms 'realist review' and 'realist synthesis' are used synonymously. In response to the growing popularity of realist approaches and a need for practitioners to share knowledge and experiences in relation to this relatively new approach, two project groups were created: Realist and Meta-narrative Evidence Syntheses - Evolving Standards (RAMESES I and II), both funded by the United Kingdom's National Institute of Health Research's Health Services and Delivery Research Programme.

Their objectives were to produce quality and reporting standards and training materials for realist review (RAMESES I)[112] and realist evaluation (RAMESES II)[113]. The project website also hosts an international online discussion forum[114] which is monitored by members of the groups and other experts. The forum is used extensively by PhD students, many of whom are embarking on their first realist project, as was the case for this author. For this PhD, expertise was sought via the forum on a number of occasions. In the first instance, this was to clarify whether a methodological approach used for programme evaluation was suitable for investigating prevailing outdoor use patterns, conditions and processes (referenced below).

3.6.2 Rationale for the ROAM study

As indicated by the research aim, the programme of research for the ROAM study did not seek to theorise about the success or otherwise of programmes or interventions that have aimed to optimise care home outdoor space use for residents living with dementia. As far as the author knows, there are no published examples of interventions that could be included in a realist synthesis and at present, there are no known candidates for realist evaluation. Hence, it was clear from the outset that the study could not claim to be a realist evaluation or synthesis as described.

Although this might seem somewhat incongruous with the raison d'etre for the methodology, it was speculated that using the context-mechanism-outcome (CMO) explanatory triad, integral to Pawson and Tilley's approach[109], might provide a useful framework for understanding existing outdoor use patterns (outcome), the underlying processes (mechanism) which influence these and the conditions (context) that enable or constrain these processes.

The framework was considered well-suited to an occupationally-focused investigation, given that dominant models of occupational performance (1.3) are reflective of the stratified nature of reality, in terms of both structure and agency. Whilst such models do not necessarily subscribe to particular epistemological or ontological positions[23], occupational performance and engagement are

considered to result from a transaction between multi-layered environmental factors and agents. These comprise both observable characteristics, such as, the physical environment, mobility or dementia, and also unseen processes, including, culture, reasoning, intentions and motivations.

Understanding the prevailing social conditions of the evaluation context is a fundamental pursuit in realist enquiry and an essential element in theorising about how programmes might work[109]. Given that currently, there is not enough known about residents' outdoor space use to determine whether wide-scale practice change in this area is relevant or feasible, the programme of research was conceived as an exploratory investigation of the prevailing care home context, processes and outcomes relative to residents' outdoor use. Hence, the study sought to identify, refine, test and articulate theories regarding prevailing conditions and processes rather than programmes.

As will be evident, the methods of realist enquiry were adhered to as closely as possible, although these were not conceived to be prescriptive or rigid. In the introduction of his most recent book, Pawson[115] acknowledges the increasing popularity of the approach in terms of the growing number of realist studies being conducted, the RAMESES community of practice, feedback from practitioners and methodological developments. Following this, he goes on to clarify, progress and extend key realist themes. In this later work,

Pawson is more explicit about his specific philosophical influences *and* objections within realism - a broad logic of enquiry grounded in the philosophy of science and social sciences.

Realism is regarded by some as the dominant post-positivist perspective and occupies a central position between the traditional epistemological poles of positivism - scientific knowledge is founded on observations testable via systematic experimentation and constructivism - social reality is a construction of the meanings of actors and there is no external reality beyond this[116].

Over time there has been much divergence within realism, with scientific realism and critical realism representing two distinct schools of thought. Nonetheless, there is broad epistemological consensus that there is an external reality which exists independently of our knowledge and beliefs about it and which is in principle, knowable. However, objective or certain knowledge about the world is impossible, with no one version of scientific truth being more legitimate than any other. As all theories about reality are grounded in particular worldviews, knowledge can only ever be partial and will always be fallible, that is, open to correction in light of further theoretical and scientific progress[117].

Whilst the key tenets of realist philosophy may be contended by positivists, constructivists, post-modernists and others[118], it is beyond the scope of this thesis to explore the broader critiques of

realist epistemology, ontology and methodology. Enduring philosophical quandaries such as the structure-agency debate or whether there can be such a thing as a social science will not be resolved here. In any case, realism is sufficiently contested from within, therefore, it is suggested that there is more value in focusing on these debates as they relate to realist evaluation, and in turn, as they relate to the programme of research central to this thesis. In the first instance, the realist perspective regarding the nature of social reality is discussed. Following this, a critique of the key concepts in realist evaluation is provided, including how these were applied and utilised in the ROAM study.

3.6.3 Embeddedness

When describing the social systems that programmes are inserted into, Pawson refers to the realist concept of embeddedness to elaborate that human action occurs within a range of social processes, or in realist terms, the stratified nature of social reality[109]. The notion of a stratified reality was first advanced by philosopher of science, Roy Bhaskar, relative to theorising about scientific laws and experimentation in the natural world[119].

Using transcendental arguments, Bhaskar considered what must be the case epistemologically for scientific practice to occur, referring to this as the 'transitive dimension'[119]. Focusing on the practice of scientific experimentation, Bhaskar considered whether

the laws of physics are discoverable through regimented observational procedures. He noted that laboratory experimentation seeks to replicate a set of processes that will produce an empirical regularity, that is, a hypothesised mechanism in a controlled set of conditions will be triggered to establish if the anticipated regularity occurs. He then deduced that when a single mechanism is manipulated in this way, it would be illogical to conclude that the resulting laws or tendencies are produced by investigators.

Rather, the laws of nature must be something else, independent of the event sequences implemented in closed systems experimentation. In this sense, experiments can be viewed as a test of scientists' existing theories of underlying generative mechanisms, rather than the means for elucidating objective scientific truth.

3.6.4 The stratified nature of reality

Bhaskar's analysis regarding scientific practice provided the basis for the structure of the 'intransitive dimension', his ontological consideration of what the world must be like for scientific experimentation to be possible. Encapsulating what is observable via the senses, experimentation and also what is not, Bhaskar posited a three-level stratified reality. At the foot of the taxonomy is the 'empirical' level, consistent with traditional empiricism and

pertaining to what is observed and perceived via the senses. Next is the 'actual' level which refers to sequences or events that can be produced under experimental conditions. Finally, is the 'real' level of unseen, underlying tendencies and mechanisms, which science seeks to discover[119]. The concept of naturalism or the degree to which the social world can be investigated using Bhaskar's model for the natural sciences is contested within realism[117].

3.6.5 The possibility of naturalism

Again, Bhaskar uses transcendental reasoning to consider the possibility of naturalism[118]. He argues that whilst it is possible to have a social science in the same sense as a natural science, there are radical ontological differences. For Bhaskar, social structures are both real and causally efficacious. They enable activities which might not otherwise be possible, for instance, the provision of a residential care system for older people. They also act as a constraining force, for example, by enforcing rigid admission criteria for those unable to fund their own care.

In his 'Transformational Model of Social Action', Bhaskar attempts to address the enduring structure and agency problem in social enquiry[118]. He contends that social structures are reproduced by the activities of human agents and that they always have the potential to undergo transformation via individual or collective agency. Consequences are either unintended, for instance, moving

into a care home due to a need for 24-hour care, but in turn, negatively impacting on social care resources, or intentional, for example, via political or social movement mobilisation.

Bhaskar's analytical distinction between 'social structures', which govern the reproduction and transformation of social activities and 'agency', the capacity to act on reasons, intentions and plans, is crucial to his notion of a stratified reality, that is, the emergent properties of structure and agency are irreducible to one another. It is here, where the differences between social and natural structures are emphasised, for whilst social structures are ever-changing and activity, concept and space-time dependent, natural structures are not. This has significant implications for how social structures can be investigated and what can be known about them.

3.6.6 Critical realism vs scientific realism

For Bhaskar, the main epistemological limitation of naturalism is not that social phenomena, such as social structures and mechanisms are unperceivable, but that they are only ever manifest in open systems, where empirical regularities cannot be isolated – this can only occur in experimentally closed systems. In short, Bhaskar argues that the social sciences are denied decisive test situations for their hypotheses. Empirical observation alone can only ever uncover an infinite range of partial and untapped explanations of a constantly-changing social world. Therefore, the

key task of the social sciences is to provide explanations through theoretical inquiry and philosophical critique, which become the analogues for experimental investigation. Theories of social science can only ever be a priori, explanatory and non-predictive and theorising should be 'critical' of the lay thought and actions that give rise to false beliefs. This limitation can be said to be the schism on which realism itself has become divided[111].

Pawson argues that Bhaskar is mistaken in his belief that explanations in social science cannot be scientific, asserting that he has ignored a credible possibility for naturalism, namely, "…the slow confederation of evidence drawn from partially-closed systems"[111](p.70). For Pawson, the 'open systems' nature of the social world does not render it immune to rigorous scientific investigation. In conceptualising realist evaluation in this way, Pawson's argument is not that theory-driven enquiry is a suitable proxy for experimentation. Rather, that the process is sufficiently rigorous to be characterised as scientific, offering a measure of predictive power via discovery of semi-predictable patterns or demi-regularities about 'what works, for whom etc'.

Ultimately, Pawson's scientific realism is underpinned by the notion that adjudication between rival explanations is still a worthwhile pursuit, even though knowledge of unrelenting open systems is fallible, and will only ever be partial[111].

3.6.7 Social Programmes

Pawson describes social programmes unequivocally as social systems, with processes akin to those of the social systems that they are inserted into. They comprise interplays of micro and macro processes, structure and agency and individuals and institutions, however, programme development is often oversimplified, with a lack of attention being paid to the social nature of programmes[109].

Within healthcare, programmes are often described as interventions and Pawson suggests that this term has been used carelessly to conflate a range of ontologically distinct activities, such as: clinical (drug) treatments, healthcare programmes, health service delivery and health policy. His point here is that the revered methods of evidence-based medicine are not appropriate to the entire sphere of evaluation-related activity. To determine methodological utility for those interventions that fall further beyond the clinical treatment category, Pawson argues that a better understanding of their essential features is necessary[110]. His most fundamental realist assertion is that interventions are theories incarnate - they are always based on hypotheses about 'what will work, for whom, to what extent, under what circumstances, how and why?'[111].

3.6.8 Mechanisms

Whilst the limits placed on naturalism are a source of frustration for Pawson[111], Bhaskar is given due appreciation for his inspired vision of a stratified reality and in particular, for elucidating the 'real' level of underlying entities and processes where generative mechanisms reside. Mechanism-based explanations have been employed in a diverse range of disciplines including: physics, chemistry, biology, physiology, neuroscience, psychology and sociology[117]. In Realistic Evaluation, Pawson and Tilley refer to the chemical compositions of gunpowder, molecular motion in gas pressure change and the forces of pendular motion to demonstrate the universal relevance of the mechanism concept[109].

The Medical Research Council (MRC) provide a contemporary example from neuroscience, in which stem models are being grown to represent the brain tissue of people with or at risk of dementia to discover the specific disease mechanisms present in nerve cells. The aim is to develop more effective treatments and potentially prevent disease progression[120]. The term 'mechanism' then, takes its meaning from within disciplines and their particular locus is contingent upon the field of interest[121].

For Bhaskar, mechanisms in the open system of the social world operate in social structures, but for Pawson and Tilley, social mechanisms are "about people's *choices* and the *capacities* they

derive from group membership”[109](p.66). The italicised terms in this statement are juxtaposed with agency and structure, respectively, and the authors go on to contend that programme evaluation can utilise identical explanatory forms, descending down to individual reasoning and ascending up to the collective resources provided. Hence, programme mechanisms are the key to unlocking what it is about a social programme that makes it work. Summarised by Astbury and Leeuw, a contemporary realist interpretation is thus: “mechanisms are underlying entities, processes, or structures, which operate in particular contexts to generate outcomes of interest”[122](p.368).

3.6.8.1 The nature of causation

The concept of the explanatory mechanism is core to the generative theory of causation venerated by Pawson and Tilley, who advance their case for realist evaluation with a critique of successive causation. Subscribing to the Humean notion that causation is unobservable, successionists contend that it is only possible to make inferences based on observable data - it this logic which forms the basis of the classic experimental, or randomised controlled design[123]. Cause and effect occur in constant conjunction, that is, whenever A is present, B will follow, the reasons why an intervention ‘caused’ particular effects are unknowable.

In a RCT of a meaningful activity intervention in care homes, Wenborn et al.[124] found that resident quality of life as rated by staff was significantly lower amongst the intervention groups. From a successionist perspective, it might be concluded that the intervention decreased quality of life. However, the authors speculated whether this outcome was related to changes in the way staff perceived quality of life after being exposed to the intervention. This is perhaps a useful illustration of the challenges of using proxy methods to measure dimensions of health and wellbeing and the methodological challenges of evaluating complex care home interventions with RCT methodology.

In the MRC guidance, RCTs are described as the preferred method for evaluating complex interventions. It is claimed that randomisation, based on statistical probability that differences or confounding variables are evenly distributed across intervention and control arms, is the most robust means to prevent selection bias. Provided that bias is kept to a minimum throughout a trial, the presumption is that any post-intervention differences between groups is attributable to the intervention[86].

In the evidenced-based medicine hierarchy, the RCT takes second place only to meta-analysis, which refers to the statistical collation of results from comparable RCTs via systematic review[86]. Pawson and Tilley argue that both the RCT and systematic review are completely unsuited to programme evaluation because the defining

strategy of random allocation completely ignores the principal factors that influence programme outcomes, namely, programme participants and context. Participants are human agents with the volition, choice and capacity to respond, or not, to the ideas and opportunities offered by a programme, which in turn may be influenced by a range of pre-existing contextual constraints.

This is illustrated by two UK meaningful activity evaluations conducted in care homes[124, 125] which focused on the researchers acting as 'agents of change' in terms of the care home activity culture. Reports of the studies highlighted a range of implementation issues relative to the care home context which had methodological implications for the trial results. These included residents lack of interest and motivation to engage in the activities, low care worker compliance with the training or mentorship provided by the occupational therapist researchers and lack of leadership involvement. The main reasons given for the latter two issues was 'lack of time', which was consistently cited as a barrier to outdoor use in the systematic mapping review reported in Chapter 2.

Pawson and Tilley[109] contend that these sorts of issues cannot be overcome by becoming a more 'sensitive experimentalist' because the unseen, underlying tendencies at the 'real' level of stratified reality are not confounding variables to be controlled for, they are explanatory mechanisms, the stuff of science itself. In the case of

'lack of staff time' in care homes, this can be described as a blocking or countervailing force to how the programme was supposed to work. Even supposing that efficacy is demonstrated by an RCT, the most important questions: 'what worked for whom, under what circumstances, why and how?' remain unanswered.

For Pawson, whilst interventions are active, they are not the causal force for change as presumed by the RCT paradigm, in which human volition is viewed as a contaminator. From the realist perspective, it is stakeholders' active engagement with the resources provided by an intervention that produces effects. This engagement and any triggers for change are ultimately located within the reasoning of stakeholders. Therefore, effects or outcomes can only be properly understood by building knowledge of stakeholder volition, rather than merely calculating and collating statistical effect sizes.

Realist evaluation then, is underpinned by the generative model of causation, in which causal forces or mechanisms are perceived to be within, rather than external to the structures and agents under enquiry.

3.6.8.2 Mechanisms in realist evaluation

The review by Marchal et al.[126] points to the increasing popularity of realist evaluation in healthcare research, but also to some

philosophical and conceptual confusion about mechanisms, resulting in particular consequences for methodological application. Pawson and Tilley[109] offer three key identifiers of a programme mechanism: (i) in accordance with the stratified nature of reality, they should reflect the embedded nature of social programmes (ii) they should provide explanations which account for the macro and micro processes inherent in the programme (iii) they should elucidate how programme outcomes follow on from stakeholders' reasoning (choices) and their capacity (resources) to implement these in practice. In realist evaluation, these processes may enable causal change as intended by a programme or block this. Hence, a key task of programme mechanisms is to overcome pre-existing problems or countervailing mechanisms inherent in the programme setting.

Marchal and colleagues[126] and Astbury and Leeuw[122] emphasise that common mistakes in evaluation include equating mechanisms with independent causal variables, plus conflating the term mechanism with programme activities or modes of implementation. In their realist evaluation of a whole systems transformation of a large Healthcare Trust in London, Greenhalgh et al.[127] defined mechanisms in accordance with Pawson and Tilley's conceptualisation, however, some of the mechanisms reported did include descriptions of intervention activities.

Conversely, in a recent evaluation of healthcare provision in UK care homes, Goodman et al.[128] do distinguish between differing aspects of the intervention, the resources this provided and the operant mechanisms. In one example, it was hypothesised that the expertise provided by NHS clinicians to care home staff (intervention) should result in staff feeling supported and trained regarding resident health issues and in turn, more motivated to consult with visiting healthcare professionals and learn new skills (mechanism).

Perhaps a more persistent problem though, relates to the conflation of mechanisms with contextual factors. Dalkin et al. contend that deciding between which factors are contextual and which are mechanistic in terms of the explanatory endeavour, has become the realist researcher's main dilemma[121]. Marchal and colleagues concur and whilst they suggest that the main added value of the realist approach is that mechanisms are searched for at differing societal levels, e.g., individual, group, organisational and wider-infrastructure, separating 'context' out within these spheres is a challenging issue, both conceptually and in practice [126].

A point of consensus between Bhaskar[118], Archer[129], Porter[130] and Pawson and Tilley[109] is that the reasons, intentions and plans of agents are causal in nature, whether this be under the rubric of psychological or social mechanisms. This view of individuals as

agents of change is consonant with a core belief in occupational therapy which recognises and values the motivational capacity of individuals or groups to influence or impact on their occupational engagement[23].

The conceptualisation of mechanism as a constituent of agency was adopted for the ROAM study and was broadened to incorporate the range of cognitive, psychological, emotional and physiological internal processes experienced by staff and residents, that might be causal for residents outdoor use. For instance, reasoning, motivation, knowledge, attitudes, values, behaviour and so on. For some residents, it was conceived that outdoor use might be more impulse driven or incidental rather than reasoned or intentional. However, this was still considered to be mechanistic in the sense that this would be explanatory. The notion of mechanisms being both causal or countervailing was used in the study where appropriate.

It was not presumed that any of the operant mechanisms might possess the generative power to change the social structures and resources in the care home. Therefore, they were considered to be psychological in nature, thus avoiding the ontological tension inherent in Pawson and Tilley's 'programme mechanism' which in some explanations, does seem to conflate agency and structure[109, 130]

3.6.9 Context

From a realist perspective, the relationship between generative mechanisms and their effects or outcomes is not fixed but contingent[131]. For Pawson and Tilley, programme context refers not merely to the geographical location and institutional characteristics of programme sites, but also to the pre-existing social context into which programmes are introduced. It is the prior set of norms, rules, values, customs and social relations in institutions that either constrain or enable programme success[109]. Programmes are embedded in multiple social systems and in realist evaluation, at least four layers of context are identified[110, 111].

'Individuals' refers to the capacities and characteristics of the key programme stakeholders. 'Interpersonal relations' reflects the stakeholder relationships central to the programme. 'Institutional settings' includes: organisational culture, social rules, norms, values, customs, plus the physical environment and material objects local to the programme. 'Infrastructure' refers to the wider political, economic, historical, social, and cultural setting of the programme.

As described in Chapter 1, the occupational environment comprises phenomena in all of these layers. In care homes for older people, contextual variants might include: the characteristics of care workers, residents and relatives; the inter-relationships between

these stakeholders; geographical location; physical environment factors; staffing resources; model of care and activity provision; culture; quality and regulation drivers; third sector involvement; socio-economic and funding backdrop; public perceptions and media portrayal of care homes.

As social contexts pre-exist the programmes that are inserted into them, Pawson and Tilley assert that a primary key task for evaluators involves articulating how programme 'mechanisms' will overcome pre-existing 'problem mechanisms'[109]. As programmes are never operationalised in the same way twice, or ever implemented in identical circumstances, the importance of considering context as an integral aspect of programme evaluation, rather than as a confounding variable to be controlled for, as in RCTs, cannot be over emphasised[111].

It is notable that context is described in terms of the conditions required for causal mechanisms to come about, but also as possessing countervailing or enabling mechanistic powers, by virtue of pre-existing social rules, norms, values and so forth. So, the ontological distinction between context and mechanism does not appear to be clear cut. For those experiencing the conflation dilemma, Marchal et al. offer practical advice and suggest considering contextual elements as actors or other factors, external to the programme[126].

The response of Dalkin and colleagues has been to disaggregate the resources and reasoning that are said to constitute the programme mechanism and place 'context' inbetween[121]. In this revised heuristic, programme strategy (mechanism resource) is introduced into the context and impacts (somehow) on the volition of stakeholders (mechanism reasoning) to produce outcomes. When the explanatory formula is operationalised in this way, the authors claim that the distinction between important pre-existing contextual features and programme mechanisms is less ambiguous. It remains to be seen whether this revision is being taken up by the realist evaluation community.

The conflation of context and mechanisms was not anticipated to be an issue in the ROAM study as there would be no programme mechanisms in operation. Consonant with Pawson and Tilley, Bhaskar and Archer[109, 118, 129], the existing context for the ROAM study was defined as comprising the characteristics of individuals, interpersonal relationships and the institutional setting, including: the built environment, other material objects and resources, and organisational practices and culture. Context was conceptualised as the existing conditions which enabled or constrained the mechanisms related to outdoor space use.

Whilst there is no doubt that macro-level phenomena, such as, the economy, legislation, social care policy, regulation and inspection, and withdrawal of state ownership within the UK sector continue to

have significant impacts on UK care home practices and resources[55], the empirical data collection was designed to focus more on front-line staff (activity coordinators and care workers) and residents. This was justified on the grounds that many residents were likely to be dependent on these staff to access the outdoor environment and that there is a gap in the literature about how outdoor practice is operationalised.

To further narrow the range of contextual characteristics that could be comprehensively investigated during a PhD programme of research, the experience of the supervisory team was utilised to determine the type of setting, resident cohort and outdoor location to be selected. It was speculated that the context characteristics and mechanisms for UK care homes with and without nursing were likely to differ considerably. Although residents in both types of environment are highly dependent on support and have complex health and social care needs[132], those living in the latter setting-type tend to be more mobile, marginally less cognitively impaired and less likely to be bedbound or physically unwell[132]. Therefore, it was decided to focus on care homes without nursing, on the grounds that these settings might provide greater scope to observe activity participation and outdoor space use, if these opportunities were offered by the care home.

It was also agreed to target care homes for older people with a focus on dementia care. Although the vast majority of people living

in care homes have some form of cognitive impairment or dementia, dementia-specific settings were likely to incorporate service provision and and/or design characteristics that in some way differ from more generic settings[133].

With regard to study location, it was determined that it would be more practical to investigate the care home outdoor spaces. There were likely to be more instances of outdoor use to investigate compared to outdoor trips, because these are known to be infrequent, time and resource intensive and to require significant advance planning[134]. Also, there was considerably more information in the literature about care home gardens and outdoor spaces to inform an initial theory of outdoor use.

It was decided in advance that if contextual characteristics were found to detrimentally impact on residents opportunities to access and engage in the outdoor spaces, the findings discussed in Chapter 6, would be interpreted not only in terms of the wider literature and best practice, but also from an occupational justice perspective (see Chapter 1). This was to ensure that the resulting recommendations for change, also described in Chapter 6 would be relevant to the real-world context of the UK care home sector.

3.6.10 Outcomes

Pawson and Tilley state that the goal of realist evaluation is to explain "social 'regularities', 'rates', 'associations', 'outcomes' and 'patterns'"[109](p.71) and draw explanans and explanandum into the formula: regularity = mechanism + context. To elaborate, they contend that the task of social inquiry is to explain socially significant regularities (R). Explanatory accounts begin by hypothesising an underlying mechanism (M) which generates the regularity, hence they constitute propositions about how the regularity has been brought about by the interplay between structure and agency. Mechanisms are contingent and conditional and only triggered in particular contexts (C). Therefore, realist explanatory propositions should combine all three elements: M, C, and R.

3.6.10.1 Change

From a realist perspective, choices are conditioned by pre-existing structures and institutions which go on to remould the next novel social structure. Society is constantly patterned and re-patterned by human volition and agency. Archer describes this permanent state of societal self-transformation as morphogenesis[129]. This incessantly renewing world has significant implications for social scientific enquiry and programme evaluation because mechanisms, contexts and social regularities change and self-transform over

time. Pawson and Tilley[109] give an example about educational change in Britain. Whereas, in the 1950s, boys outperformed girls at secondary school (regularity^1), this situation has now reversed, with girls outperforming boys, as measured by overall GCSE results (regularity^2).

There are many possible social explanations for this change and as social programmes aim to invoke change, it is a necessary function of explanation to account for the change in regularities over time, that is, ($R^2 - R^1$). Pawson and Tilley use the term 'outcome' to describe this principle. In realist evaluation, outcomes and outcome patterns are of significant interest, far beyond whether an intervention was deemed successful or not. Outcome measures are definitely not considered able to speak for themselves and their interpretation is frequently contested[111], as highlighted earlier with regard to staff rated quality of life in the study by Wenborn et al.[135]. So, in realist evaluation, not only is it important to establish whether an intervention has been implemented as intended, it is also necessary to consider the limitations of the outcome measures used[111].

For the ROAM study, given that a programme was not being evaluated, the main outcomes of interest were related to what was actually happening in the care homes in terms of outdoor access and activities, rather than understanding change over time and why and how a programme might be efficacious or effective. Again,

this outcome is congruent with the models of occupation described in Chapter 1, in which occupational performance and engagement are conceived as the outcome of a transaction between individuals/groups, their occupations and the environmental context[24, 25, 136].

3.6.11 How programmes are evaluated

Realist evaluation asks 'what (sort of programme) works, for whom, under what circumstances, to what extent, how and why?' and the explanatory formula used to answer these questions is summarised as: Context + Mechanism = Outcome (CMO). The task of this approach is to find ways of "identifying, articulating, testing and refining conjectured CMO configurations"[109](p.77) and this is conceptualised via the realist evaluation cycle. Whilst the process is circular, it is also iterative.

The first phase of the circuit involves developing programme theory. The initial task is to identify , 'a theory of action' which describes what the programme was expected to do. Then 'a theory of change' is advanced for how this was intended to work[137]. The content of programme theorising necessarily differs according to the research questions, but in general, the aim is to map out: (i) the key activities, functions or strategies of the programme (ii) the intended outcomes (iii) which components contribute to particular outcomes.

Ideally, conjectures take the form of abstracted or middle range CMO propositions and the RAMESES II project training materials emphasise that there are many ways to do this[113]. For instance, consultation with experts and/or stakeholders, adopting substantive theory from existing literature and scrutinising other forms of literature including: policy documents and programme protocols and documentation.

In the next phase, specific 'if-then' hypotheses are developed which map out the range of potential outcome patterns and how these might come about in the programme domain by virtue of the location, individuals, and subgroups targeted for change and the cultural and social resources available[109, 111]. As most programmes comprise a number of theories, this phase involves mapping out multiple CMO configurations (CMOc), for instance, $C^1 + M^1 = O^1$, $C^2 + M^2 = O^2$, $C^3 + M^3 = O^3$ and so on[111, 126].

Pawson and Tilley declare themselves resoundingly pluralist and for them, the mixing of quantitative and qualitive methods is entirely consonant with realist philosophy, positioned as it is between positivist and relativist doctrines. Whilst quantitative data on outcomes is important, evidence which explains variations in outcome patterning is crucial to understanding why the programme works for some and not others. A principal strategy for determining why a programme works is the realist interview[109, 138]. This method

can be used throughout the evaluation process, for instance to identify initial theories or to test more refined CMO configurations.

Whatever methods are used, these should be carefully tailored to explore the theories under examination. Pawson and Tilley caution against accumulating mixed methods data to provide a weight of evidence. Instead, strategies should be combined carefully to engender a sense of explanatory completeness and synthesis[109].

In next part of the circuit, observations, or multi-method data collection and analysis are used to further refine and test the conjectured multiple CMOc propositions. As some are confirmed and some abandoned, propositions are broken down further, reflecting more fine-grained configurations of sub-conditions[111].

In the penultimate phase, the objective is programme specification and fieldwork findings are used to revise the hypotheses and specify the conditions that the programme theory works under. Evaluation activities then come full cycle and ideally, further iterations are planned to accumulate evidence within the particular policy or programme domain. This process begins with the empirically tested, revised programme theory.

Commensurate with realist theory development as described above, the programme of research followed a similar process - the ROAM theory development cycle is described in section 3.7.

However, given that the study was an exploration of prevailing conditions and processes and not a programme evaluation, the usual phase one objective of identifying initial programme theory was amended to meet the study aims and objectives.

The identification of a 'theory of action' was reconceptualised as identifying a 'theory about existing outdoor use practices'. So rather than early hypothesising about what a programme was supposed to achieve, this was conceived as developing a theory-driven explanation for how outdoor use came about. The intention was then to underpin this with a more abstracted explanation – an initial middle range theory of outdoor occupational engagement (research aim).

It was beyond the remit of the study to identify a 'theory of change', however, the findings were used to identify recommendations to improve residents outdoor use (clinical aim).

It was envisaged that the middle-range theory and the utility of the recommendations would require some further testing in subsequent investigations, and thus might constitute a form of 'cumulation', as described below.

3.6.12 Cumulation

Pawson refers to the work of Merton to propose that theories of the middle range, such as, reference group or cognitive dissonance

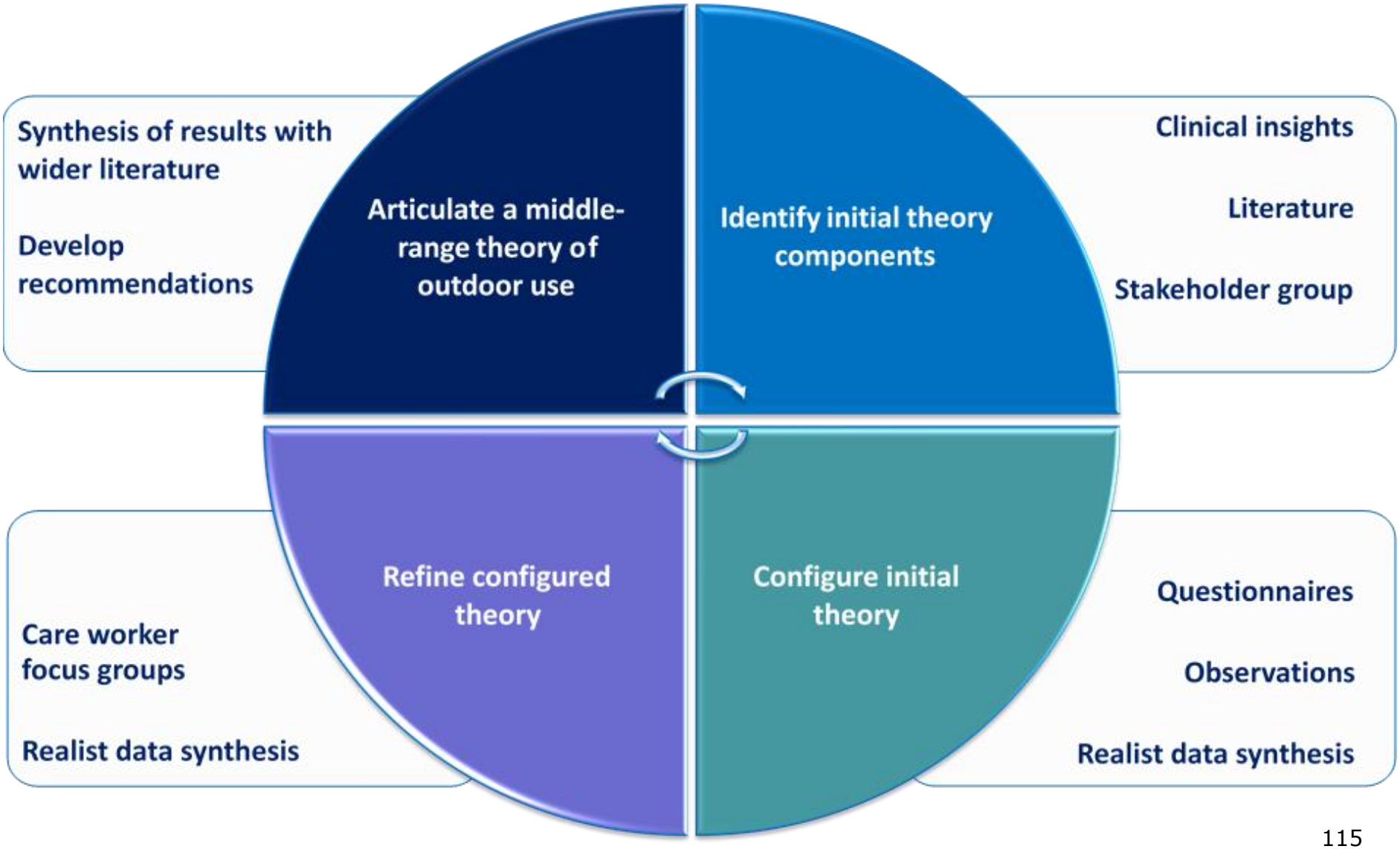
theory, have significant potential to demonstrate that similar social behavioural forces may be at play across a range of seemingly disparate policy initiatives and interventions[139]. These theories are sufficiently abstract to accommodate differing spheres of social phenomena and transcend both pure description and empirical generalisation, cutting across the distinction between micro and macro sociological problems[140]. Consonant with Pawson's realistic ambition for partial incremental knowledge of the social world, middle-range theorising involves declaring what learning must still be acquired to lay the groundwork for yet more knowledge.

Pawson uses the term cumulation to refer to identifying 'what works' within and across differing policy spheres, thus, removing the need to repeat the same lessons for each supposedly 'new' social problem. Whilst the most useful transferrable lessons for policy and practice are often best achieved through a series of consecutive evaluations rather than one-off studies, Pawson is clear not to overstate what can be accomplished due to the morphogenic character of the social world[109]. Whilst programmes induce changes, these do not concur with the desires of any particular stakeholder and can never be predictable. However, semi predictable patterns can be uncovered as the social sphere stumbles between change and stability, Pawson is content for these to be the subject matter of realist evaluation and synthesis[111].

3.7 The ROAM realist theory development cycle

In accordance with Pawson and Tilley's description of the theory development process, theory development for the ROAM study was conceptualised as a multi-phase cycle, adapted to meet the research objectives of the study. Although the study processes and activities were delineated by four phases, the overall process of theory development was iterative and involved moving back and forth between the phases and data sets. A diagram of the ROAM study realist theory development cycle and associated processes and methods is presented in Figure 7 below.

Figure 7: ROAM realist theory development cycle



3.7.1 Overview of multi-method approach

The methods used for each phase of the ROAM theory development cycle are described and justified in detail in subsequent chapters. However, a brief overview of the multi-method approach is described.

Realist evaluation is method neutral[126] and where multiple methods are used, these should be carefully tailored to the theories under investigation[109]. For the ROAM study, a range of methods were required to explore an initial theory of outdoor use. Whilst careful consideration was given to aligning the methods with the differing components of the theory, there were also ethical implications to consider. It was important that the methods selected were minimally intrusive for residents, as the research would be taking place in their home environment and also, not overly burdensome for managers and workers, given the demands and pressures on their time[141].

Creswell describes mixed methods research as a challenging enterprise and suggests that whilst no two mixed method studies are exactly the same, researchers should follow some general principles, that is, consider whether designs are fixed or emergent, identify the specific design approach, match the design to the purpose of the study and be explicit about the reason for combining methods[142].

For the ROAM study, multiple methods were used to provide explanatory completeness. These were pre-determined and planned at the outset of the research process, hence a fixed design was employed. Realist synthesis of the data was an iterative and cumulative process and occurred from phase one onwards.

Phase one involved identifying initial theory components to inform primary data collection and analysis in phase two. The process of identifying these components is described in section 3.8 below.

In phase two, quantitative and qualitative methods were used to identify potential staff and resident mechanisms and configure these with the context characteristics and outcome components identified in phase one. A convergent, parallel design was employed, that is, both methods were given equal priority and data collection occurred concurrently[142]. In the first instance, each dataset was analysed independently. The results were then combined and synthesised using realist analysis. Phase two is reported in Chapter 4.

In phase three, qualitative methods were used to confirm, refute and amend the initial context, mechanism and outcome configurations. The refined configured theory is presented in Chapter 5.

In phase four, the refined configured theory produced in phase three was considered in the context of the wider literature and

substantive theories. A middle-range theory of outdoor occupational engagement was articulated, along with recommendations to increase residents outdoor use. Phase four is reported in Chapter 6.

3.8 Phase one – Identifying components for an initial theory of outdoor use

3.8.1 Introduction

The starting point for the ROAM study was to identify an initial conceptual framework for empirical testing in phase 2. In this section, the methods and processes employed to identify an initial theory of outdoor use in care homes are described. The results are reported and the initial theory is summarised in a diagram at the end of the chapter.

3.8.2 Method

To identify an initial theory, a concept mining exercise was conducted using two strategies congruous with realist methodological guidance[143]. These were: utilising the expertise of a stakeholder consultation group and a realist scoping of the relevant literature in the field[112, 113]. The methods for each strategy are reported, following a brief description of how the exercise was focused and the process of theory iteration.

3.8.2.1 Focusing the exercise

Configuration

In accordance with the realist theory development cycle described in section 3.6.11, the original intention of this phase was to identify

an initial configured theory of outdoor use. However, within the timeframe available, it was not considered feasible to identify context, mechanism and outcome configurations (CMOc) using the outdoor literature. Given the disparate nature of the objectives, methods, geographical locations, outcomes and/or findings of the studies in the mapping review, it would be extremely challenging to determine which configurations would be most relevant to the UK setting. There was potential that this process would significantly impact on the time needed to collect and analyse the primary data.

Instead, the focus of the exercise was narrowed to identify some potential contextual characteristics and mechanisms. In a 'realist diagnostic workshop'[144], Pawson argues against the listing of contexts and mechanisms on two counts. Firstly, when CMOs are not linked, the lists for each conceptual category could potentially be infinite. Secondly, he suggests that it is far less easy to distinguish between context and mechanisms.

However, it is perhaps relevant that Pawson's critique is based on completed studies. In Pawson and Tilley's now infamous exemplar of CCTV cameras in car parks, the conjectured contexts and mechanisms are listed separately, but it is quite clearly stated that due to there being "no existing sociology of the car park"[109](p.80), a series of studies would be required to adjudicate which of the context and mechanisms permutations were linked.

In the absence of there being any sociology of outdoor use in care homes and also due to the paucity of outdoor literature specific to the UK context, it was decided to derive the initial CMOc empirically in phase two of the ROAM study. The objective of the realist-focused concept mining exercise then, was to identify relevant context and mechanism components to populate a broad, conceptual framework to guide initial primary data collection and analysis.

Initial theory outcomes

Given the paucity of evidence regarding outdoor use frequency and duration in UK care home settings, key areas of interest were to determine if care home residents were accessing the outdoor spaces and if so, what was actually happening outside . Therefore, for the initial theory, 'outdoor access' was conceptualised as outcome one and 'outdoor activities and mobility' as outcome two.

In realist methodology, a recommended strategy for theory identification is to work backwards from the outcomes of interest [112]. There was consensus amongst the supervisory team that working back from outcomes' one and two would provide the most useful starting point for understanding the important contexts in which residents accessed and engaged in the outdoor spaces and how these fired resident and staff mechanisms. For example, in self-initiated, independent outdoor use (outcome), resident

incentives might be pleasure and enjoyment associated with a preferred outdoor activity (mechanism). This may fire in a number of ways, for instance, if the weather is warm (context), the resident is mobile (context) and/or the exit door is open (context).

Alternatively, for those taking part in outdoor group activities (outcome), incentives might be more relational/social in nature. For instance, connecting/interacting with staff and other residents (mechanism), which might be contingent upon staff capacity and ability to motivate residents to join in a group[145] (context). In turn, this might hinge upon organisational characteristics, such as, staffing levels (context), which may operate as a constraint or enabler depending on staff perceptions and beliefs about colleagues on shift (mechanism).

3.8.2.2 Theory iteration process and reporting

A large proportion of the literature scoping was conducted prior to the first stakeholder group meeting to inform the consultation process. However, the process of initial theory development was iterative and feedback from the meetings did catalyse additional searching. Where stakeholder processes impacted theory identification, this is reported in the relevant section of the literature scoping results. Where relevant, excerpts from the documentation of the stakeholder consultation are presented to evidence how this process informed the initial theory.

3.8.2.3 Stakeholder consultation

Finding out what various stakeholders know in terms of the aims, ambitions, processes and outcomes of social programmes is a principle investigatory strategy in realist evaluation[109-111, 137]. This may involve stakeholders acting as key informants, either throughout or at particular stages of the evaluation, for instance identifying programme theory. This stage of an evaluation may have a number of functions, in addition to focusing on the programme itself. For example, identifying how programmes might affect other systems in the setting or narrowing the focus of the evaluation, given the potentially infinite scope for explanation in complex, real world settings[143].

For the ROAM study, it was recognised that it would be useful to supplement the experience of the researcher (AK) and the supervisory team with expertise from the fields of greenspace design and engagement and dementia care strategy, delivery and research. Given the paucity of UK literature in the field, the main objective of the stakeholder group was to contribute to identifying initial context characteristics, mechanisms and outcomes likely to be relevant to UK settings. Stakeholder knowledge of substantive theories that might elicit further understanding about residents' outdoor use was of particular interest.

Group members

There were five stakeholder group members and all were introduced to AK via the existing professional and academic networks of NC (PhD supervisor) who also provided stakeholder input.

Joe Sempik (JS) is a leading academic in the field of social and therapeutic horticulture, which refers to the process of using plants and gardens to promote social inclusion, health and well-being. Joe has written extensively on 'green care', a social, community-based approach to well-being, using horticultural, nature-based and farming activities[146-148].

Jill Naidoo (JN) is a retired general practitioner (GP) with specific interest and expertise in dementia and she is also a qualified social and therapeutic horticulturalist (STH).

Dale Cranshaw (DC), introduced by Jill and also a STH, is a director of a social enterprise company called Growing Support, based in Bristol. The company provides horticultural and nature-based activities to a range of vulnerable groups, including care home residents.

Kate Fisher (KF) is a dementia care specialist who is now working for one of the UK's largest residential care providers as a regional dementia lead.

Dr Elaine Argyle (EA), formerly a psychiatric nurse, is now a senior academic at the University of Nottingham. Elaine has extensive research experience in the field of dementia, is an advanced dementia care mapper and has specific interests in disability and human rights, social exclusion and person-centred care[9, 149-151].

Group facilitation

When inviting members to participate in the group, an outline of the project was provided along with a brief overview of realist methodology, the objectives of stakeholder consultation and the expected time commitment. The PhD host, the National Institute of Health Research - Collaboration for Leadership in Applied Health Research and Care, East Midlands (NIHR-CLAHRC EM) provided funding via the PhD Patient and Public Involvement (PPI) fund for refreshments and travel expenses. To address the group objectives, AK arranged and chaired two meetings (April and August 2016) and also took the minutes.

In the first meeting, AK provided an overview of the PhD study, realist methodology and the findings from the literature scoping exercise. Discussion focused on the relevance of the context, mechanism and outcome findings to the UK context and informed further literature scoping. In the second meeting, the components to be included in the initial theory were discussed further and

broadly agreed. Following this, a figure depicting the theory was produced and agreed.

Each meeting lasted a minimum of two hours and all documentation relating to the group, that is: the agenda, meeting minutes and copies of email discussions were imported into NVivo 11 Qualitative Data Analysis Software. Nodes were created and labelled context, mechanisms and outcome and relevant excerpts from each document was coded into one of these nodes. This was to provide a theory audit trail and to assist the reporting process.

3.8.2.4 Literature scoping

The literature used at the outset of realist evaluation often takes the form of local documentation which describes the aim and ambition of the policy, programme or intervention that has been or is to be implemented. Evaluators use this architectural-type data to draw out both the explicit and more implicit ideas underlying initiatives. The wider literature may also be searched for more abstracted explanations that apply to a broader family of programmes or across differing policy domains, plus relevant substantive theories[137].

Whilst it was conceivable that grey literature searching might have revealed reports of local UK care home projects and initiatives to support residents outdoors, the constraints imposed by the PhD timeframe did not allow for additional literature searching in this

phase of the study. However, given that the articles identified in the systematic mapping review (Chapter 2) were broadly representative of the international published research pertaining to outdoor activities and mobility in care homes, those focused on the care home garden/outdoor space were used as a starting point for the identification of initial concepts. This applied to 28 of the 39 articles. The article titles and authors are summarised in Appendix 6.

Literature scoping strategy

A scoping strategy using key terms was developed with the supervisory team. Geographical location, method types and participants were included to describe the literature. This latter category was considered useful for providing an overview of the range of perspectives reported. The remaining terms were organised by outcome, context and mechanisms.

Whilst the outcomes components of the initial theory were determined prior to scoping the literature, outdoor access and outdoor activities and mobility were included to explore any data regarding: (a) the frequency and duration of outdoor space use (b) the nature and function of activities and mobilisation that occurred in care home outdoor spaces.

As a range of contexts relevant to outdoor use had already been identified in the systematic mapping review (2.5.11) and were

consonant with Pawson and Tilley's four layered definition of context[109], these were used as a starting point for context-related scoping. Whilst these were reported as constraints for the purposes of the mapping review, it was feasible that some characteristics might also have operated as enablers of outdoor use. Therefore, the literature was to be scrutinised for examples of both constraints and enablers and how these operated as such, where elucidated.

In terms of mechanisms, it was decided to explore any phenomena that might be causal for staff support of outdoor use and also residents' outdoor use, in accordance with the conceptualisations described in section 3.6.8.2. The literature scoping terms are summarised below in Table 17.

Table 17: Literature scoping strategy

Primary categories	**Sub-categories**
Descriptors	
Geographical location of study	
Method types and participants	
Outcomes	
Outdoor access	
Outdoor activities and mobility	
Context	
Broader environment	Weather
Organisation	Health and safety issues / policy
	Outdoor activity programming
	Staffing levels/time
	Activity programming
Physical environment	Visual access (from indoors)
	Physical access (distances, way finding, doors etc)
	Outdoor design (paths, shelter, features, activity areas etc)
Resident characteristics	Physical (mobility, health)
	Dementia, plus BPSD
	Communication
	Mood and engagement
	Relatives
Resident mechanisms	
Staff mechanisms	

A literature scoping tool was designed and the primary and sub-category terms were used as column headings. Using an inductive and deductive approach, data relevant to the scoping terms was extracted from each article in turn. Existing categories were populated with relevant information and further concepts were added, as necessary. Additional notes were made, for example, to highlight similarities and differences between the studies or any perceived contrast with UK care homes.

3.8.3 Results

3.8.3.1 Geographical location

Table 18 demonstrates the country and where possible, the geographical region or area of the studies conducted. The majority of studies were conducted in or referred to Northern Hemisphere countries.

Table 18: Geographical location of published articles

Country	Region/area
Australia: N=3	Northern Sydney
	NSW central coast
	Victoria
Canada: N=3	Alberta
	British Columbia (2)
England: N=1	City location - North
Finland: N=3	Helsinki (2)
	City location
Norway: N=1	Nationwide
Sweden: N=3	Lund
	South (2)
Taiwan: N=1	New Tapei City
USA: N=13	Atlanta
	California, Florida, Minnesota, New Jersey, New York
	Massachusetts, Ohio, Maine, Michigan
	Mid-West (2)
	Nationwide (2)
	North
	Ohio
	Not specified
	Seattle
	Texas
	Washington DC

3.8.3.2 Method types and participants

Eleven articles reported on pre-post studies and five of these used additional methods to elicit the views of stakeholders. Seventeen articles reported descriptive studies. Table 19 summarises the additional method types used in the pre-post studies and the methods used in the descriptive studies, alongside the type of participant.

Table 19: Method types and participants

Method types	Participants
Pre-post studies (N=11)	
Additional methods - pre-post studies (N=5)	
Pre-post, questionnaire	Staff, relatives
Questionnaire	Residents
Interview	Staff, visitors
Interview	Staff, relatives
Interview, focus group	Residents, research staff
Descriptive studies (N=17)	
Survey	Managers/administrators
Survey	Leaders, staff
Survey	Managers/administrators
Structured interview	Residents
Structured interview	Residents
Structured interview	Residents
Mixed method - observation (environment), semi-structured interview, questionnaire	Residents
Mixed method - observation (environment), structured interview	Residents, relatives, staff
Mixed method - observation (behaviour), questionnaire	Staff
Mixed method - structured interview, questionnaire	Staff, volunteers, residents
Mixed method - observation (environment), unstructured interview, structured interview	Administrators
Mixed method - observation (behaviour), survey	Staff
Focus group	Staff
Semi-structured interview	Resident, relatives
Semi-structured interview focus group, observation	Resident, relatives, staff
Semi-structured interview, observation (behaviour)	Staff, relatives
Semi-structured interview	Resident, relatives, staff, volunteers

3.8.3.3 Outdoor access

Table 20 summarises the five articles which reported frequency data about outdoor use and this was either by facility or resident numbers. Where seasonal data was reported, the most frequent use occurred in summer. Whilst there is insufficient quantitative data to draw any conclusions about the utilization of outdoor spaces from an international perspective, comments about spaces being under-utilised were made by some authors.

This was supported by studies reporting residents' satisfaction regarding their outdoor use frequency. In Cutler and Kane's survey[152], 39% of residents reported that they wished to go outside more and the percentages were even higher in two other studies at 50%[76] and 80%[153]. There were also qualitative reports of dissatisfaction. The most frequent resident-reported reason for not getting outside enough was lack of staff assistance with mobility[153-156].

Table 20: Frequency of outdoor use, where reported

Authors and data type	Daily	Several times weekly	Once a week	Less than once a week	Less than once a month
Cutler and Kane (2005) [152] USA N=1068 residents	21.8%	15.8%	16.8%	13.4%	32.2%
Cohen Mansfield (1999) [157] USA N = 320 special care facilities					
Spring/Autumn	50%	90%			
Summer	77%	98%			
Winter	23%				46% (rarely)
Gonzalez and Kirkevold (2015) [43] Norway N=121 nursing homes					
Spring	42%	46%	5%		
Summer	77%	21%	0%		
Autumn	25%	7%	8%		
Winter	7%	13%	5%		
Kearney and Winterbottom (2005)[153] USA N=40 residents:	10%	20%	15%	45%	
Rappe and Kivela (2005)[155] Finland N = 30 residents Summer	53%				0.03%
Rappe and Kivela (2006)[156] Finland N=45 residents Summer		67% (daily or weekly)			

3.8.3.4 Outdoor activities and mobility

All of the articles reporting descriptive studies described activities that took place in the outdoor spaces. Of those reporting resident perspectives[76, 153, 154, 158, 159], the availability of activity in the outdoors spaces was described as a primary incentive for spending time outside. Preferences were often connected to pre-admission hobbies, interests and memories. Engagement in activities was described as facilitating a range of feelings, sensations and experiences, for instance pleasure and relaxation evoked by sitting in the sunshine[154, 160, 161], or stimulation, enjoyment and competence whilst gardening, which may have been a previously loved hobby[79, 160, 162].

During stakeholder consultation, the importance of understanding residents interests and preferences was highlighted:

JN talked about recognising the importance of disease progression and taking account of personal history/preferences. There was discussion about how much a person's past might influence garden use…There has been some research (Cohen-Mansfield) suggesting that people's activity preferences were not influenced by previous interests. Choices might be based more on the cognitive resources available - "gardening in the way I used to" may just be too demanding…or more manageable for people who

have had high levels of executive functioning. JS mentioned Gigliotti and the idea of focussing on the 'here and now'.

(Excerpt from stakeholder meeting minutes, 19.04.16)

The articles described a range of passive and more physically dynamic activities, but in most cases, residents reported enjoying more passive engagement, such as: sitting in the sunshine, drinking tea/coffee, chatting, observing surroundings and sensory engagement. This included all of the senses, for example, feeling the warmth of the sunshine, breathing in the fresh air, watching and listening to birds and nature, viewing, touching and smelling greenery and flowers, picking and tasting produce and watching, listening and touching water. Walking, socialising and participating in special events were other valued activities.

Whilst 'outdoor activities and mobility' was conceptualised as an outcome for the initial theory of outdoor use, outdoor interests, activities and history appeared to represent an important contextual characteristic for residents' outdoor use. Furthermore, the feelings, sensations and experiences associated with these seemed to be what encouraged some residents outdoors or persuaded them to remain there. As such, these appeared to represent causal mechanisms intrinsic to residents.

During the stakeholder consultation, group members suggested that it would be important to explore the entire spectrum of activity engagement:

JS talked about the reasons people might use gardens and splitting down engagement into 'passive' and 'active' – overall, he thought it might be a mixture of both.

(Excerpt from notes of AK/JS telephone conversation, 13.05.16)

The comments about passive and active engagement prompted a discussion about outdoor theory:

AK said that she had visited Attenborough nature reserve that morning to reflect on why we might use green spaces and the theories that talk about this - Biophilia, Attention Restoration Theory (Kaplan's), Stress recovery/garden use model (Ulrich). JS had reservations about the 'inherent response' idea and talked about the influence of culture and background regarding landscape and activity preferences – he mentioned that there is no green space in Venice (although there is water!) but that is it extremely appealing, visually. We talked extensively about the function of a garden and passive/active engagement - whether it was a space maintained by a gardener and used as a marketing

tool or whether it was stimulating and could be used for activities like flower/plant growing and growing produce.

(Excerpt from stakeholder meeting minutes, 19.04.16)

Ultimately, the group suggested that it would be useful to use Ulrich's supportive garden theory[80, 163] (described in section 1.4) as a frame of reference to understand and interpret the findings about outdoor activities. This theory posits that both passive and active engagement can facilitate stress reduction, coping and restoration, which is likley to be of particular relevance in dementia settings. The group suggestion was carried forward, as demonstrated in the chapters reporting the results (4 and 5) and the discussion (6).

3.8.3.5 Broader environment - weather

Weather was discussed in most articles (26, 93%) in relation to residents' outdoor space use. Whilst two of the articles published in Australia discussed the weather favourably[161, 162], in most cases, conditions were reported in terms of being constraining. Depending on geographical location and time of year, sunshine, rain, thunder, wind and snow could all be inhibitive. In general, this was either due to access being restricted by staff for perceived health and safety reasons or resident refusal to go outside.

Grant and Wineman's garden use model study[164], which investigated expert recommended garden sites, was most closely aligned with the ROAM study objectives in terms of understanding outdoor use from a holistic perspective. However, despite the significant emphasis on the impact of weather on outdoor use in most articles, this received relatively scant attention, plus the focus was only on hot weather.

In other USA locations and those in Norway, Finland and Sweden and England, the constraining impact of colder weather was emphasised. Two qualitative studies at the same three sites in Sweden explored design implications for the outdoor environment and provided the most comprehensive staff and resident accounts regarding the weather. The study of staff perspectives[165] depicted residents as being highly sensitive to variable weather and

temperature and pre-occupied with being cold or fearful of slipping whilst outside. Whilst this was echoed somewhat in the resident interviews[154], there were reports of some residents enjoying going outside in all weathers. This highlighted the importance of exploring different perspectives, as emphasised in realist methodology[109].

In the UK study, which investigated factors impacting on nature participation[105], it was reported that residents often declined to go outside, expecting to be cold. When residents did use the outdoor spaces, the anticipation or experience of sunshine, warmth and fresh air were reported as primary motivators by staff and residents, both in terms of access and remaining outside[69, 76, 153-155, 165].

The nature and impact of UK weather was discussed further during stakeholder consultation:

The group began to discuss the impact of the weather and that it will be more likely for residents to go outside when it is warm and sunny - residents really seem to feel the cold. JN agreed that is probably because people are not moving around as much and may have also lost fat and muscle tone. Care home staff may use the weather to discourage people from going out - JN mentioned Dementia Adventure who do not see weather as a barrier. JS said that residents may lack

appropriate clothing/shoes and also, that it might not be possible to have a collective store due to lack of space. AK said she had spoken to KF about this who had said that the tone for staying indoors is set from the morning when carers help residents to put slippers on rather than getting shoes out. (Excerpt from stakeholder meeting minutes, 25.08.16)

Whilst weather appears to represent a predominant context characteristic in relation to outdoor use, there was little discussion in the literature about how and why this might enable or constrain care practices and resident behaviour. It was clear that weather would be an important context to test - the experience of a range of conditions during the study would likely facilitate a more comprehensive explanation. The literature suggested that some mechanisms for outdoor use might be indicated by staff and resident behaviour and language in relation to weather and temperature.

3.8.3.6 Organisation

Health and safety issues were reported frequently and usually referred to the physical health and safety of residents. The risk of residents falling outside appeared to be a primary concern[155, 156, 165-167]. Whilst some articles specifically mentioned snow and ice as the reasons for residents not going outside[79, 155, 166], others reported restricting access if the weather was inclement, but did

not qualify why or how this might be harmful, for instance, risk of colds or chest infection. Overall, outdoor safety was deemed to be compromised if the weather was inclement or too hot, if staff were unavailable to supervise or if the outdoor space was unsuitable in some way, for example, due to ice, snow, uneven walking paths or lack of secure perimeters. Restricting access was the most common response to these issues. As health and safety issues seemed to be pervasive throughout out the care home context, it was determined that these would be explored relative to all of the categories and not restricted to the organisation context.

With regard to organisational policy, Grant and Wineman[164] explored whether the frequency and nature of outdoor use observed was reflective of the stated goals of the facilities. In some cases, these goals were congruent with the philosophy of the facility director and evident in the way outdoor activities were programmed. For instance, in one facility purported to actively encourage outdoor use, residents went out under all conditions: self-initiated, independent and supported. Leadership commitment and involvement was evident due to the higher percentage of programmed outdoor activities and staff-initiated use. These practices were supported by good staff-to-resident ratios and positive staff attitudes.

Alternatively, one manager believed that the garden was a place of respite and this was reflected by the absence of outdoor

programming or staff-initiated use. In another facility, there was a disparity between the stated philosophy of encouraging independence and observed practices, in which doors were kept locked and no outdoor programmed activities were provided.

This element of Grant and Wineman's study prompted consideration about the impact of leadership on outdoor use, particularly given the overall responsibility of owners and/or managers for activity provision, the physical environment and ensuring adequate staffing levels. However, although the impact of staffing levels/time on outdoor use was emphasised in over two thirds (20, 71%) of the articles, further discussion about this was not provided or linked to leadership. In most cases, leadership was either not investigated or included in the discussions.

One exception was provided by a survey about clinical use of sensory gardens in dementia care units in Norway[168]. Of the 121 respondents who were leaders and 302 who were staff, only 26% and 25%, respectively, believed that engaged leaders were important for improving therapeutic garden use, but this was not discussed further. Perhaps respondents perceived residents' garden use to be adequate, although specific therapeutic outdoor programming was reported by only 8% of leaders and 12% of staff.

Due to the differing aims and objectives of the studies, it was not always clear whether regular, seasonal outdoor programming was

provided in the study sites. There was no discussion about this in one third of the articles. In some cases, lack of outdoor programming was explicitly reported as a barrier to outdoor use but this was not elaborated[105, 164, 169].

The roles of staff providing outdoor activities were of particular interest. Only four articles reported designated roles: programming director, activities director and recreation staff. Otherwise, they referred to 'staff' when discussing outdoor engagement. This was raised with the stakeholder group because, although not referenced in the UK study[105], a popular model of activity provision in UK care homes utilises the role of 'activity coordinator' to deliver activities[49, 170]. There was consensus that staff in these roles would be more likely to support outdoor use during scheduled activity time whether outdoor use was programmed or not.

One stakeholder with experience of delivering horticultural activities in care homes as an external provider, highlighted the importance of considering the expectations, responsibilities and constraints for both activity coordinators and care workers:

Whether activities (indoor / out) is part of care workers job description is a big factor…Some homes have great activity coordinators which make all the difference to how many residents we can get out in our sessions. These AC's may / may not have protected time to run activities and not cover

care tasks, which is a significant factor to whether they have time to do this as many care homes are chronically short staffed. Some homes 'mainstream' this into all care staff's roles. Whilst I agree with this in principle, in practice I haven't seen it working well, as they often remain focused on basic care tasks.

(Excerpt from email from DC to AK, 10.05.16)

None of the articles investigated or discussed how care home staff worked together to support residents' outdoor engagement and very few elaborated on how and why staffing levels were such a barrier. Those that did highlighted the impact of basic care routines. For instance, staff in an observation study exploring contact with outdoor greenery[79] reported that supporting individual residents outdoors impacted on the basic needs of other residents.

In a study evaluating the impact of a wander garden on agitation[166], it was noted that when there were incidents related to residents being outdoors alone, such as, falling, the need for staff intervention disrupted busy nursing routines. Following a comparison of multisensory environments which evaluated one-to-one carer support in a new Snoezelen and a renovated sensory garden[162], the nurses were urged by the authors to consider leisure needs as part of the culture of the care and the importance of resident quality of life, despite being busy and task-focused.

Care home culture was discussed in only three other articles. In the study about outdoor greenery[79], it was postulated whether lack of staff assistance was a consequence of low staff to resident ratios and care culture and practices. In two studies which evaluated the impact of therapeutic gardens on quality of life[159, 160], the authors discussed the potential of outdoor spaces to change the prevailing culture of prioritising physical care needs to one in which resident quality of life is central.

For the stakeholder group:

The culture of the care home as in xx [care home named by KF] was seen to be a key factor, so strong management and leadership and a person-centred/garden use ethos might be important influences on who is recruited, staffing levels, training and expectations of staff.

(Excerpt from stakeholder meeting minutes, 19.04.16)

Whilst resident preferences were investigated or discussed in approximately one third of articles, the concept or practice of 'person-centred care' was not described at all, although in two studies, having one-to-one time with residents outdoors was reported to be highly valued by staff[162, 165]. DC provided further insight about team culture and outdoor use as an expression of person-centred care:

I wonder if there is something about the team as a whole missing here. E.g. care workers who feel that their team members would support them to make a person-centred decision to take residents outside. Sometimes it's the social politics in homes between staff that prevents good practice from happening / establishing. E.g. one care worker has many of these attributes but is told to concentrate on care tasks by a senior care worker who doesn't (and has been there for years, has status etc etc).

(Excerpt from email from DC to AK, 10.05.16)

Leadership, outdoor activity programming, staffing levels/time and the way care is delivered appear to be important context characteristics for outdoor access and activities. Whilst these seem to be interconnected in the sense that regular outdoor programming and adequate staffing might be good indicators of effective leadership and a more embedded culture of outdoor engagement, it was of interest to determine the relative influence of each characteristic. Although care staff working together was not discussed in the literature, the stakeholder consultation highlighted the importance of including this for testing.

3.8.3.7 Physical environment

Visual access of outdoor spaces from indoors was referred to in over two thirds of the articles (19, 68%). Most of these referenced

studies by Ulrich[73, 77] which demonstrated a correlation between views of greenery and natural environment features and health and well-being benefits. Varying levels of access were described in terms of whether window views were available to residents and staff and also, view quality.

In Cohen-Mansfield's survey of the outdoor spaces of 320 long term care facilities in the USA[157], less than ten per cent of respondents reported views of lawns and fences were the dominant view (41%). Alternatively, in the survey of 398 community care retirement communities (CCRCs)[171], a view of gardens was reported by 89% of respondents, although this included having a view whilst walking outside. This significant contrast is probably partly explained by the variation in setting types. CCRCs are campus-type communities in which gardens are often the central focus in the layout, whereas, there is likely to be greater variation in the outdoor spaces of special care unit type settings[152, 157].

Visual access was mainly reported in terms of how this impacted on either residents or staff. Several studies[79, 153, 154] emphasised how much residents enjoyed viewing the outdoor world and how this stimulated interaction. In the garden use model[164], visual access was defined as a characteristic that encouraged residents outside, by way of a cue or reminder that the outdoor space was there. Despite the emphasis on resident independence and safety in the model, the use of visual access to enable staff supervision of

residents from indoor communal areas was not described. This was explicitly reported as a barrier in some studies as the inability of staff to view residents in the outdoor spaces often resulted in access being restricted[164, 166].

Cohen Mansfield's survey[157] enquired about potential solutions to this, but only 2% of facilities used TV monitors. In terms of visual contact, the main safety measure was staffing presence outside (69%). In the wander garden study[166], whilst there were cameras in the indoor perimeter walkway, there were none in the garden. Therefore, staff often restricted access due to concerns of residents falling and being left unaided for prolonged periods.

In the UK study[105], window views were described as an impact factor for nature-related participation, but it was unclear if visual access was used a medium to enable self-initiated or independent garden use. During the observation period, outdoor use only occurred during group outdoor programming, which was minimal.

Physical access to the outdoor spaces was discussed in just over half of the articles (16, 57%) and referred mainly to exit doors. Navigation, the proximity of indoor living spaces to exit doors and changes in elevation, such as, steps and thresholds were also mentioned. Discussion about doors centred on locking practices and also, how manageable they were for residents. Again, varying

levels of physical access were described in the articles, but this was often problematic.

In Cutler and Kane's survey[152] of 131 units, only 58 facilities (44.3%) reported having direct access to the outdoor spaces. 60% of facilities in Cohen Mansfield's survey[157] reported that outdoor areas were open all day and night, but it was not clear if this was year-round. Plus, accessibility issues, such as, heavy and locked doors, distances to exits, stairs and elevators, were the most frequently reported reason for non-use (25%) after hot, windy or sunny weather (31.3%).

DC from the stakeholder group highlighted an issue related to a specific trend in the UK care sector, whereby care homes are being designed to accommodate larger numbers due to being corporately owned. Thus, living areas are often likely to operate over several floors[172]:

…what about residents from different floors of the building, do they get the same access? I suspect not. It's much more difficult for staff to go outside with a resident from upstairs as this affects staffing levels on that floor and you are not in shouting distance if needed.

(Excerpt from email from DC to AK, 10.05.16)

Although there were a few reports of sites with open-door policies, unlocking the doors was mostly contingent upon weather and staffing availability to supervise or be present in the outdoor areas, as highlighted previously. This was again confirmed by stakeholder consultation:

Often, homes have doors locked coded or with a button to press to exit etc. due to the risks of residents going out in the rain / cold / falling over etc. and no one to notice. Some homes can be challenging to get out of as a staff member let alone a resident with dementia. It would be really interesting to know if the door was left open for a period each day how many residents went outside of their own accord.

(Excerpt from email from DC to AK, 10.05.16)

Studies conducted in multiple sites in which locking practices varied were able to demonstrate the extent to which unlocked doors increased the frequency of outdoor use[79, 160, 164]. An additional finding in the garden use model study[164] was that at the site in Maine, independent users went outside over twice as much when the door was propped open, as opposed to pulled to. However, the authors acknowledged that this would not be feasible in many climates.

Outdoor design or features of the outdoor spaces were discussed in all but one of the articles. A broad range of outdoor spaces were described, which varied widely in design, size and function. Some sites were purposively selected for being exemplary and were described as incorporating optimal features for users with dementia, whilst others were not purpose built and were little more than a courtyard or patio.

Design issues presenting barriers in the outdoor spaces or recommendations for improvement were reported in almost two thirds of the articles (17, 63%), reflecting the design orientation of much of the research. Common problems were: lack of, or unsafe walking paths, wheelchair inaccessibility, lack of covered areas to provide shade/protection from weather conditions, inaccessibility to activity or other areas and lack of safety features, such as, handrails, lack of, or inappropriate seating, insecure perimeters and inadequate lighting.

Whilst outdoor access was encouraged by views from windows and unlocked doors, particularly for self-initiated users, outdoor activity was more often associated with outdoor design and how features facilitated sensory and activity engagement. One study evaluated the influence of a newly constructed therapeutic garden on quality of life[161]. Outdoor features were purposely incorporated to encourage sensory engagement and elicit pleasurable explicit and implicit memories.

One article[162] described how the features of a renovated sensory garden cued activities, such as hosing, gardening and deadheading and picking flowers. In a post-occupancy evaluation of two sites[160], the gardens were analysed in terms of how they enabled low, mid and high-level activities. Overall, the articles suggested that outdoor design was influential in terms of resident safety and also for encouraging residents to spend time outside, via the mechanisms of being visually appealing and enabling engagement in preferred activities.

The impact of the care home physical environment on outdoor use was raised by AK in the first stakeholder consultation:

There are lots of outdoor design recommendations for health facilities and care homes; however, it is not clear how these recommendations can be implemented pragmatically and inexpensively for none purpose-built facilities. KF confirmed that dementia homes should be purpose built and that the garden should be designed as another room, however, this does not always happen. JN pointed out that dementia care has only come to the fore in the last 15-20 years, so most homes will be in older buildings which do not enable ease of access…

(Excerpt from stakeholder meeting minutes, 19.04.16)

Visual and physical access and outdoor design appear to represent influential context characteristics for outdoor use, although in the literature, there were different implications depending on whose perspective was reported and the support needs of residents. All of these characteristics were included in the initial theory for testing.

3.8.3.8 Resident characteristics

To varying extents, resident characteristics were described in all of the articles, either explicitly or through setting descriptions. The extent to which characteristics were reported to impact on outdoor use varied depending on the emphasis of the study and the types of residents targeted.

There was relatively little discussion about health or poor health in general, but mobility related issues were often characterised as a physical health limitation. Resident mobility was one of the most frequently discussed characteristics in terms of outdoor use. The articles reported a diverse range of abilities, including: independent mobility, supervision only whilst walking, physical assistance whilst walking and wheelchair dependent (attendant propel). Often residents were reported to use walking aids, for instance, walking sticks or frames. Very few articles distinguished between indoor and outdoor mobility capabilities.

Often, being independently mobile was interlinked with self-initiated garden use and for these residents, physical access was

of primary importance. Grant and Wineman[164] observed high levels of independent outdoor use in all four residential facilities. However, in one facility, the doors were locked during the observations, so only residents who were cognitively able enough to use the key code pad could go outside.

This self-initiated use was reflective of the type of setting in which the research took place. These were assisted living facilities for those with early-mid-stage dementia who required little or no assistance to move around. The applicability of findings to the UK setting is likely to be limited given the prevalence of resident dependency for mobility support in UK care homes and also, seasonal differences in weather and outdoor temperature.

In some articles, it was indicated that being independently mobile in the outdoor spaces did not necessarily mean that supervision was not required as outdoor paths, grassy areas, or features might challenge footing and balance. As reported previously, other staff fears about residents included them falling and being left unaided, wandering off, becoming disoriented and experiencing the effects of inclement weather. As one stakeholder highlighted:

Garden use for residents may reflect care worker attitudes about what is acceptable for certain levels of impairment – it might be ok for those more ambulant.

(Excerpt from notes of AK/JS telephone conversation, 13.05.16)

In other descriptive studies, resident mobility was reported to be more varied. In Kearney and Winterbottom's study[153], 100% of those who never went outside cited physical condition and lack of mobility as the main reason. Overall, 33% cited lack of staff assistance as preventing them from going outside. This was reported by residents in a number of other studies, so for those dependent on staff support to transition to the outdoor space, staffing availability rather than locked doors was the main issue.

In terms of mobility once outside, walking or moving around the spaces was frequently reported as a preferred outdoor activity and along with gardening, was one of the few reported activities to involve physical movement. However, it was not clear whether this was done independently or with support. Only two articles specifically mentioned staff walking with residents around the outdoor spaces. In one, this was valued as an opportunity to spend one-to-one time together[165]. In the other, staff reported 'purposeful walking' with residents around the garden because this improved their mood. It was not specified whether the residents required support with mobility.

Otherwise, the outdoor activities tended to involve residents being seated, either individually or in groups. Safe, level accessible paths

were identified as important in a number of studies, in terms of supporting walkers and wheelchair users to mobilise in the outdoor spaces, but also for providing access to differing activity areas.

In terms of dementia, all of the studies referred to facilities which accommodated people with dementia. In 15 (54%) of the studies, dementia was a specific characteristic of interest in terms of the study aims, outcomes or findings. Included participants comprised the entire spectrum of ability, and where specified, this was usually described as mild, moderate and severe.

Overall, the studies were focused on exploring the impact or experience of spending time in the outdoor spaces. In all but one of the nine pre-post studies focused on dementia, the impact of some element of using the outdoor spaces on BPSD was the main outcome of interest, in particular agitation. In some of the intervention studies, pacing, restlessness, agitation and feelings of confinement appeared to be BPSD mechanisms that triggered action to enter the outdoor spaces, but it is not clear whether this was intentioned behaviour or not.

In some of the qualitative studies, staff reported using the garden as a behaviour management intervention to redirect the attention of residents who had become confused, agitated or distressed indoors[159-161, 165]. Congruent with Ulrich's garden support theory[80], the gardens were described as places for residents to calm down

and recover from the stress triggered by the indoor environment. In some cases, they were used as a medium to prevent restlessness for those who were mobile or 'sundowning', which refers to an escalation of BPSD during late afternoon or early evening[173].

Overall, the gardens were not described as places that triggered agitation, but an important mechanism for those with dementia was familiarity, either of the outdoor spaces or activities encountered. These were described as promoting feelings of safety and comfort and enabling the continuity of previous skills and interests. The consequences of unfamiliar spaces were described as increased confusion and getting lost.

Some studies reported that gardens helped residents with dementia maintain their functional competence by enabling previously enjoyed activities, such as gardening[79, 159, 165]. Providing a connection to the past via familiar features and views was another mechanism. It was highlighted that green and nature-related activities were well suited to people with dementia because they can be adapted to accommodate varying levels of cognitive demand. However, there were no studies focused on staff adapting activities and very little discussion about this.

Stakeholder consultation suggested that BPSD symptoms were an important resident characteristic that might respond well to

outdoor use, but the importance of staff characteristics were highlighted:

I think the major presenting symptoms of the PLWD are worth taking a look at (i.e. over and above individual conscious preferences). In other words, folk who are withdrawn may be interested in wildlife if taken outside; restlessness may respond to purposeful walking/light gardening activities. Clearly, these can only be facilitated by engaged staff who are willing to take initiative and recognise that different approaches/adaptations may be needed. (Excerpt of JN email to AK , 21.05.16)

There was some discussion about the function of gardens for those who try to exit the care home and those with behavioural symptoms – JS suggested that the garden might be used as a medium for dementia symptom management.

(Excerpt from stakeholder meeting minutes, 19.04.16)

In Rappe and Topo's survey[79] about the role of plants in well-being, 65% of staff reported that they had used horticultural activities as therapy in care work, although these were nursing staff rather than care assistants. Nonetheless, the authors were impressed given that this is not included in the Finnish nursing curriculum. Perhaps

significantly, those who did gardening as hobby used horticulture in care work more than those who didn't. These tended to be staff in the middle-age group, as opposed to those who were younger and older.

There were few reports of dementia-related issues causing staff to be concerned, but where reported, these referred to residents becoming confused or disoriented and 'wandering off'. The staff in Rappe and Topo's study[79] reported that residents eating soil, berries and plants were the main risks related to using plants in care work.

To a lesser degree, there was some discussion about self-initiated, independent use not being possible for many residents. Connell, Sandford and Lewis[174] specified the precise number of stages involved from residents deciding to go outdoors and putting on appropriate clothing, through to getting outside, sourcing activity tools and staying engaged in the activity. For these authors a 'build it and they will come approach' was insufficient. Structured outdoor programming with adequate staffing were the suggested solutions for minimising barriers to outdoor engagement.

There was little discussion about the role of resident communication in terms of requesting to go outdoors, either verbally or non-verbally. However, engagement in the outdoor spaces was frequently reported to stimulate interaction and

communication in residents who were usually less communicative. In some of the articles reporting resident experiences, talking and conversation in the outdoor spaces appeared to be a valued activity, but it was noted that these residents were selected due to being cognitively able enough to take part in an interview.

There was much emphasis on the garden as a place to spend time with relatives, visitors and significant others. Reported accounts from relatives described the positive impact that spending time in the outdoor spaces had not only their loved ones, but also on familial relationships. Being outside was a stimulus for interaction and garden features enabled safe, non-demanding communication and also continuity, connection and reminiscence. It was reported that some relatives used garden features to orient residents in the present and maintain cognitive abilities. The role of relatives in facilitating resident outdoor access from indoors was less clear. Nonetheless, the stakeholder group suggested that family support might be an important enabler of outdoor use:

JN mentioned a couple where the person with dementia had taken up gardening, having never previously been interested. She suggested that family carers/relatives could be an important 'resource' in encouraging garden use and can be of immense help to staff, particularly when their relative experiences agitation.

(Excerpt from stakeholder meeting minutes, 19.04.16)

There was some discussion about resident mood in most of the studies (22, 79%). In the pre-post studies this was evaluated in terms of BPSD, as described earlier. In 13 of the 17 descriptive studies, the emphasis was more on mood in relation to quality of life. Most of these studies reported on how the outdoor spaces were beneficial for mood but a range of mood states were discussed including: contentment, enjoyment, happiness, pleasure, depression, cheerfulness, being alert, relaxed, recovery, balance, calm, stress, anxiety, boredom, sadness and taciturn.

There was little discussion about how mood impacted on residents accessing the outdoor spaces, except when this was found to be challenging. Several studies reported residents refusing or being unwilling to go outside. This was associated with fear and distress due to not having been outside of the unit[175], low motivation and interest in relation to a sunlight/vitamin D intervention[69], and not wanting to get of bed[174]. Gibson et al. noted that residents often declined to go outside and needed cajoling and encouraging, but once there, seemed to experience enjoyment[105]. The authors recommended flexible communication approaches as residents' first responses may not truly reflect their needs and desires.

In Cohen Mansfield's survey[157], 25% of facilities reported that their outdoor spaces were not used as much as they could be because

residents were not used to going outside, but reasons for this are not given. Depression was associated with outdoor use feeling burdensome[155] and several studies reported residents having particular sensitivity to the weather conditions[105, 154, 160, 176].

Congruent with variation in levels of neurological impairment, the articles described varying levels of capacity for engagement in the outdoor spaces. Capacity to access the outdoor spaces was described mainly in terms of self-initiated use. Scenarios requiring staff support were usually described in terms of mobility dependency, rather than engagement capacity. With regard to the outdoor spaces, the articles described a range of resident capacities.

For some residents who self-initiated their use, engagement appeared to be intentioned, for instance, going outside to drink tea and coffee, read a newspaper, going for a walk, gardening, or joining in programmed activities[154, 164]. In other cases, the degree to which self-initiated access or engagement was intentional was less clear. For instance, if unlocking doors was an intervention for residents experiencing BPSD[169, 177], they may have entered the outdoor space to continue pacing on a walking route or to escape from the stress of the indoor environment.

For residents requiring support to engage in the outdoor spaces, there was some discussion about how differing areas in the outdoor

spaces enabled activities to be adapted to suit differing levels of ability. For instance, gardening, or seated sensory engagement with nature and greenery[105, 154, 159, 161, 162, 164]. In these articles there was an implication that activities were tailored and adapted by staff, but this was not explicated. Two of the pre-post studies reported the need to individualise outdoor interventions more than previously planned due to unanticipated levels of dependency[175, 176].

The articles described differing types of engagement relative to capacity. Interaction with others included non-verbal and verbal communication with staff, relatives, other residents, volunteers and visitors. Purposeful activity engagement was usually sensory, social, physical, occupational or a combination of these. Engagement with objects and features included looking at, or touching: water, flowers, greenery and items designed to stimulate, e.g., hoses, watering cans, wood pile, memory boxes and so on. The most frequently reported types of engagement were sensory and social.

Overall, the resident characteristics posited in Table 17 (section 3.8.2.4) were understood to be relevant to varying extents, except for general health, so this was excluded. The role of resident communication in accessing the outdoor spaces was less clear, unless this involved self-initiation which might be potentially relevant for a minority of residents in UK settings. Therefore,

initiation was combined with communication as a context characteristic. As highlighted in section 3.8.3.4, outdoor interests, activities, and history were also important for residents outdoor use, and were included as a resident context characteristic, along with support needs, which were relevant overall.

3.8.3.9 Other – unknown factors

During the stakeholder consultation, there was some debate about how the use of an a priori conceptual framework might inhibit exploration of other explanations for outdoor use:

This is such a complex scenario that I wonder if it's not dissimilar to the Johari window model, where unknowns are to be expected but some may become 'known' as your study progresses. (Excerpt from email from JN to AK, 21.05.18)

JS asked how I am going to use the theories to analyse my data and resist just looking for data to confirm them. AK admitted that she wasn't 100% sure about this and would need to stand back from the theories enough to consider disconfirming instances or factors not previously considered. AK said she would be using the focus groups to test the observations that didn't fit with theories or didn't make sense.

(Excerpt from stakeholder meeting minutes, 25.08.16)

Following this feedback, 'other – unknown factors' was included in the initial theory to continually prompt consideration of unanticipated phenomena.

3.8.3.10 Mechanisms

Where possible, some potentially important resident and staff mechanisms have been reported in the narrative. However, comprehensive lists of potential mechanisms were also compiled during the data extraction process (see Appendix 7). As described previously, the intention was not to test all of those identified, but to elucidate relevant domains in which these might appear.

Staff mechanisms which might be causal or countervailing in terms of supporting residents to use the outdoor spaces were categorised into five themes: attitudes and perceptions about the function of gardens/outdoor spaces, beliefs about benefits to residents, caring values and barriers, concerns and fears.

Whilst not framed in realist terminology, stakeholders highlighted a range of countervailing staff mechanisms relating to values, beliefs and perceptions that were also present in the literature:

We discussed person-centred care and KF talked about factors blocking staff supporting people e.g., lack of staff confidence, awareness and skills re: garden use, staff fear/risk aversion re: impact of cold/poor weather, over

protectiveness, high turnover preventing staff getting to know people, lack of life history work, responses to resident fear of going out etc. KF suggested looking at the work of Kitwood and Sabat – Personhood and maintenance of self and whether blocking outdoor use could be framed in terms of 'old culture' values.

(Excerpt from AK/KF meeting notes, 22.07.16)

The group discussed the role of the activity coordinator in facilitating garden use and how staff might perceive this role negatively because this person isn't performing basic tasks. It might also feed into the idea that some-one else does activity, e.g., "that's not my job - I'm not doing that job because they don't do mine". NC highlighted that these sorts of attitudes are mechanisms that need to be switched off. (Excerpt from stakeholder meeting minutes, 19.04.16)

Resident reported mechanisms that appeared to be influential for their outdoor access or engagement were categorised into six themes: experiencing the weather, organisational and environmental support, reasons/motivations/impulses related to outdoor activity preferences, reasons or stimulus for outdoor use, motivational outdoor features and barriers and problems.

Again, there were some parallels between the literature and stakeholder comments:

JN talked about recognising the importance of disease progression and taking account of personal history/preferences. There was discussion about how much a person's past might influence garden use…

(Excerpt from stakeholder meeting minutes, 19.04.16)

I think fear is a major issue. If you have not been outside for a long time, which I believe happens to a lot of residents perhaps without anyone really noticing, you are likely to lose the confidence of going outside.

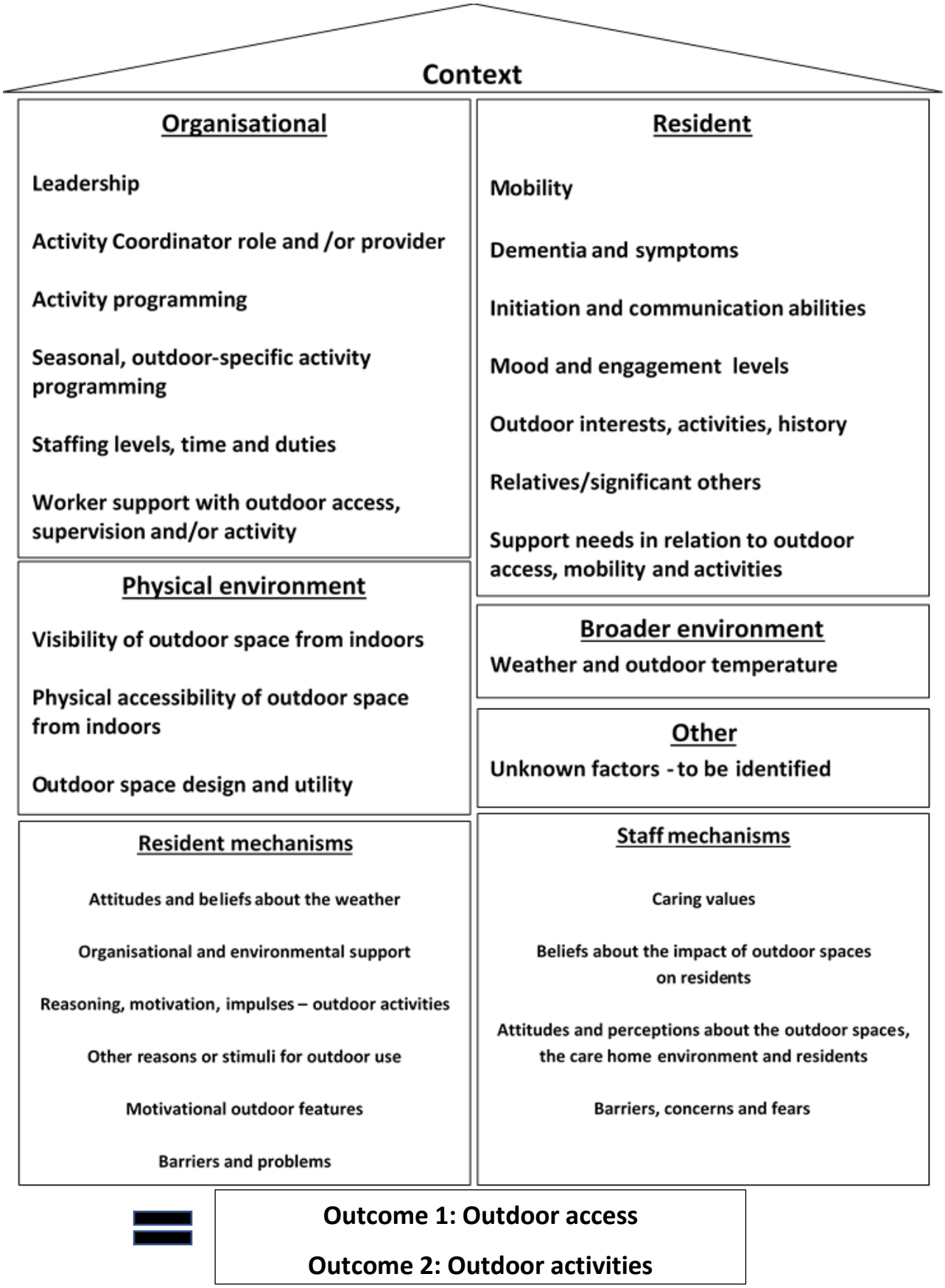
(Excerpt from email from DC to AK, 24.08.16)

Having a purpose to go outside, e.g. gardening tasks, can be a motivator. (Excerpt from email from DC to AK, 24.08.16)

3.8.3.11 Initial theory of outdoor use

Based on the results of the concept mining exercise, Figure 8 below summarises the context, mechanism and outcome components identified for phase one of the ROAM realist theory development cycle.

Figure 8: Initial theory of outdoor use components



3.8.3.12 Worked examples - context, mechanism and outcome configurations

Whilst the intention was to derive context, mechanism and configurations (CMOc) from empirical data collected in phase 2 of the study, some worked examples based on the initial theory components and supporting evidence are provided to demonstrate how theory refinement was envisaged to proceed.

Example 1: Outdoor group activities (outcome) are more likely to be provided if: the weather is warm and sunny (weather context), there is an activity coordinator on duty (organisation context), the garden is next to the communal area and seating is near the exit (physical access context), plus some residents are known to respond positively to a group garden use opportunity (resident context). Under these enabling conditions, outdoor group activities come about because the activity coordinator personally prefers warm, sunny weather (staff mechanism), values resident enjoyment of the weather/garden (staff mechanism), is minimally averse to the risks involved in supporting residents to mobilise to a seated outdoor area (staff mechanism) and feels confident to facilitate a seated outdoor activity with a group of mixed abilities (staff mechanism).

Example 2: Individualised, independent gardening activity (outcome) is more likely to occur if: the weather is warm and sunny (weather context), the care team are supportive of a resident's

preference to use the garden independently (organisational context), the doors are unlocked and open (physical access context), the outdoor space, resources and tools safely enable the resident's preferred outdoor activity (outdoor design context). In addition, the resident is independently mobile, has a history of gardening activity and has capacity and capability to initiate and carry out their preferred activity (resident contexts). Under these enabling conditions, gardening activity comes about because this has been a valued, lifelong activity which gives rise to feelings of pleasure, enjoyment, competence and continuity (mechanisms), which serve to support and reinforce the resident's identity in a communal living setting (wellbeing outcome).

3.8.4 Summary

In this chapter, the key concepts in realist evaluation have been described and critiqued and a rationale has been provided for the use of realist methodology in the programme of research. The ROAM realist theory development cycle was presented. Phase one processes to identify initial theory components in relation to outdoor use in care homes has been described and a figure depicting the initial theory is presented. The methods and results for phase two of the theory development cycle are described next, in Chapter 4.

4 Phase two - Configuring the initial theory of outdoor use

4.1 Introduction

In this chapter, the phase two methods and results used to configure the initial theory components identified in phase one are described. The resulting configured initial theory of outdoor use is presented.

In the first instance, sampling, recruitment and data collection methods are outlined. Questionnaires and observational methods, including Dementia Care Mapping were used to collect data about the frequency and duration of residents outdoor use, outdoor activities, resident mood and engagement, contextual factors and staff and resident behaviour, interactions and comments.

The recruitment results are reported first, followed by the questionnaire results pertaining to the demographic and broader context. The outdoor access and activities outcome results are then described, followed by the findings of the realist content analysis of the real-time contextual data. The section concludes with a narrative report of the realist synthesis in which initial configured context and mechanism dyads are elucidated. Discrepancies and queries indicated by the data are framed as questions within the narrative. These questions were taken forward to phase three of

the study for the care worker focus groups, the methods and results for which are reported in Chapter 5. Tables summarising the results are presented at the end of each section.

4.2 Methods

4.2.1 Ethical approval

Ethical approval for the study was obtained on 14.06.16 from NHS Health Research Authority North West - Greater Manchester South Research Ethics Committee, REC Reference 16/NW/037 (Appendix 8). Following care home recruitment, a written request was made to waive Site Specific Assessment on the grounds that care homes are not NHS sites. This was granted on 15.08.16 (Appendix 9).

4.2.2 Defining the sample

4.2.2.1 Care homes

The decisions regarding the type of care homes and participants to be included in the sampling frame were guided by the realist design of the study. The rationale is provided in section 3.8.3, but in summary, care homes without nursing and dementia specific-settings were targeted.

In order to meet the study objectives, care homes were also required to have a recreational outdoor space and/or garden. Homes were excluded if they had contracts under suspension with

health or social care providers or were having enforcement action taken by the Care Quality Commission (CQC).

4.2.2.2 Residents

Given the focus of the study, it was important for the recruitment strategy to be as inclusive as possible, incorporating residents with and without mental capacity to consent to participation, as defined by the Mental Capacity Act 2005[178]. Residents were not required to have a diagnosis of dementia to be included.

The selection of the Dementia Care Mapping (DCM) observational tool, which is validated for use in communal areas of care settings[179], determined that residents who did not use these areas were excluded. In addition, residents were excluded if, according to workers, they were in the last few days of life or unsuitable for inclusion in research for other reasons, for example, due to advance directives specifying no research involvement.

4.2.2.3 Workers

As there is a paucity of evidence focusing on the outdoor use practices and experiences of those likely to directly support outdoor use in UK care homes, it was agreed that these staff and the residents they support should be the focus of the study. For the observational element of the research, it was important to recruit activity coordinators and care workers likely to be working with

residents in the communal areas between the planned observation hours of 9am and 6pm. There were no other eligibility criteria for staff.

4.2.3 Sample size

4.2.3.1 Care homes

For the purposes of theory refinement regarding residents' outdoor use, it was necessary for the care home sample to reflect some of the diversity that is characteristic of UK settings. Therefore, the aim was to recruit three care homes of differing sizes, on the grounds that the variation sought was less likely to be reflected in a smaller sample than this. For care homes without nursing, the national interquartile range for size is 20-39 residents[180], therefore the following bed-size selection criteria were applied:

- N=1: <20 residents
- N=1: 20-39 residents
- N=1: 39> residents

4.2.3.2 Residents

The sample size for residents was calculated on the basis that AK would be able observe up to four residents, for up to six hours a day, over seven days. Therefore, the sample size would not exceed

N=28 resident participants in each care home and N=84 for three care homes.

For the care homes with less than 28 residents, all of those meeting the eligibility criteria were invited to participate. For the care home exceeding 28 residents, the manager was asked to identify a varied sample of up to 28 residents. This included males and females with a range of diagnoses, conditions, mobility levels and dependency needs, plus those who did and didn't go outside.

4.2.3.3 Workers

Consultation with care home managers indicated that between 12 and 32 different workers might be on duty in communal areas between 9am and 6pm over a 7-day period. Therefore, the sample size for the observations would not exceed N=32 workers per care home, and N=96 overall. In each care home, it was planned to invite up to N=8 workers who had participated in the observations to participate in a worker focus group. The total number of focus group participants would not exceed N=24.

4.2.4 Recruitment and consent

4.2.4.1 Care homes

There are particular challenges recruiting care homes for research. Most are independently owned and under no obligation to

participate in health and social care research and also, research processes place yet more pressure on a heavily burdened sector[55]. In the struggle to provide quality day-to-day care for people with increasingly complex needs, research may not be perceived as high priority by many managers and care home workers[141]. In turn, researchers may be daunted by the ethical, governance and methodological challenges presented by care home research and whilst many care home residents might benefit from health and social care interventions, they have often been excluded from participation in such research[181].

In response to some of these challenges and to support research into dementia and neurogenerative diseases in care homes, the Enabling Research in Care Homes (ENRICH) was launched by the National Institute of Health Research (NIHR)[182]. The on-line toolkit provides guidance and resources for residents, their relatives, care staff, managers and researchers in relation to all aspects of care home research. Useful case studies have been provided, giving examples of good practice and how some issues have been overcome, for instance, recruitment challenges.

One strategy for researchers has been to utilise the ENRICH Research Ready Care Home Network, which aims to improve the lives and health of residents through research and the consistency of support for non-NHS studies. To join this network, care homes participate in a certificated information process regarding research

engagement and are then placed on regional registers, where they may be contacted by researchers. Registers are in the public domain and accessible via the ENRICH website[182].

For the ROAM study, a purposive sampling strategy was used. Eligible care homes from Nottinghamshire were identified using the Care Quality Commission (CQC) database with filters and in addition, the ENRICH network register for the East Midlands was used[182]. All of the care homes on the register were checked against the CQC database filters to identify which met the eligibility criteria.

The initial approach to the care homes in the sampling frame was made by letter with pre-paid reply envelopes. A response slip was included, requesting care home managers to indicate if they were interested in participation. If this strategy had not yielded sufficient interest in the study, the plan was to telephone care homes that had not responded, to discuss the study further. A 14-day response deadline was imposed.

As there was more than one positive response for each bed-size category, convenience sampling was undertaken with the supervisory team, to determine which care homes would be the most suitable for addressing the variables of interest in the study. For the three homes selected, the eligibility criteria were checked with managers and site visits were conducted. Managers were

offered one week to consider the decision to participate, but in all cases, this was verbally agreed on the day of the site visit.

4.2.4.2 Residents

Once care home sites have been recruited for research, there are further challenges pertaining to resident recruitment. For researchers, the processes involved in obtaining ethical approval for resident participation may be particularly daunting. The specific ethical duties and responsibilities for health and social care researchers in England are detailed in the Research Governance Framework for Health and Social Care (RGF), which states that: "Informed consent is at the heart of ethical research."[183](p.7). Particular safeguards and processes are necessary in relation to residents of care homes, many of whom lack or have fluctuating mental capacity to consent to research participation.

Some participants may feel coerced or unable to criticise their care, or some may consent to research as a diversion from boredom or to ameliorate loneliness[184]. In an interview study with UK residents with dementia, one of the main ethical issues for Hall et al.[184] related to residents forgetting previous recruitment visits. They advise researchers to exercise perseverance and patience and allow plenty of time for extended and additional visits. Large print participant information sheets (PIS) and appointment cards with

the date, time, purpose of visit and a photograph of the researcher are also recommended.

For the ROAM study, care home managers were requested to make the initial approach to residents with study leaflets and PIS. Managers identified which residents might have the capacity to consent and these residents were then approached by AK. Additional time had been built into the study protocol for resident recruitment and large print PIS, plus an A5 study poster were used to facilitate recruitment discussions.

At the end of the first visit by AK, a recruitment visit card was provided with a photograph, contact details and the next planned visit date. Potential participants were given at least 24 hours to consider becoming involved in the study. They were then approached individually by AK, who verified the care home manager's assessment of capacity before obtaining written consent.

For those identified as lacking capacity, it was necessary to locate a suitable consultee, as stipulated by the Mental Capacity Act 2005[178]. In the first instance, managers identified relatives or significant others to act as personal consultees and sent letters out containing information sheets, advice forms and self-addressed envelopes. For those residents lacking personal consultees or with personal consultees who did not provide agreement or

disagreement within 14 days, managers were approached to be nominated consultees. Consultees were requested to take a best interests approach and to consider previously expressed views, advance directives and the likely views and wishes of the resident.

4.2.4.3 Workers

Care home managers were provided with posters and PIS and agreed to inform workers about the study during meetings, staff training and shift handovers. It was made clear to managers and workers that their participation in the observations and focus groups should be entirely voluntary, as per the PIS.

Managers provided lists of workers likely to be on duty in communal areas for the proposed seven-day observational periods and also a list of when these workers were on duty prior to this. AK arranged a series of visits and using the PIS, either discussed the study with individual workers who were on duty in the communal areas, in a private space where possible, or at shift handovers. All workers were given the opportunity to take time to consider their decision, but some provided consent immediately. It was explained to workers that as well considering taking part in observations, they were being requested to consent to completing Resident Characteristics Questionnaires, if nominated by the manager.

When recruiting staff for the observations, they were informed about the staff focus groups to be conducted in phase three and given a separate PIS. It was explained that these would be conducted after the observations had taken place and that there was no obligation to take part. However, staff would be excluded from participation in the focus groups if they had not consented to the observations. Consent processes for the focus groups were conducted separately, after the observations had taken place in all three care homes.

4.2.5 Data collection

The phase two multi-method data collection framework is summarised in Table 21. The research questions, data collection methods and the participants anticipated to provide the data are aligned against the initial theory components, that is, outcomes, context and mechanisms.

Table 21: Phase two multi-method data collection framework

Theory components	Research question	Participants anticipated to provide data	Data collection method and tools
Outcomes	Which residents access the outdoor spaces and what is the frequency and duration of use? In the care home outdoor spaces, what activities do residents engage in and what is their experience whilst there?	Residents, activity coordinators, care workers	Observation - field notes, DCM
Context	What are the broader environment (weather) characteristics that impact on residents' outdoor space use?	Activity coordinators, care workers, residents	Observation - field notes BBC Weather web page[185]
	What are the resident characteristics that impact on residents' outdoor space use?	Activity coordinators, care workers, residents	Observation - field notes Resident Characteristics Questionnaire
	What are the physical environment characteristics that impact on residents' outdoor space use?	Activity coordinators, care workers, residents	Observation - field notes Seniors Outdoor Survey (SOS) Care Home Characteristics Questionnaire
	What are the organisational characteristics that impact on residents' outdoor space use?	Managers, activity coordinators, care workers, residents	Observation - field notes Care Home Characteristics Questionnaire
	Are there other context characteristics that impact on residents' outdoor space use?	Activity coordinators, care workers, residents	Observation - field notes
	Under what conditions do residents use the outdoor spaces e.g., supported, independent, group, individual, planned, unplanned?	Activity coordinators, care workers, residents	Observation - field notes

Mechanisms	Is worker reasoning, volition or motivation regarding residents' outdoor use apparent from their behaviour, perceptions and attitudes about: work duties, the existing culture, the function of the outdoor space, outdoor activities or other phenomena?	Workers, resident	Observation - field notes
	Is worker reasoning, volition or motivation regarding residents' outdoor use apparent from their knowledge, confidence and experience regarding: residents, activity interests, outdoor history, or other phenomena?	Workers, residents	Observation - field notes
	Is resident reasoning, volition or motivation or impulse regarding their outdoor use apparent from behaviour, comments or conversations related to: the weather, outdoor access and activities, relationships with workers or other phenomena?	Workers, residents	Observation - field notes

4.2.5.1 Characteristics Questionnaires

Questionnaires were developed to obtain relevant demographic data and to clarify the broader and more static context characteristics relating to organisation and resident. Questionnaires were considered the most appropriate method for ensuring accurate, reliable and consistent quantification of this broader context data across the three care homes. Given the specifity of the context-related research objectives (3.5), there were no existing tools that could be used or tailored to provide the requisite data.

Every attempt was made to minimise bias and ensure that the instruments were valid and reliable. That is, the degree to which intended constructs are measured accurately and response accuracy can be replicated[186]. However, the limitations of this method were recognised.

A particular risk regarding questionnaire data is non-response bias, which refers to systematic differences between those choosing not to respond and responders[187]. The use of postal and on-line data surveys to collect data from care homes can be particularly problematic in terms of response rates. Netten et al.[188] reported disappointment with their 35% response rate for a survey about measuring outcomes, but this rate is not uncommon for this setting[141].

A low-response rate to a survey could mean that the sample size calculation is underpowered, hence, there is insufficient data to demonstrate the effect size required for significance. Whilst low response rates might be attributed to the heavy workloads of managers[141], they are likely to be higher if there is some perceived benefit to completion or a particular interest in the topic. This was the case for a postal survey about death and dying sent by Sidell et al.[189]. They achieved a response rate of nearly 50%, but many respondents commented how important they thought the topic was, indicating that the sample was skewed.

To overcome these issues in the ROAM study, the questionnaire data were collected only whilst the researcher was on site and this was a condition of enrolment. Of course, the sample of care homes who volunteered for the study would very likely be biased, reflecting care homes whose managers were particularly interested in outdoor activities and mobility. However, this was not considered to be problematic for the ROAM study, because the overall aim was to achieve a degree of theoretical generalisability about residents' outdoor space use via middle-range abstraction, rather than statistical representativeness of results.

As collecting data from care home and resident records can be time consuming and burdensome for managers, workers and residents, care was taken to ensure that the questions were concise and jargon-free and that the questionnaires were as brief as possible[141].

For both questionnaires, all items were constructed as closed questions and designed to provide categorical and discrete numerical data. Whilst it is good practice to pilot newly developed instruments before use[190], this was not possible due to time constraints. However, the questionnaires were reviewed by the supervisory team, who are experienced in quantitative data collection.

The Care Home Characteristics Questionnaire collected care home level data which described provider and registration type, number of beds and units, number of gardens and/or outdoor spaces, number of residents and gender, resident age-range, number of care workers, activity coordinator role and hours and indoor and outdoor activities programme status. Following recruitment of each care home, AK administered the questionnaire to care home managers in their office spaces, to ensure privacy and that care home records could be checked if necessary. Care homes were identified by their study identification code.

For residents who consented to participation in the observations, the Resident Characteristics Questionnaire was used to describe and understand resident characteristics including age, gender, date of admission, diagnoses/health conditions, indoor and outdoor mobility status and level of dependency, falls history, relative/friend/other involvement and communication abilities about activity preferences and outdoor use.

AK administered the Resident Characteristics Questionnaire to residents directly. For those with dementia, communication challenges include comprehension, word finding, memory deficits and fluctuating attention[191]. To address these issues, Beuscher and Grando suggest that interviews should take place in a private, but familiar area and that interviewers should use concrete terms and visual cues, allowing plenty of time[192]. When participants stray off topic, it is advised that the meaningfulness of their experience is validated before redirecting them back to the questions. Where possible, these strategies were employed when collecting data from residents. However, where it was not possible to gain the full information required, residents were asked for permission for care home managers to complete the questionnaires and double-check the data provided to AK. Data collection was anticipated to take up to 30 minutes per resident, but less time if staff provided the information. Residents were identified using their study identification code.

4.2.5.2 Seniors Outdoor Survey

To investigate the physical environment characteristics posited in the initial theory, it was decided that a structured tool would be useful to explore the contrast between those environmental features considered to be optimal for facilitating residents outdoor space use and those actually present, and also to aid data comparison across all three sites. Given that the conjectured

characteristics were related to physical access and outdoor design, the main criteria for an instrument for the study, was that there should be a degree of emphasis on these features in order to consider their impact on residents' participation in outdoor activities and mobility.

Only two instruments were identified which focused primarily on care home outdoor spaces and both were developed in the USA. The 'Seniors Outdoor Survey' (SOS)[193] is an observational checklist for assessing outdoor environments in long-term care settings. Rodiek, who developed the tool, suggests that systematic evaluation of outdoor spaces has not been a priority because outdoor use is not a required activity in terms of regulation. This is also the case in the UK and may well constitute a significant barrier at the macro, infrastructure layer of context, outlined in Pawson's taxonomy[110].

The SOS comprises 60 rateable items organised into five domains: access to nature, outdoor comfort and safety, walking and outdoor activities, indoor-outdoor connection and connection to the world. Items are framed as 'yes' or 'no' questions and can be scored between 1 and 7 (1 = worst, 7 = best) for the purpose of comparing environments. At the time of the study, weighting, to generate scores reflective of the relative importance of the 60 different items was still being developed. Nonetheless, the tool has been tested for validity based on a content analysis of responses from over

1,000 residents from assisted living facilities and expert consensus of items. In addition, the revised tool was tested for inter-rater reliability - the degree of concordance amongst different raters, in 12 long term care settings. Test-retest reliability, which refers to the degree of consistency demonstrated by the same rater over different time points, was also carried out. The final version of the SOS reflected high reliability in both cases.

The Alzheimer's Garden Audit Tool (AGAT)[194], developed by Cooper-Marcus, is described as an evaluative framework that aims to assess how well garden and outdoor space design meets the needs of people with Alzheimer's and other types of dementia, who use or live in dementia care units. Based on existing research, observation and expert consensus, there are 74 items divided into six sections: location and entry to garden, layout and pathways, planting, seating, overall design and details, maintenance and amenities and quality is scored on a four-point scale. Whilst the tool was pilot-tested in two large acute hospitals with dementia units, Cooper-Marcus acknowledges that it is a work in progress and that further testing is required.

In terms of items, there is considerable overlap between the tools. However, in the rationale for the development of the SOS, Rodiek asserts that AGAT is specific to the needs of those with advanced dementia and is as yet, untested. Therefore, the SOS was developed to meet the need for a psychometrically-tested tool that

could be used across a more diverse range of long-term settings for older people, including those that accommodate residents with mild to moderate dementia.

Whilst residents with advanced dementia can live in UK care homes without nursing, the Seniors Outdoor Survey (SOS) was selected for use in the ROAM study on the grounds that it might have broader applicability to the outdoor spaces of the recruited care homes. Unlike the AGAT, which was piloted in acute hospitals, the revised version of the SOS was re-tested in eight long-term care facilities that bear more resemblance to UK care homes than hospitals.

Permission was provided by care home managers for AK to walk through the indoor communal areas of the care home and around the gardens and outdoor areas of the care home. The data were collected within one day in each site. All 60 items on the survey were answered either 'yes' or 'no' but were not given a score between 1 and 7 as the relative importance of items was unknown at that time. Survey results were not discussed or shared with care home managers or workers to reduce the risk of any changes being made to care home practices or environment in response to the research activity. Care homes were identified by their study identification code.

4.2.5.3 Observations

For the purposes of theory refinement in the ROAM study, it was important to gain an accurate and real-time understanding of residents' outdoor use patterns and experience. Therefore, the observational method was selected. One strategy for researchers has been to recruit care home workers to collect observational data. For instance, in Detweiler's study of the impact of a wander garden on dementia symptoms[166], recreational activity workers recorded the number of days residents used the garden. However, they were unable to record the duration of each visit or what residents were doing outside due to staff limitations and lack of time.

Considering the demands and pressures faced by workers in UK settings, it was anticipated that they might encounter similar issues and not always be present to observe outdoor space use or able to find the time to record this. Furthermore, there is no published literature which has explored if residents' experiences of outdoor use can be described accurately by others, such as, professional care workers. Therefore, it was decided that direct observations in each care home would be undertaken by AK. However, no ethnographic strategy is without ethical tensions[195] and balancing one issue, for example, reducing burden on workers, might well create another, such as, worker and resident discomfort due to being observed[55].

Given the time constraints of the study, it would not be feasible to conduct a more conventional ethnographic study in which researchers spend a prolonged period in the field as participant observers, studying the culture, social interactions, behaviour and perceptions of certain groups[196]. Whilst understanding some of these elements would be important for clarifying context and identifying potential mechanisms, it was first important to understand and describe what was actually happening in usual, day-to day practice. This would mean imposing the least amount of influence as possible on the study environment. Therefore, the mode of non-participant observation was selected.

Where observations are overt, some kind of observer impact on study participants is unavoidable, regardless of the degree of participation. Described as the Hawthorne effect, this refers to a type of reactivity where research participants modify their behaviour in response to being observed[197]. One strategy to overcome this is to observe covertly, but given the emphasis on safeguarding potentially vulnerable participants, such as people with dementia, within research processes[183], it is unlikely that ethical approval would be attained for this scenario, and there was no strong justification for this either. Another alternative is for participants to become so accustomed or habituated to the observer's presence that they behave as if the observer wasn't

there[191]. However, given the timeframe for data collection, it was unlikely that this level of habituation would be achieved.

In non-participant observation, the main strategy to lessen the impact of reactivity refers to minimal interaction, but if observers remain too detached, this may leave participants feeling uncomfortable - a reaction to be avoided when researching in the home environment of others[54]. Luff et al. suggest that whilst observations can be a very effective method to understand routines and experiences, it can feel particularly intense for the people who live and work in care homes, who may fear exposure[141]. They advise researchers to spend time being explicit and transparent about the aims and objectives of their research and to ensure that potential participants understand how anonymity and confidentiality will be upheld, if this is applicable.

For the ROAM study, whilst it would be important to maintain some detachment during the observation process, it was considered that the recruitment process, which was anticipated to take up to two to three weeks in each care home, would provide opportunities for potential participants to become more familiar with the presence of a researcher. Posters with a photograph and contact details for AK were provided for communal areas as soon as managers consented to be involved. It was intended that by the time data collection commenced, an appropriate balance between familiarity and detachment could be maintained by AK.

To address the research objectives, two differing non-participant observation methods were employed.

Descriptive, focused observations

To establish which residents used the outdoor spaces and the frequency and duration of use, descriptive, focused observations were employed. In the absence of any existing tool to collate this type of data, field notes were recorded on a pre-designed template. This template was also used to record real-time context and potential mechanism data. It included a number of prompts related to context characteristic data and also for supporting the realist analytical process, including, hunches about mechanisms and initial theory refinement, instances of observer impact and potential theory development questions (see template in Appendix 10).

When the outdoor space exits were visible from the observation location, the times that each resident entered and exited the outdoor space were recorded. The specific outdoor activity observed, and the conditions of use were also recorded: whether instances were programmed or unplanned, individual or group, seated or mobile and supported or self-initiated. In the field notes, workers and residents were identified by their study identification code. The care home identification code and the date were recorded on each page of the field notes. To ensure the accuracy of the

outdoor frequency and duration data, the timings on the field notes were cross-checked twice with those on the DCM raw data sheets.

One of the objectives of the observations was to collect additional, real-time context data relevant to the categories in the initial theory. For instance: descriptions of the weather and changes in conditions, the frequency and duration of scheduled activities, who provided and supported activities, when doors were locked and unlocked and by whom, resident mobility status, whether relatives visited and any other context characteristics that appeared to be relevant.

The data collection approach used for the outcome and context-related research objectives resembled that of qualitative description, as described by Sandelowski[198]. This is considered to be particularly relevant for mixed methods research when the project involves gaining first-hand understanding of the experiences of service users and professionals. The approach does not subscribe to any particular philosophical orientation and involves staying closer to the data and the surface of language and events[199], which was appropriate for the first stage realist qualitative content analysis, described in section 4.2.6.3.

In terms of collecting data about resident mechanisms, it is suggested in the next section, that DCM mood and engagement scoring in relation to outdoor behaviour and activities might reveal

some connection to resident mechanisms for outdoor use, in the sense of revealing indications of pleasure, enjoyment or more negative mood states. However, it was of interest to explore if there were other ways of understanding these, if only partially.

If reasoning, volition and motivation are constituents of an unseen and invisible process, as advocated by Pawson and Tilley[109] and Astbury and Leeuw[122], then the use of non-participant observation was likely to be extremely limited for the confirmation of mechanisms. Although some literature searching was conducted, it was not possible to locate any published articles describing a detailed realist methodological approach to observations, despite their prevalence in realist evaluation for clarifying contextual elements of the programme setting. In a literature review of 32 realist evaluations to identify the prevalence of the interview method, Manzano reports that the most common pattern was to combine interviews with documentation and ethnographic observation[138].

A post on the RAMESES email discussion list[114] indicated that another PhD student was experiencing a similar dilemma (copy presented in Appendix 11). Perhaps observations were only usually utilised to clarify relevant context characteristics, precisely because mechanisms are not directly observable, as emphasised by Gill Westhorp in her response.

However, it was speculated that as initial programme mechanisms are often elicited via dialogue between evaluators and stakeholders[138, 200], it might be feasible that the interactions, comments, conversations and behaviour between workers and residents, or unprompted comments directed at AK, might on occasion, reveal staff and resident mechanisms regarding outdoor use, albeit unintentionally. Therefore, the descriptive, focused observations were also used to collect narrative data, using the qualitative field note template. The use of this method in relation to those who might not be able to engage meaningfully in the realist dialogic teacher-learner cycle, described in section 5.2.5, was intended to promote inclusiveness and explanatory completeness[109], but clearly, was somewhat exploratory. This is explored in the discussion chapter (6.5).

Wherever possible, worker and resident quotations about outdoor use, for example, comments and/or behaviour regarding the weather, outdoor activities or support for outdoor use were recorded ad verbatim in the field notes. Workers were identified by job title and the numbers in their study identification code. Residents were identified by their study identification code.

After each day of observation, the field notes were coded in accordance with the key on the template and then imported into NVivo 11 Qualitative Data Analysis Software.

Dementia Care Mapping – outdoor activities and experience

It was decided that the use of an objective measure to understand some element of resident experience of outdoor use would be appropriate to minimise observer bias and subjective interpretation during the observation process.

Standardised instruments have been developed to measure a range of differing aspects of the experience of people with dementia, for instance: the behavioural and psychological symptoms of dementia (BPSD), such as agitation and other behaviours that staff describe as challenging to support[201-203], mood, affect and depression[68, 204-206], activities[179, 207, 208], interaction and engagement[57, 179, 207] and quality of life and wellbeing[179, 209-211].

Whilst many tools have undergone substantial psychometric testing, the degree to which these elements of individual experience can be quantified is widely contested, not just by those of a more relativist disposition, but also by critical realists who claim that measurement and statistical analysis are rendered meaningless in the absence of experimental closure being achievable[118, 212] Nonetheless, Pawson clearly subscribes to the view that there is an independent reality that is knowable and as previously discussed, realist evaluation is avowedly method neutral. Thus, objective measures are acceptable if they are relevant to testing the theories under scrutiny[109, 111, 126], which was

the case in the ROAM study. Therefore, it was speculated that an objective understanding of outdoor use experience in relation to outdoor activities might provide insights into the causal influences for residents outdoor use.

To meet the outcome-related research objectives, the main criteria for the tool was that it should facilitate real-time coding for a range of activities and also be able to capture some aspect of the experience of residents with dementia in relation to activity engagement and outdoor space use. Three tools were identified.

The Assessment for Occupation and Social Engagement (ATOSE)[59] was designed to measure and compare occupational spaces. Occupational interaction and social engagement are conceptualised as quality of life components relative to the communal living spaces in care homes. Morgan Brown et al.[59] used the tool with 36 residents, plus staff and visitors to compare two Irish nursing homes experiencing an environmental transition from traditional to more household oriented units. Pre-and post-change, observations were conducted for four hours over seven days in each environment. Coding occurred after five minutes of continuous observation from a schema containing five domains and 13 items, for instance, 'interactive occupation with others' or 'receiving care interactions'.

Presumably, the tool could be used to compare these elements in terms of the indoor and outdoor spaces of the same care home or the outdoor spaces of different care homes and may well have utility in future studies of residents' outdoor use. However, for the ROAM study, it was first necessary to describe what was actually happening in usual practice. The ATOSE was not suitable for the planned observations because activities or occupation were not conceptually distinct from interaction.

To measure activity situations in terms of social and physical environmental affordances, time use and apparent affect for residents with Alzheimer's disease, Wood et al. developed the Activity in Context and Time (ACT)[207], a hand-held, computer assisted observational tool. Using environmental, time use and quality of life domains, observations of seven residents were coded every ten minutes for 12 hours, over four days. Based on extensive observations in the developmental phase, the activity situations in the environmental domain were broadly categorised as background media, downtime, television, meals and snacks, basic activities of daily living and activity groups. The coding categories in the environmental domain appear to refer to indoor features and activities, but presumably these could be adapted for outdoor use.

Whilst activity participation is included in the 'time use' domain, activities are not broken down further than 'all other activities' and 'activities of daily living'. So again, whilst potentially relevant to the

future study of residents' outdoor space use, the activity categories were not distinct and too limited for use in the ROAM study.

As highlighted in Chapter 1, Dementia Care Mapping (DCM) is a widely-used intervention directed at measuring and improving person-centred care in dementia care environments[213]. DCM uses a structured observational tool to provide data for use in a five-phase practice development cycle: briefing, observation, analysis, feedback and action planning. This cycle is then repeated every few months to review and revise action plans.

DCM produces five types of data: Behaviour Category Codes, Mood and Engagement scores, other observations relevant to the mapping purpose, Personal Detractions and Personal Enhancers. The data produced by the tool is purported to describe the relative experience of people living with dementia from their viewpoint[54]. Observations of up to eight people take place in the communal areas of care settings. After each five-minute period of continuous observation, the observer records a Behaviour Category Code (BCC) which represents what individuals were mainly doing for the period and a Mood and Engagement Value (ME), which represents whether the individual's mood was positive or negative and how engaged they were. ME values range from -5 (very distressed, very great signs of negative mood) to +5 and are calculated to give a relative wellbeing or illbeing value for the observation period, in relation to the BCC.

Occupation, as an essential psychological need for people with dementia[53] is significantly reflected in the coding schema. The BCC refer primarily to what people are doing and there are codes related to nearly every letter of the alphabet. Whilst a few of these refer to behaviour, the majority relate to an activity classification, for instance, J is for joints and refers to exercise and physical activity, L is for leisure and refers to leisure, fun and recreational activities. Values can be calculated at individual and group levels. The BCC codes and ME values are presented below in Tables 22 and 23.

Table 22: DCM - Behaviour Category Codes

Code	Memory Cue	General description of Category
A	Articulation	Interacting with others verbally or otherwise
B	Borderline	Being engaged but passively (watching)
C	Cool	Being disengaged withdrawn
D	Doing for Self	Self-care
E	Expressive	Expressive or creative activities
F	Food	Eating or drinking
G	Going back	Reminiscence and life review
I	Intellectual	Prioritising the use of intellectual abilities
J	Joints	Exercise or physical sport
K	Kum and Go	Walking, standing or moving independently
L	Leisure	Leisure, fun and recreational activities
N	Nod Land Of	Sleeping, dozing
O	Objects	Displaying attachment to or relating to inanimate objects
P	Physical	Receiving practical, physical or personal care
R	Religion	Engaging in a religious activity
S	Sexual expression	Sexual expression
T	Timalation	Direct engagement of the senses
U	Unresponded to	Attempting to communicate without receiving a response
V	Vocational	Work or work-like activity
W	Withstanding	Repetitive self-stimulation of a sustained nature (not of other or outside of self)
X	Excretion	Episodes related to excretion
Y	Yourself	Interaction in the absence of any observable other
Z	Zero option	Fits none of existing categories

Table 23: DCM - Mood and Engagement Values

Mood	ME Value	Engagement
Very happy, cheerful. Very high positive mood	+5	Very absorbed, deeply engrossed/engaged
Content, happy, relaxed. Considerable positive mood	+3	Concentrating but distractible. Considerable engagement
Neutral. Absence of overt signs of positive or negative mood	+1	Alert and focussed on surroundings. Brief or intermittent engagement
Small signs of negative mood	-1	Withdrawn and out of contact
Considerable signs of negative mood	-3	
Very distressed. Very great signs of negative mood	-5	

Qualitative field notes are used to provide additional information related to the mapping purpose. When mapping in the context of practice development, these are also used to record information about how well an individual's psychological needs are being met. Interactions between care workers and individuals are documented and where relevant, coded as 'personal enhancers' or 'personal detractors', using an additional schema based on either positive person or malignant social psychology classifications.

Whilst DCM was not designed to be a research tool, there has been much interest in its potential as an observational outcome measure for the wellbeing and quality of life of residents with dementia.

Hence, there has been some focus on the psychometric properties of the tool. In Brooker's review of DCM as a research tool[214], she concludes that concurrent validity – how well a test correlates with other validated measures, has been demonstrated with other quality of life measures and that acceptable interrater reliability (IRR) is achievable[215, 216]. However, in their study comparing continuous time sampling (CTS) with DCM on a NHS dementia ward and day unit, Thornton and colleagues[217] found low levels of IRR on BCC and Wellbeing scores. Also, compared to CTS, the ability of DCM to reflect what actually occurred in the five-minute time frame was very limited due to coding rules which prioritise positive scoring. Whilst BCC provided a meaningful picture of the activities participants engaged in, they significantly underestimated the levels of inactivity experienced.

In a secondary analysis of five different datasets in which Dementia Care Mapping Version 7 (DCM 7) was used, Sloane, Brooker and colleagues[218] identified a number of limitations of the DCM tool, related to: complex scoring algorithms, inter-rater reliability of the BCC scores, limited variability of well-being scores and rater-time burden. However, it was concluded that DCM showed some promise as an outcome measure as it may come closer to rating quality of life from the viewpoint of individuals with dementia than other measures.

Since then, Dementia Care Mapping Version 8 (DCM 8) has been introduced and this was piloted in seven service settings to provide an initial validation against DCM 7[219]. The authors found that there was concurrent validity between the two versions and cautiously concluded that the validity of DCM 8 against other quality of life measures might be comparable to that of DCM 7. However, there was a strong recommendation that further reliability testing should be conducted before DCM 8 is employed for research purposes. In particular, IRR testing should be carried out, although this would also be the case for use in practice development. For the ROAM study, the psychometric fallibilities of the DCM tool were not overtly concerning as the data were being used to refine the initial theories, rather than to make statistical inferences about quality of life outcomes. Nonetheless, there were other, more practical limitations to consider.

A well-documented disadvantage of DCM is the length of time is takes to map. Six hours of mapping is recommended per person, but this has not been tested empirically[218, 219]. At a group level, Fossey et al. found a statistically significant correlation between a six hour map and the hour before lunch time on all key indicators[215]. Variations in mapping times have not been widely tested and as yet, there is still no consensus, further research on this is strongly recommended. For the ROAM study, the six-hour mapping period was not viewed as problematic as it was unlikely

that individual residents' outdoor space use could be captured in shorter time frames.

Another potential issue related to the utility of DCM for capturing outdoor space use. There are no codes for outdoor use, or to denote when activities occur outside, so it would be necessary to capture this somehow, perhaps by placing the letter 'O' for outdoor in the corner of the relevant timeframes, along with the BCC. Also, it was anticipated that for much of the time, the majority of participants would be located in the indoor communal areas. If the care home outdoor spaces areas were not near, adjacent or visible from these spaces, it would not always be possible to record all incidences of outdoor use. Given that not being able to view or access outdoor spaces might be a reality for many residents and workers and that these constraints were under investigation, it was decided that spending time indoors would be necessary, even if some outdoor use could not be documented.

On the grounds that the DCM tool featured a broad range of activity categories and provided some means of describing the experience of those being observed, it was selected for use in the ROAM study. The BCC data collected was used in relation to outcomes 1 and 2, to identify which residents used the outdoor spaces and what they did there. The ME data were used to explore potential resident mechanisms and was used in conjunction with field note data

detailing resident behaviour, comments, conversations and interactions regarding outdoor use.

A resource-related barrier to the use of DCM, particularly for care home staff, is the intensity and cost of the training required. Basic user training, which allows use of DCM in the attendee's workplace, is provided by a three-day course and in the UK, currently costs £975.00[220]. Certification is available via licensed trainers who undergo intensive preparation and training to use the standardised methods developed by the University of Bradford[219]

Fortunately, AK secured funding via the College of Occupational Therapists ROMPA award to complete the Basic User Dementia Care Mapping (see Appendix 12) which includes an assessment of inter-rater reliability. This is recommended to check the accuracy of coding by new mappers before using the tool in practice and research. For permission to use DCM for research purposes, researchers are also required to provide an outline of their project to Murna Downs, Professor of Dementia Studies at the University of Bradford. This was provided in an email by Professor Downs on 01.02.16 (see Appendix 12).

The supervisory team agreed that it would be feasible for a new mapper to observe up to four resident participants for up to six hours per day, over seven days per care home (Monday to Sunday), between 9am and 5pm. Where it was not possible to map

for six hours continuously, perhaps due to resident unavailability or care home routines, observations were to occur on consecutive days, where possible. Six hours was the maximum observation period for all resident participants. DCM was not conducted during lunch-times as investigating wellbeing experience of meal-times was not an objective of the study. DCM coding sheets were obtained from the University of Bradford's Dementia Care Mapping website[220] to record raw data for individual participants.

The DCM training and materials provide considerable guidance for using the observational tool in an ethical and inclusive way in practice settings. Consent is viewed as an ongoing process and the guidance was strictly adhered to during each observation period. Just prior to conducting the observations AK checked with staff if there were any issues she ought to be aware of and informed them where she was intending to observe. Using a name badge and the study poster, AK then introduced herself to residents (participants and non-participants) in the selected communal area, explained the purpose and process of observing and sought consent or assent to be present in the area from residents. This was done in a way appropriate to each individual, for instance, through verbal communication or physical gestures.

DCM is a continuous observational process and observers are required to be a reasonable distance away from participants and to behave as unobtrusively as possible. From comments made or

facial expressions, it was quickly apparent when residents (participants and non-participants) were made uncomfortable by being observed and in these instances, AK made attempts to address any discomfort, calmly and sensitively. If any resident continued to appear uncomfortable in any way, the observation was discontinued in that particular area for that session. Support from the care team was sought as necessary. If resident participants demonstrated discomfort during the next observation session, consideration was to be given about whether to contact Consultees to discuss their withdrawal from the study. However, this was not necessary following any of the observation periods.

Mapping locations tended to be where there were a number of study participants present and where the outdoor space(s) or exits were visible. In most cases, if participants accessed and used the outdoor space, mapping occurred outside. As some BCC encompass a range of activities, that is: D, E, G, I, J, K, L, O, R, S, T, V and W, more detailed descriptions of the activities observed were recorded using the qualitative field note template presented in Appendix 10.

Using the raw data sheets and the DCM 8 User's Manual[221], a BCC and ME value was recorded at the end of each 5-minute time frame for each individual being mapped. The coding operational rules detailed in the User manual were strictly adhered to. Any timeframes which involved interaction between resident

participants and AK were not used in data analysis. For situations where two or more behaviours occurred within one time-frame, the order of preference operational rules detailed in the guidance were followed. In accordance with DCM guidance, workers were not identified on DCM raw data sheets. Residents were identified using their study identification code.

4.2.5.4 Research challenges and reflexivity

As emphasised previously, care home research can represent a daunting and challenging endeavour[141]. Dewing suggests that prior to commencing any research project in this setting, researchers can prepare in a number of ways[222]. Based on her own experiences of care home research and those of others derived from a literature review, Dewing developed a model to facilitate research and practice development in care homes. This comprised two main elements: awareness of the culture of the research setting and specific issues faced by researchers.

Care home culture is discussed briefly in Chapter 1 and to some extent, the project can be understood as an exploration of outdoor use culture. Furthermore, the methodology was selected as a means of managing the variation and complexity that characterise care home settings. Having worked in care home environments, the researcher (AK) was already aware of some of the differing impacts of environmental factors on quality of care, activities and

outdoor use. Nevertheless, practitioners who are used to working and communicating with people in this setting do not necessarily have appropriate skills for research. Neither are they immune to the distress expressed by some residents or the challenges of observing practices that seem unacceptable[141, 222].

Luff et al.[141] suggest that there are a number of useful resources to facilitate skill development and coping in the care home environment: reflexivity, time and flexibility, contemplation of ageing and disability and support or supervision.

Reflexivity can be described as a process which embraces the subjectivity of the researcher. This involves the researcher being aware of their influence on the research process and how knowledge is being constructed and reported[223]. During the observations, real-time reflexivity was encouraged by having written prompts on the observation field note template, including 'personal reactions' and 'observer impact on practice and behaviour'.

Luff et al.[141] suggest that time and flexibility are amongst the most valuable resources for care home researchers and warn against underestimating the amount of time that is required for care homes and researchers to become familiar with each other. Fortunately, the supervisory team are experienced care home researchers and advised building additional time into the recruitment stage to

account for longer conversations and repeat visits with residents and the varying shift patterns of workers, which would necessitate repeat visits with them also.

Dewing emphasises that researchers can expect to witness cognitive and physical frailty and if researchers are or have experienced ill health or loss of family members, distress might well surface during the research[222]. One well-used strategy has been to keep a reflective log or diary, but as noted above, a prompt for 'personal reactions' was included on the field notes. These excerpts were entered onto a new line and colour-coded and therefore, were distinguishable from the surrounding text.

Regular supervision is another helpful resource to manage distress, sadness or conflict. For the ROAM study these were planned at regular intervals throughout the data collection process. Knowing when researchers should intervene in response to resident stress or poor practice and the dissonance between the practitioner and academic role have been discussed in the reflexivity literature[222]. This was discussed with the supervisory team at supervisions when necessary. A protocol for intervening in, and reporting unacceptable practice was developed as part of the ethical approval process and discussed with manager and workers during recruitment.

4.2.6 Data analysis

4.2.6.1 Characteristics Questionnaires

Data from the questionnaires was summarised with descriptive statistics, namely: numerical values, frequency counts, percentages and means. Values were doubled-entered to ensure accuracy and to provide a measure of quality control. The data were summarised in tabular form, by care home.

4.2.6.2 Seniors Outdoor Survey

Using the raw data sheets, the number of 'yes' and 'no' answers were calculated for each of the five categories and an overall total was calculated for all 60 items. Items were calculated manually and described with frequency counts and percentages. The sub-section scores and overall scores are presented in tabular form, by care home.

4.2.6.3 Descriptive, focused observations

A spreadsheet was created to store and analyse each continuous instance of outdoor use. The row label was 'outdoor event' and these were numbered 1, 2, 3 and so on. Using the field notes, the columns were populated with the following data: resident study identification code, day of observation, start and end time in outdoor space, duration of time spent in outdoor space (hours and

minutes), location (garden and/or patio), programmed or unplanned, supported or self-initiated, individual or group, seated or mobile. For each resident, the data were summarised with frequency counts. The total duration of time spent in the outdoor spaces was also calculated. The outdoor use frequency and duration data is presented in tables, by care home.

4.2.6.4 Dementia Care Mapping

The DCM data were analysed in accordance with the guidance provided at the DCM basic user training and in the DCM 8 User's Manual[221]. Whilst it is possible to calculate Behaviour Category Codes (BCC) and Mood and Engagement (ME) scores manually, computer assisted data analysis using a pre-programmed spreadsheet was used to analyse the data.

BCC reflect what participants are doing in real-time, according to a number of pre-defined categories. A Behaviour Category Profile can be calculated on a group or an individual level and calculates the percentage of time frames that a group or an individual spent in each BCC. This data can be expressed as a percentage of the overall number of time frames observed and presented in graph form.

ME data is intended to reflect the preponderance of positive, over negative well-being, over a period of time. Whilst the raw data

recorded relates to mood and engagement, the interpreted data is understood to be reflective of well or ill-being. The well and ill-being profile (WIB), reflects the percentage of time frames that an individual or group participants spent in each ME value. Data is provided in a graph and indicates whether the preponderance of time being mapped was spent in positive or negative mood and engagement.

Raw scores for the outdoor DCM observations were entered into the spreadsheet by AK and triple-checked for accuracy. For each care home, data analysis was conducted at group and individual levels to produce a combined group outdoor BCC profile and a combined individual outdoor WIB profile.

For the ROAM study, use of the DCM BCC data related to the initial theory outcomes. The main priority was to capture the range of outdoor activities that were provided during the observation period and the overall percentage of time spent in each, rather than to scrutinise what individual participants were doing, or analyse activities by day of the week. Fortunately, the DCM Excel programme allows for the combination of data in recognition that mapping might need to occur on differing days or in different locations. In accordance with the guidance, for each care home, the results of the group outdoor BCC for each day were copied and pasted into the relevant cells onto a master sheet. The resulting combined group BCC graphs reflected all of the BCC that occurred

outside during DCM and the percentage of time spent in each overall.

The use of the outdoor ME data related to identifying potential resident mechanisms, and therefore, was analysed by individual. The daily ME values for each individual were copied and pasted onto a master sheet. The resulting combined individual graphs provided an average, overall WIB score for each individual, in terms of all of the time that they were mapped outdoors. This data were summarised in tables, by individual resident.

The specific outdoor activities documented in the field notes were recorded against each separate instance of outdoor use. Where activities occurred during DCM and were coded, this data were summarised in tables by the number of residents who received the BCC code along with a narrative description of the activities. Where outdoor activities were observed outside of DCM, these were summarised narratively.

4.2.6.5 Realist analysis

Realist qualitative content analysis

Pawson and colleagues suggest that one effective strategy for configuring context, mechanisms and outcomes is to "work backwards and 'outwards' from the outcome of interest"[112](p.182). For the ROAM study, a key outcome of interest was to identify

which residents accessed the outdoor spaces. Therefore, a logical starting point was to work backwards from each instance of outdoor use in order to identify the relevant context characteristics in operation across the care homes. In this stage of data analysis, the emphasis was on describing real-time context phenomena, and the approach used resembled that of qualitative content analysis.

This method is described as being suited for use with qualitative description which was used for the descriptive, focused observations. Qualitative content analysis goes beyond quasi-statistical analysis in seeking to understand the underlying content of the data. It is suited to representing data in its own terms and pre-existing codes may be applied or codes can be generated from the data. For this stage of the analysis, pre-existing codes were used which were comprised of the context characteristics detailed in the initial theory. It was necessary to adapt some characteristics to elements which were observable. For example, manager involvement in outdoor use activities was used as a proxy for leadership.

The spreadsheet created to identify each instance of outdoor use was augmented with columns which were labelled to represent each context characteristic posited in the initial theory, by category. The field notes in NVivo were then scrutinised for context characteristic data relevant to each event of outdoor use and the columns were populated, using uniform terms where appropriate,

or binary ‘yes’ and ‘no’ labels, so that filters could be applied to facilitate the analysis.

Given that many of the same context characteristics for weather, organisation and physical environment were present for continuous periods of outdoor use, the data were then analysed by day of observation and care home. Also, the data for supported and resident-initiated use were differentiated given that the context characteristics were likely to vary between these conditions. The data were summarised by category in tables and for each day of outdoor use that was observed, a tick or a cross was used to denote whether a characteristic was present or not, thus providing an overview of context. The exception to this was the context data for residents which was analysed by resident, using study identification codes. The plan was then to augment the tabular results with narrative data and explore the relative importance of each characteristic and also highlight any context data that required clarification.

Configuring context with potential mechanisms and generating focus group questions

Having explored the presence of varying enabling and constraining context characteristics in relation to outdoor use, it was then necessary to begin configuring these with potential causal and counter mechanisms. In the review of realist evaluation in health

systems research by Marchal et al.[126], a key recommendation was for more methodological guidance with regard to CMO configuration. As highlighted by Pawson and others[111, 224], one issue is that results are often presented in lists in tables and the links between context, mechanisms and outcomes are not made explicit. An exception to this is a worked example of a realist-focused process evaluation of a clinical trial of a community mental health intervention provided by Byng et al.[225].

The authors describe their approach to refining CMO configuration of post-intervention interview responses as analytic induction. Whilst this can be understood as the systematic development of causal explanations by examining similarities and differences between cases[226], Byng et al. reframe this for their realist evaluation as the: "postulated relationships between contexts and mechanisms and outcomes…'likely to be of importance'"[225](p.73). The tested and articulated CMOs were viewed as a form of guidance rather than possessing predictive power. This was the aim for the final phase of theory development in the ROAM study, that is, the articulated, linked contexts and mechanisms would be presented in terms of their likely impact on the outcome of resident's outdoor use. However, the process of configuration differed somewhat.

In their article reporting a realist evaluation of the role of Community Parents in early parenting programs in Toronto, Jackson and Kolla[224] attempted to follow the data reduction process

used by Byng et al.[225], which commenced with identifying initial CMO configurations from existing literature and programme stakeholders. However, the authors felt unable to identify CMO configurations from their data due to the paucity of relevant literature and knowledge about their programme topic. Instead, they sought to derive CMOs empirically from practitioner narratives in the interview transcripts. They coded the data in individual, discreet units of context, mechanism or outcome and also as linked dyads, triads or more complex strings and were surprised to find that that no matter what question was asked, sentences were usually comprised of CM, MO, CMO or CMMO. The authors claim that as they could find no guidance on linked coding and working with dyads or triads, their method presents an original contribution to the field.

Whilst this remains to be seen, a similar approach was followed for the phase two realist analysis. Configuration focused on identifying and linking potential mechanisms with context characteristics in terms of their enabling or constraining impact on outdoor use. This analytical process involved moving back and forth between the deductive logic which produced the unconfigured initial theory and the inductive reasoning catalysed by empirical observations. More contemporaneously in realist enquiry, this has been described as 'retroduction'[113].

In NVivo, node folders representing the initial theory context categories were created, that is, weather, organisation, physical environment, resident and other. In each folder, separate nodes were created for workers and residents and labelled 'behaviour and verbal comments'.

The field note transcripts were then scrutinised by consecutive day of observation. Any non-verbal behaviour and verbal comments related to outdoor use were highlighted and coded by category. For instance, resident behaviour or comments related to looking out of the window into the garden were coded in the resident sub-node in the physical environment node folder and labelled 'visibility from indoors'. The data was then explored for examples in which reasoning, perceptions, attitudes and motivations were potentially indicated. Any relevant excerpts were organised into the sub-nodes: potential causal mechanism and potential counter mechanism. Once this was completed, it was possible to begin connecting behaviour and comments and thus, potential mechanisms, with context characteristics.

Given that the transcript data was generated via non-participant observation and not from directed questions about the initial theory, in most cases, there were queries regarding elements of context, the posited mechanisms or the initial configuration as a whole. For each category node, a linked memo was created to document the analytical thought process and any questions being

asked of the data. These early queries would later be constructed as the questions for the worker focus groups.

During the process of configuration, the broader context characteristic data and outdoor activities outcome data was revisited. Where this supported or challenged coded data from the transcripts, this was added to the category node memo as a prompt for inclusion in the reporting of the results. These were reported narratively, by category, thus following a consistent format for each phase of theory development.

Quotations and researcher field note reflections are presented to demonstrate the analytical process of identifying the initial context and mechanism configurations and the associated queries. These queries were constructed as the questions to be used for the worker focus groups, and thus comprised the interview schedule for these groups. The results of phase two were summarised in tabular form to provide an overview of the focus group questions in relation to the posited context and mechanism configurations.

4.3 Results

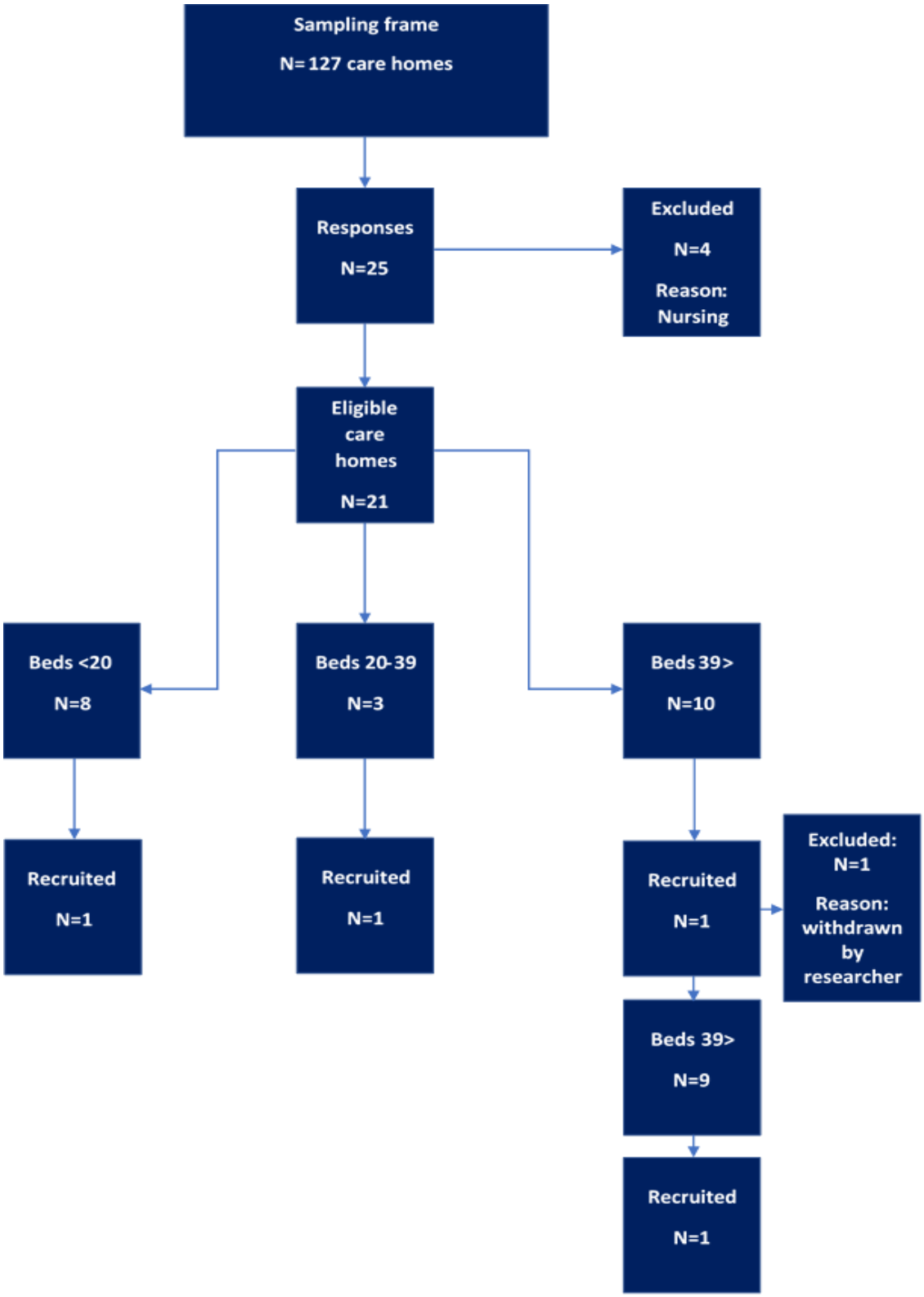
4.3.1 Recruitment

4.3.1.1 Care Homes

Care home recruitment commenced on 13.07.16 and closed on 29.07.16. From 127 care homes contacted, 25 responded volunteering for the study. Four were from care homes with nursing and therefore excluded. From the remaining 21 eligible care homes, there were eight responses from the bed-size category <20, three from 20–39 and ten from 39>. Following site visits, one care home was recruited from each category.

In the care home recruited from the 39> bed-size category, it became apparent that recruitment processes would be substantially delayed due to annual leave in the management team, therefore this care home was withdrawn from the study by AK. Another care home from the same bed-size category was selected and agreed to participate at the site visit. There were no further withdrawals. See Figure 9 for a flow chart of the care home recruitment results.

Figure 9: Flow chart of care home recruitment results



4.3.1.2 Residents

The total number of eligible residents for the study was 81 and, of these, 50 were recruited, resulting in an overall recruitment rate of 62%. Twenty-three of the residents provided written consent and consultee advice was obtained for 27 residents who did not have mental capacity to consent to participate. Table 24 shows the recruitment rate of eligible residents by care home. Table 25 shows the reasons why 31 of the eligible residents were not recruited.

Table 24: Recruitment rate of eligible residents by number and percentage, per care home

Care Home	Total number eligible of residents	Number of residents recruited	Recruitment rate by percentage	Eligible Residents not recruited
A <20	12	8	66%	4
B 20-39	23	14	61%	9
C 39>	46	28	61%	18
Total	81	50	62%	31

Table 25: Reasons eligible residents not recruited, by care home

Care Home	Declined	Consultee declined, lack of consultee, no response	Hospital admission during recruitment	Became end of life during recruitment	Total
A	1	2	0	1	4
B	7	1	0	1	9
C	12	2	3	1	18
Total	**20**	**5**	**3**	**3**	**31**

4.3.1.3 Care home workers

Forty-five care home workers were approached to participate in the observational element of the study. Of these, 35 were recruited resulting in a recruitment rate of 78%. Table 26 shows the recruitment rate of care home workers by care home.

Table 26: Recruitment rate of care home workers by number and percentage per care home

Care Home	Number of workers approached	Number of workers recruited	Recruitment rate by percentage
A	14	12	86%
B	6	6	100%
C	25	17	68%
Total	**45**	**35**	**78%**

4.3.2 Demographic and broader context information

4.3.2.1 Care homes

The recruited care homes were located in the East Midlands, two in suburban areas and one in a rural village. All were situated within one mile of a town centre with local amenities including shops, libraries, pubs and restaurants. Each care home was two-storey and had bedrooms on the ground and first floors.

The care homes were privately owned and operated as profit-making businesses. Care home A was owned by a small local company, B was a family-owned business and C was owned by a large national provider of UK care homes for older people. Table 27 shows results from the Care Home Questionnaires.

Table 27: Care homes' A, B, C - demographic information

Care home Identity code	A	B	C	Totals
Provider Type	For profit	For profit	For profit	**N/A**
Bed size Category	< 20	20 - 39	39 >	**N/A**
Number of distinct living areas	1	1	3	**5**
Number of outdoor spaces	1	2	2	**5**
Total number of residents	18	23	67	**108**
Number and percentage of female residents	10, 55%	17, 74%	49, 73%	**76, 70%**
Number and percentage of male residents	8, 45%	6, 26%	18, 27%	**32, 30%**
Age range of residents	77 - 98	70 - 98	63 - 103	**63-103**
Number of permanent staff	23	25	64	**112**

Each care home employed a full-time registered manager, a deputy manager and also a number of team leaders, care workers and activity coordinators, depending on the size of the home. Table 28 shows the team leader/care worker to resident ratios.

Table 28: Worker to resident to ratios, by role and care home

Care Home	Number of care workers & team leaders on duty per day time shift	Care worker & team leader to resident ratio per day time shift
A	3	1:6
B	3	1:8
C	8	1:9

Each care home followed a similar daily routine which is summarised in Table 29. In care home B, care workers were

required to clean the toilets in the morning and the afternoon, even though the home employed housekeepers who worked from 7am until 3pm every day. For those residents requiring supervision or assistance to walk, prompting and support from staff to mobilise was generally only provided during toileting and lunch-time.

Table 29: Daily routine in ROAM study care homes

Daytime structure	Resident Location	Time
Breakfast Medication	Dining room or bedroom	8.30 – 9.30
Activity programming Tea trolley Medication Toileting	Communal lounge, corridor or bedroom	10:00 – 12:00
Lunch Medication	Dining room or bedroom	12:00 -14:00
Activity programming Tea trolley Medication Toileting	Communal lounge, corridors or bedroom	14:00 – 16:00
Tea-time Medication Toileting	Dining room or bedroom	16:00 – 17:30

4.3.2.2 Residents

Table 30 shows the results of the Resident Characteristics Questionnaire, by care home. A breakdown of resident mobility status is reported in Appendix 13.

Table 30: Care homes' A, B, C - resident demographic information

Care Home Code	A		B		C		Totals	
	N	%	N	%	N	%	N	%
Female	5	62%	10	71%	23	82%	38	76%
Male	3	38%	4	29%	5	18%	12	24%
Total number of residents	8	16%	14	28%	28	56%	50	100%
Mean age	85	N/A	86	N/A	88	N/A	87	N/A
Dementia	6	75%	9	64%	23	82%	38	76%
Supervision/ assistance required to access outdoor spaces from indoors	6	75%	10	71%	26	93%	42	84%
Supervision/ assistance with indoor mobility	5	63%	9	64%	15	54%	29	58%
Supervision/ assistance with outdoor mobility	5	63%	9	64%	20	71%	34	68%
At least one fall in last year	2	25%	4	29%	19	68%	25	50%
Able to express activity preferences Yes Sometimes No	 5 3 0	 63% 37% 0	 13 1 0	 93% 7% 0	 10 13 5	 36% 46% 18%	 28 17 5	 56% 34% 10%
Able to express wish to use the outdoor space Yes Sometimes No	 5 3 0	 63% 37% 0	 13 1 0	 93% 7% 0	 10 13 5	 36% 46% 18%	 28 17 5	 56% 34% 10%
Relatives/friends (not staff) accompany to outdoor space	6	75%	13	93%	21	75%	40	80%

4.3.2.3 Activity in the care homes

Table 31 shows activity-related data. Whilst each care home employed activity coordinators, they operated different models of activity provision. Care home A provided the greatest number of activity hours, relative to resident numbers. There were two activity coordinators, who worked on different days, to provide a total of 40 hours of programmed activity time per week, Monday to Saturday. The ratio of activity coordinators to residents per day was 1:18.

In B, the care home administrator was employed for one and a half hours per day over four days as an activity coordinator, however, these six hours per week were used to devise the monthly activity schedule and organise the activity materials for the care workers to provide activities. The activity coordinator reported that the care home had recently employed a temporary general assistant (GA) for the summer, to work for two hours every weekday afternoon. Her role was to manage the afternoon tea trolley and to facilitate activities. The ratio of activity providers to residents per day was 1:23.

In care home C, there were two activity coordinators who worked on different days to provide a total of 35 hours of programmed activity time per week, Monday to Friday. The ratio of activity coordinators to residents per day was 1:67.

All of the care homes used activity providers external to the organisation and stated that they provided planned, group and individualised activities, however, outdoor activities were reported to be weather permitting.

Table 31: Number of activity coordinator and hours per week and activity programming, by care home

Activity provision	**A**	**B**	**C**	**Totals**
Number of Activity Coordinators	2	1	2	**5**
Number of Activity Coordinator hours per week	40	Activity Coordinator = 6 General Assistant = 10	35	**81**
Activity provision hours per day	6	2	7	**15**
Activity provider to resident ratio	1:18	1:23	1:67	**1:36**
Regular, planned group activities programme	Indoors: Yes Outdoors: weather permitting	Indoors: Yes Outdoors: weather permitting	Indoors: Yes Outdoors: weather permitting	**N/A**
Regular, planned individualised activities programme	Indoors: Yes Outdoors: weather permitting	Indoors: Yes Outdoors: Weather Permitting	Indoors: Yes Outdoors: Weather Permitting	**N/A**

In general, the boundary between activity and care provision was fairly distinct. The activity coordinators did not provide support with personal care and toileting and the team leaders and care workers undertook basic care tasks including personal care, administering medication, toileting, support with drinks/meals, and supervision and assistance with transfers and mobility. To varying degrees, care provision was routinized and task-oriented rather than person-centred and needs-led.

As demonstrated by Tables 28 and 31, worker to resident ratios varied significantly between the care homes. Each day except for Sunday, the activity coordinator in care home A provided support at the main meal time. Over half of the residents opted to stay in their rooms, so care workers spent much of their shift answering bells and checking that these residents were safe and well.

In care home B, the onus was on the care workers to provide activities in the morning, however, there were usually only two care workers in the communal areas. By contrast with A, nearly all of the residents sat in these areas all day and were discouraged from trying to go to their bedrooms. The care workers were not observed providing any morning activities as per the activity timetable. The temporary general assistant facilitated some activities in the afternoons after she had visited the three communal lounges with the tea trolley, but these were generally provided in the same communal lounge, which was the one adjacent to the patio exit doors.

In care home C, the activity coordinators alternated between the ground floor and the first floor at lunch time each day. In the locked units, the majority of residents tended to sit together in the communal lounges, and large group activities were observed being delivered by the activity coordinators and external providers. In the smallest communal living area, which was nearest the main garden, some of the residents stayed in their rooms. On occasion,

one of the activity coordinators was observed facilitating individualised indoor activities on both floors. For one afternoon, the care workers on the first floor initiated some indoor activities, such as carpet skittles and basketball.

In each care home, planned activity programmes were on display in prominent communal areas in written English. In care homes A and C, these programmes were rotated or changed four-weekly and, in care home B, monthly. Activities were mainly chair-based and included: arts and crafts, exercise, music and singing, reminiscing, floor games, bingo and table games and quizzes. Each home reported providing seasonal event activities in relation to Easter, Harvest Festival, Halloween, Bonfire night and Christmas. The only care home to specifically mention the garden on activity programmes was care home C.

4.3.2.4 Outdoor spaces

The outdoor spaces of the care homes varied considerably. Table 32 shows the overall SOS results by care home.

Table 32: Seniors Outdoors Survey results – number and percentage of outdoor features by sub-section and overall

Seniors Outdoor Survey	Items	A	B		C	
			Garden	Patio	Garden	Patio
Access to Nature	14	14 100%	11 79%	0 0%	10 71%	6 43%
Outdoor comfort and safety	15	10 67%	11 73%	8 53%	5 33%	7 47%
Walking and outdoor activities	14	3 21%	5 36%	5 36%	6 43%	4 29%
Indoor-outdoor connection	11	4 36%	4 36%	3 27%	3 27%	4 36%
Connection to the world	6	1 17%	0 0%	3 50%	5 83%	3 50%
Totals	60	32 53%	33 55%	19 32%	29 48%	24 40%

In care home A, there were large windows in the dining room and the communal living room which each gave a good view of a part of the garden. The main garden exit was through a conservatory attached to the communal dining room. There were raised thresholds at the inner and outer doorways of the conservatory. Both doors were secured by slide bolts at the top and foot of the doors which residents were unable to manage independently. The

garden ran the entire length of the rear of the building and about two thirds of this consisted of a green lawn space which was abundant with trees, shrubs and flowers. There were no safe, level walking paths through the lawn area. There was a pond, bird tables, a pagoda, a chicken coop and a large shed on a raised platform. The area near the main resident exit was a concrete patio which contained two large wooden tables and chairs, a portable gazebo and table umbrellas. A part-time gardener was employed by the care home to maintain the outdoor space.

In care home B, the garden was aligned with one side of the building where the communal dining room was, but it was sunken and at a significantly lower level than the building and the windows. Therefore, it was not visible from any ground floor windows for anyone who was in a seated position. The only resident exit to the garden was via the front door and down a steep concrete path with a metal handrail. The front door and the inner porch door were made secure with a Yale lock and slide bolts. None of the residents were able to unlock the doors independently. There was a raised threshold in the porchway and the area immediately outside the front doorway, including the path to the garden, was secured by a heavy iron gate which was spring-loaded and had a key-code pad. Most of the garden was lawn and bordered by shrubs and flowering plants and there were no appropriate paths for walking or

wheelchair use. There were some tables and chairs, some empty animal hutches and a bird table.

The care home B patio was adjacent to one of three communal lounges and although there was a floor to ceiling fire door, the view of outside was partly obscured by a long net curtain. The patio was accessed through two fire doors which were not alarmed. Some residents might have had the ability to open them using the push-bars, but none were observed trying to do so. The patio area looked out onto the car park and the road at the front of the building. There were chairs, tables and table umbrellas but no plants or other features. The majority of residents were concentrated in the communal lounges which were near the patio exit. It was only possible to observe the patio from one of the three lounges.

In care home C, part of the garden was visible from one of the three communal dining rooms and six downstairs bedrooms with patio doors that opened into the garden but was not visible from indoors for most residents. Access to the garden was via alarmed, sliding patio doors which were in one of the communal dining areas in one far corner of the building. Residents with bedrooms in the other living area downstairs and those upstairs were in locked units secured by key-code pads and the majority had no direct access to the garden.

The exit patio doors were secured with a Yale lock for the duration of the observations. The key was kept in a cupboard which was out of reach of the residents living in this area. The threshold in the patio doorway was fairly level and the area directly outside the dining room and the bedrooms was paved and level. The garden mostly consisted of lawn and there were trees, flowering plants, shrubs and also a raised flower bed. There was a narrow concrete path directly next to the bedrooms with garden access. However, there were no walking paths away from these bedrooms through the main lawn area. There was a range of garden equipment propped against the wall for residents to use.

The patio at care home C was at the front of the building next to the other communal living area on the ground floor. Part of the patio was visible from the communal lounge, but the view was obscured by curtains. The patio was accessed via the communal dining room in the other downstairs living area and was only accessible to residents living in this area. The threshold in the doorway was fairly level. The patio door was secured with a Yale lock for the duration of the observations and residents did not have access to the key. There was no seating or tables (reported to be kept indoors in winter) but there were a range of potted shrubs and plants.

None of the care homes provided any microclimate features, such as fans or heaters. Whilst there were opportunities to sit in the sun

or shade in each garden, there were no features that might provide shelter from inclement weather.

4.3.2.5 Observation data collection periods

The observation data collection occurred between 26th August to 11th November 2016. Due to the lower number of resident participants in care home A, the observation period was six rather seven days. The times of each observation period varied each day, depending on what was happening in the care home and where residents were located. Observations generally occurred between 09:45 and 16:00. For each day, the start and end times of each continuous observation were recorded using qualitative field notes. Dementia Care Mapping (DCM) occurred within these periods and was conducted when possible. DCM start and end times were recorded using the raw data sheets.

Table 33 shows the observation periods in each care home in days, hours and minutes.

Table 33: Observation duration, plus number and percentage of residents who used outdoor space, by care home

Care Home	Time period	Number of observation days	Duration of observations in hours and minutes
A	26th August - 5th September	6	25.30
B	14th September - 11th October	7	30:50
C	8th November - 14th November	7	29:10
Total	N/A	**20**	**85:30**

4.3.3 Outcome 1: Outdoor space access

4.3.3.1 Number of residents who used the outdoor space

During the observation periods, a total of 14 (28%) resident participants were observed using at least one of the care home outdoor spaces. Table 34 shows the number and percentage by care home. It should be noted that non-participant residents did use the outdoor spaces in A and B, but only on the same days as participants.

Table 34: Number & percentage of residents who used the outdoor space by care home

Care home	Number of resident participants in study	Number of who accessed outdoor space	Percentage who accessed outdoor space
A	8	8	100%
B	14	6	43%
C	28	0	0%
Total	**50**	**14**	**28%**

4.3.3.2 Frequency and duration of residents outdoor use

For care homes A and B, Tables 35 and 36 show the frequency and duration of outdoor access, the number of continuous outdoor events, plus the amount of time that outdoor Dementia Care Mapping (DCM) was conducted, by resident.

Table 35: Care home A – number of days, number of continuous instances and total time spent in outdoor space, by residents

Resident Code	Number of days in outdoor space	Total duration in outdoor space in hours & minutes	Number of separate instances of outdoor use	Number of days of outdoor DCM per resident	Total DCM time in outdoor space in hours & minutes
01-A	4	:50	9	0	0
02-A	2	4:55	3	2	2:45
03-A	5	16:55	6	2	4:35
04-A	1	1:30	1	1	1:15
05-A	1	1:30	1	1	1:25
06-A	5	14:40	6	2	4:40
07-A	5	17:20	7	2	4:10
08-A	4	8:15	5	2	4:35
Cumulative total	**N/A**	**66:55**	**38**	**N/A**	**23:25**

Table 36: Care home B – number of days, number of continuous instances and total time spent in outdoor space, by resident

Resident Code	Number of days in outdoor space	Garden, Patio, Both?	Total duration in outdoor space in hours & minutes	Number of separate instances of outdoor use	Number of days of outdoor DCM per resident	Total DCM time in outdoor space - hours & minutes
01-B	1	Patio	1:35	1	1	1:20
02-B	2	Patio	1:30	2	2	1:25
03-B	0	Patio	0	0	0	0
04-B	1	Patio	1:35	1	1	1:15
05-B	0	Patio	0	0	0	0
06-B	1	Patio	50	1	1	:40
07-B	0	Patio	0	0	0	0
08-B	1	Patio	50	1	1	0
09-B	3	Both	1:35	4	0	0
10-B	0	Patio	0	0	0	0
11-B	0	Patio	0	0	0	0
12-B	0	Patio	0	0	0	0
13-B	0	Patio	0	0	0	0
14-B	0	Patio	0	0	0	0
Cumulative total	**N/A**	**N/A**	**7:55**	**10**	**N/A**	**4.40**

4.3.3.3 Outdoor use conditions

The 48 separate instances of outdoor use were scrutinised to determine the conditions which they occurred under, in anticipation that the contextual characteristics and associated mechanisms would vary accordingly. Outdoor use occurred under a number of conditions: supported or resident-initiated, programmed or non-programmed and group or individual. The supported condition referred to outdoor use which was initiated and facilitated by workers. Residents who made requests to go outside were included in this condition if they declined to go outside without a worker and other residents.

The resident-initiated condition referred to outdoor use which was initiated and enacted by individual residents and involved them spending time outdoors by themselves, although others might have been present in the outdoor space. There were three permutations of the conditions in each care home: supported-programmed-group, supported-non-programmed-individual and resident-initiated.

In care home A, most of the outdoor use was supported and occurred in a group during programmed activity time. Each of the resident participants experienced this condition and they were usually seated together around tables on the concreted patio area

in the garden. There was a limited amount of resident-initiated use, which involved two residents.

Whilst comparatively less time spent was spent in the outdoor spaces in B, like A, most of the outdoor time was supported, programmed and occurred in groups, with residents being seated on the patio. Four of the fourteen resident participants experienced this condition. There was a very limited amount of resident-initiated use, involving only one resident.

Despite managers stating that the care homes provided programmed, individualised activities, this was not observed. There was, however, a very limited amount of supported, non-programmed, individual use, involving one resident in each home. In both instances this represented a diversionary strategy in the sense that the residents were being discouraged from trying to go to bed.

Given that this condition only occurred once in each care home and that the explanations were unambiguous, the analysis focused on the other two variations. Tables 37 and 38 show outdoor use condition variations. Overall, there were 36 instances (75%) of supported outdoor use and 12 (25%) of resident-initiated use.

Table 37: Care home A - outdoor use condition variations by number of events, residents and duration of outdoor time

Outdoor use condition variations	Number of events	Number of residents	Duration of outdoor time
Supported-Programmed-Group	29	8	64:40
Supported-Non-programmed-Individual	1	1	:30
Resident-initiated	8	2	:45
Total	**38**	**N/A**	**65:55**

Table 38: Care home B - condition variations by number of events, residents and duration of outdoor use

Outdoor use condition variations	Number of events	Number of residents	Duration of outdoor time
Supported-Programmed-Group	5	4	5:30
Supported-Non-programmed-Individual	1	1	:50
Resident-initiated	4	1	1:35
Total	**10**	**N/A**	**7:55**

4.3.4 Outcome 2: Activity in the outdoor space

4.3.4.1 Dementia Care Mapping - outdoors

Figures' 10 and 11 represent the combined percentage of time spent in each BCC for each resident who was mapped outside. In care home A, 51% of the outdoor time was coded as A or B which means that residents were either verbally or non-verbally interacting in the absence of any accompanying activity or were sitting and observing but not actively engaged in what was happening around them. In care home B, 32% of the time was coded as J which was an armchair Zumba class run by an external provider. Like care home A, a significant proportion of time (29%) was coded as A or B, although the care home B percentages apply to significantly less overall mapping time.

Figure 10: Care home A – combined groups BCC profile, outdoor space

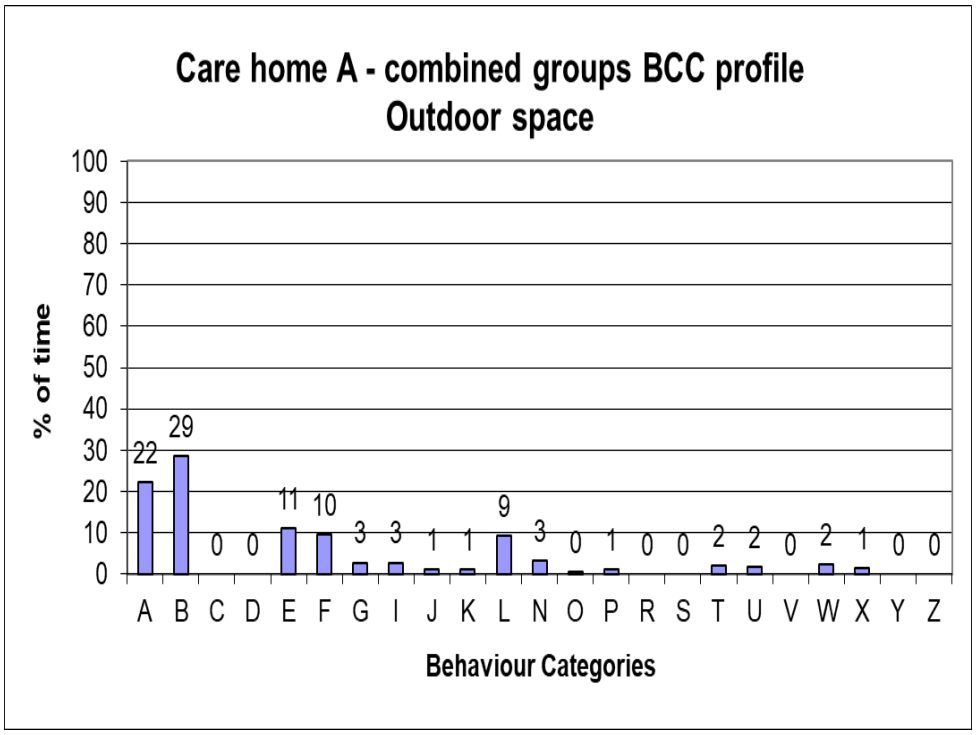
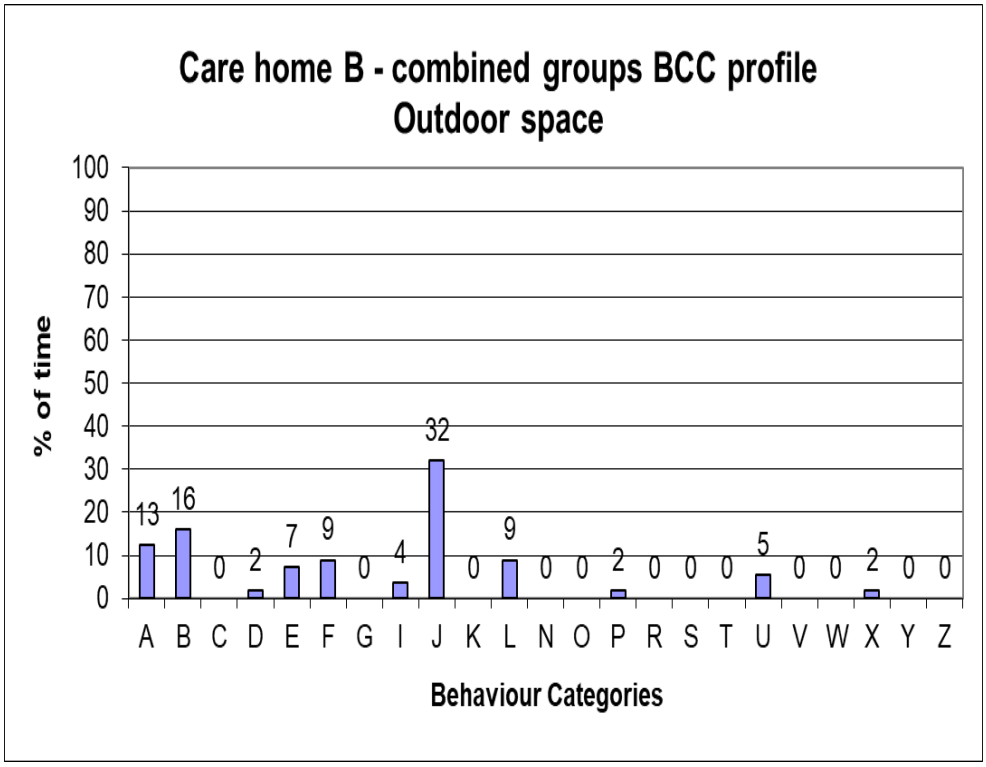


Figure 11: Care home B – combined groups BCC profile, outdoor space



Tables 39 and 40 detail all of the BCC that were used, how many residents received the BCC and the specific activity (if there was one), by care home. Where codes encompassed a range of activities, that is: A, B, E, F, G, I, J, K, L, O and T, the specific activities are described.

Table 39: Care home A - BCC in outdoor space, number of residents per BCC and activity descriptions

BCC	Number of residents who received BCC	Specific Activities
A	7	General conversation in a group (with other residents, workers, relatives, others)
B	7	Sitting in a group, passively watching, but not engaging with the activity or what is happening
E	5	Singer /entertainer (3) Group painting activity (5)
F	4	Drinks breaks
G	3	Group reminiscence using Daily Chat
I	1	Jigsaw
J	3	Seated ball game
K	2	Walking to/from patio area in garden
L	5	Looking at Daily Chat or newspaper/book
N	2	See BCC table
O	1	Holding a hat
P	2	See BCC table
T	1	Rubbing clothing/wheelchair
U	2	See BCC table
W	1	See BCC table
X	1	See BCC table

Table 40: Care Home B - BCC in outdoor space, number of residents per BCC and activity descriptions

BCC	Number of residents who received BCC	Specific Activities
A	3	General conversation (with other residents, workers)
B	3	Sitting in a group but not engaging with an activity or what is happening
D	1	See BCC table
E	2	Music (after Zumba)
F	3	Drinks breaks
I	1	Quiz
J	3	Armchair Zumba
K	2	Walking to/from patio area or garden
L	2	Quoits/beanbag target
P	2	See BCC table
U	2	See BCC table
X	1	See BCC table

4.3.4.2 Non-DCM activities - outdoors

In care home A, only one activity was observed outside of outdoor DCM time that differed from those detailed in Table 39. This involved one resident from A who used the garden independently for brief periods to look at and/or pick feathers, leaves and flowers from the grass and garden borders. In care home B, the only non-DCM activity different to those in Table 40 related to a resident who was independent and who used the garden to smoke.

4.3.4.3 Overview of outdoor activity engagement

There were very few instances of physical exercise and movement observed in the outdoor spaces. In care home A, this amounted to three residents participating in a seated ball catching game which occurred for less than ten minutes, plus, the independent resident who walked on the grass. This resident did appear to experience BPSD at times and it was not always clear if the outdoor mobility was triggered by an impulse to alleviate restlessness or purposeful in terms of seeking to connect with nature.

In care home B, physical exercise was observed during a seated Zumba class, in which there were a number of residents involved but only three study participants. On a different day, the general assistant facilitated quoits and target bean bag with all of those seated on the patio, but only two study participants were present. There were no work-like activities observed or planned instances of purposeful walking and moving around the outdoor spaces.

There were many instances of residents observing surroundings, but no way of knowing whether they were focusing on the natural features of the outdoor space. There were a few events that appeared to be related to seeking solitude, but unless outdoor access was already provided, and residents were independently mobile and initiated the transition to outdoors, outdoor use only occurred in groups. It was not possible to determine if residents

were privately reminiscing and there were no overt, spirituality-oriented activities observed.

Socially-oriented activities were the most prevalent and were observed on each day of outdoor use in care homes' A and B. Social interaction occurred during every instance of supported outdoor use and mainly occurred in groups during programmed activity time.

Each of the garden spaces scored presented opportunities for access to nature. There were several instances in which residents who were seated demonstrated awareness and enjoyment of the foliage in the garden. The resident in care home A who picked flowers and feathers was the only participant observed who seemed to actively seek a connection with nature. There were no nature-based group activities observed. It was not possible to discern if residents experienced a sense of peace or spirituality via nature.

4.3.5 Realist analysis and synthesis

4.3.5.1 Introduction

As mentioned previously, contextual characteristics and mechanisms were anticipated to vary in relation to supported and independent outdoor use and the results for both conditions are reported. Broader elements of context are reported in section 4.3.2 and referred to where appropriate.

In the first instance, outdoor use relative to the contextual characteristics posited in the initial theory component figure (is summarised. Then, contextual enablers and constraints are presented along with associated potential mechanisms that were suggested by worker and resident comments, interactions and behaviour. Illustrative excerpts from the field notes are italicised. Where the findings indicated the need to clarify or query mechanisms or elements of context, questions for the worker focus groups were generated. The phase two results section concludes with a summary of the findings, which are presented in tables, by context category.

4.3.5.2 Realist qualitative content analysis

An initial content analysis of the weather, organisation, physical environment and resident contextual characteristics relative to supported and resident-initiated outdoor use revealed that there

were a limited number of characteristics common to both care homes but, otherwise, a considerable degree of variation. The data for each category is summarised in tables.

Weather and outdoor temperature

For each observation period, the BBC weather website[185] was checked daily for the mid-morning outdoor temperature and forecast. A description of the weather was recorded at the outset of each day of observation and changes in the weather were recorded where relevant. Tables 41, 42 and 43 show the dates of observations, outdoor temperatures and weather descriptions for all three care homes.

In care home A, on days one, two and four there was bright sunshine, little breeze and it felt very warm over midday. On days' three and six it was periodically very warm but felt cooler when the sun was obscured by cloud after late morning. On day five, it was noticeably cooler and rained intermittently throughout the day.

Table 41: Care home A - outdoor temperature and weather description, by day and date of observation

Day	Date	Outdoor temp.	Weather description	Observed outdoor use
1	Fri 26th August	22°C	Sunshine cloudless, very light breeze	Y
2	Tue 30th August	22°C	Sunshine cloudless, light breeze	Y
3	Wed 31st August	21°C	Sunshine, patchy cloud, light breeze	Y
4	Thu 1st September	23°C	Sunshine cloudless, light breeze	Y
5	Sun 4th September	18°C	Mixed - sunshine and cloud, showery, windy	N
6	Mon 5th September	22°C	Mixed – sunshine and cloudy, very light breeze	Y

In care home B, days one and two were the warmest days, which became noticeably warmer from midday. Although there was some cloud on both mornings, this cleared and there was consistent sunshine from late morning onwards. On days three and four, the weather was mixed with intermittent rain, cloud and sunshine. On day five, it was cloudy all day and there was cloud and sunshine on days six and seven. It was cooler outdoors from day three onwards.

Table 42: Care home B - outdoor temperature and weather description, by day and date of observation

Day	Date	Outdoor temp.	Weather description	Observed outdoor use
1	Wed 14th September	20°C	Cloudy, windy	Y
2	Thu 15th September	20°C	Cloudy, light breeze	Y
3	Fri 16th September	16°C	Raining, moderate breeze	Y
4	Mon 19th September	16°C	Raining, cloudy, light breeze	N
5	Sat 8th October	15°C	Cloudy, bright, light breeze	Y
6	Sun 9th October	15°C	Sunshine, light breeze	Y
7	Tue 11th October	12°C	Cloudy, light breeze	N

For care home C, the outdoor temperatures were considerably cooler than in the previous observation periods. On day one, it was cloudy but bright. On days two, three and five, the weather was mixed with intermittent rain, cloud and sunshine. On days four and six there was bright sunshine for most of the day. On day seven, it was overcast all day, but did not rain.

Table 43: Care home C - outdoor temperature and weather description, by day of observation

Day	Date	Outdoor temp.	Weather description	Observed outdoor use
1	Tue 8th November	6°C	Bright, cold	N
2	Wed 9th November	3°C	Raining, light wind	N
3	Thu 10th November	3°C	Raining, moderate breeze	N
4	Fri 11th November	8°C	Sunshine, cloudy, light breeze	N
5	Sat 12th November	6°C	Raining, cloudy	N
6	Sun 13th November	10°C	Sunshine, no breeze	N
7	Mon 14th November	12°C	Cloudy, no breeze	N

The vast majority of outdoor use occurred on days where at least part of the day was very warm and during a period of consistent sunshine. These were days one, two, three, four and six in A and days' one and two in B. In A, on days three and six, five different residents returned indoors due to feeling colder, when the sun was obscured by cloud for a short period.

There were only three instances of outdoor space use that occurred when the weather was not warm and sunny, which were on days three, five and six in B. This involved the only independent user in B, who used the garden area to smoke. There were no other instances of outdoor use when it rained or was continuously cloudy, windy or a mix of conditions, regardless of the outdoor temperature. There were also no other instances of outdoor use when it became colder from day three in B, regardless of whether there was consistent sunshine or not.

Organisation

Tables 44 and 45 summarise the organisational characteristics posited to be relevant for outdoor space use. Supported outdoor use occurred on days one, two, three, four and six in care home A, and days one and two in B. On each of these days there was an activity coordinator on duty and/or activity programming where an external provider or another designated worker provided activities. There was no regular, outdoor-specific activity programming in either of the care homes and only manager presence in the outdoor spaces in care home A. Except for day one in A, staffing levels were as usual, but overall, support provided by care workers was intermittent and not a daily occurrence.

In care home A, resident-initiated outdoor use occurred on days one, two, three, four and six and involved only two residents. In home B, only one resident initiated outdoor use. She used the patio on day one and smoked in the garden on days three, five and six. Whilst she was able to use the garden without supervision, she was usually accompanied by workers who smoked, except on day five, when she was alone.

Table 44: Care home A – outdoor space use and organisation characteristics

Day	Outdoor space use				Manager presence in outdoor space	Activity provider present	Programmed activity time	Usual staffing levels	Other worker present/or support with outdoor use
	Supported	No. of residents	Resident initiated-individual	No. of residents					
1	✓	3	✓	1	✓	✓	✓	x	✓
2	✓	4	✓	1	x	✓	✓	✓	x
3	✓	4	✓	1	✓	✓	✓	✓	✓
4	✓	8	x	0	✓	✓	✓	✓	✓
5	x	0	x	0	x	x	x	✓	N/A
6	✓	4	✓	1	x	✓	✓	✓	x

Table 45: Care home B – outdoor space use and organisation characteristics

Day	Outdoor space use				Manager presence in outdoor space	Activity provider present	Programmed activity time	Usual staffing levels	Other worker present/or support with outdoor use
	Supported	No. of residents	Resident initiated-individual	No. of residents					
1	✓	3	✓	1	x	✓	✓	✓	✓
2	✓	2	x	0	x	✓	✓	✓	x
3	x	0	✓	1	x	x	✓	✓	✓
4	x	0	x	0	x	x	✓	✓	N/A
5	x	0	✓	1	x	x	x	✓	x
6	x	0	✓	1	x	x	x	✓	✓
7	x	0	x	0	x	✓	✓	✓	N/A

Physical environment

Table 46 shows physical access provision to the outdoor spaces. In care home A, the garden exit doors were unlocked by the activity coordinator each day except for day 5 (Sunday) when a care worker did this. However, on this day the doors were locked late morning when it started to rain. This was the only day in A that residents were not observed in the outdoor spaces. In B the doors were opened by care workers except for day 2 when the patio exit door was opened by an external activity provider. The patio doors, which were the nearest outdoor exit to the main indoor communal areas, were kept closed from day 2 onwards. Only the resident who smoked went outdoors after day 2, and this was to the garden area through the front door.

Table 46: Physical access by observation day and care home (morning and afternoon)

Day	Doors unlocked and open: morning			Doors unlocked and open: afternoon		
	A	B		A	B	
	Garden	Patio	Garden	Garden	Patio	Garden
1	✓	✓	✓	✓	✓	✓
2	✓	✓	✓	✓	✓	✓
3	✓	x	✓	✓	x	✓
4	✓	x	✓	✓	x	✓
5	✓	x	✓	x	x	✓
6	✓	x	x	✓	x	✓
7	N/A	x	x	N/A	x	x

Tables 47 and 48 summarise visual access and outdoor space utility. The garden in care home A was partially visible from where most residents were sitting before they went outside. However, in B, only one of the three communal lounges had a view of the patio so only a minority of residents had visual access to this. The garden in care home B was not visible at all to residents or workers from indoors.

Once residents were outside, they did not move around the outdoor spaces and tended to sit at tables on concreted patio areas. The only exception to this was the resident in care home A who moved around picking flowers and feathers off the lawn area.

Table 47: Care home A - Outdoor use, visual access and space utility

Day	Outdoor space use		Outdoor space visible from indoors		Seated or remained in one area	
	Supported	Resident initiated	Supported	Resident initiated	Supported	Resident initiated
1	✓	✓	✓	?	✓	x
2	✓	✓	✓	?	✓	x
3	✓	✓	✓	?	✓	x
4	✓	x	✓	N/A	✓	x
5	x	x	N/A	N/A	N/A	N/A
6	✓	✓	✓	✓	✓	x

Table 48: Care home B - Outdoor use, visual access and space utility

Day	Outdoor space use		Outdoor space visible from indoors		Seated or remained in one area	
	Supported	Resident initiated	Supported	Resident initiated	Supported	Resident initiated
1	✓	✓	?	?	✓	✓
2	✓	x	?	N/A	✓	N/A
3	x	✓	N/A	X	N/A	✓
4	x	x	N/A	N/A	N/A	N/A
5	x	✓	N/A	X	N/A	✓
6	x	✓	✓	X	N/A	✓
7	x	x	N/A	N/A	N/A	N/A

Resident

Table 49 shows resident characteristics posited to be relevant for outdoor space use: mobility, dementia, including BPSD, communication, mood and engagement, relative involvement and outdoor interests, activities and history. The only residents who initiated their outdoor use were 01-A, 08-A and 09-B.

There were a diverse range of mobility needs. Five residents were permanent wheelchair users who were unable to self-propel. One used a wheeled walking frame, two used walking sticks, two held the hands of workers for balance and reassurance, and three were independent and did not use a walking aid. Their indoor and outdoor mobility status was the same and all of them required supervision or assistance with access. For some, this was partly due to physical environment constraints, such as locks or keys being out of reach. Whilst five residents were independently mobile outdoors, four still required supervision for reasons related to their dementia/cognitive impairment.

With regard to communication, all of the residents were heard using verbal communication of some sort, however this was mainly in response to workers asking questions. Nine were heard maintaining some sort of continuous conversation, but again this tended to be initiated and supported by workers. Overall, only five of the resident participants were heard asking for anything at all

and for two, these were toileting requests. None of the residents were heard asking for an activity to be provided and only one resident was heard asking to go outside. This resident also had a significant hearing impairment and had lost her hearing aids.

Eight of the residents were reported to have dementia and three presented with behaviours that might have been described as behavioural and psychological symptoms of dementia (BPSD). Despite this, when doors were closed or locked, none of these residents were observed attempting to get outside, for instance by trying door handles.

With regard to mood, Dementia Care Mapping was conducted in the outdoor spaces for eleven of the residents. DCM did not occur for any of the independent outdoor use because this was usually spontaneous, and observations were already occurring in a location too far away for mapping.

Two of the residents who used the outdoor spaces received visits from relatives or significant others who sat in the garden with them. However, these residents were already sitting outside prior to the arrival of their visitors.

Finally, whilst in most cases there was some evidence of residents general likes and dislikes, outdoor-specific preferences and history

were less discernible during the observations and only evident for seven residents.

Table 49: Outdoor use and resident characteristics

Resident code	Supervision or physical assistance to access outdoor space	Supervision or physical assistance to mobilise in outdoor space	Dementia	Some indication of BPSD	Requested to use outdoor space	DCM mood and engagement values obtained	Relative/other spent time with resident in outdoor space	Evidence of outdoor interests, activity add/or history
01-A	✓	x	✓	✓	x	x	x	✓
02-A	✓	✓	✓	✓	x	✓	x	x
03-A	✓	✓	✓	x	x	✓	x	x
04-A	✓	✓	x	x	x	✓	x	✓
05-A	✓	✓	x	x	x	✓	x	✓
06-A	✓	✓	✓	x	x	✓	✓	✓
07-A	✓	x	✓	✓	✓	✓	✓	✓
08-A	✓	x	✓	✓	x	✓	x	✓
01-B	✓	x	✓	x	x	✓	x	x
02-B	✓	✓	✓	x	x	✓	x	x
04-B	✓	✓	✓	x	x	✓	x	x
06-B	✓	✓	x	x	x	✓	x	x
09-B	✓	x	x	x	x	X	x	✓

4.3.5.3 Clarifying context, identifying mechanisms and generating focus group questions

The primary aim of the realist analysis was to generate worker focus group questions, these are presented in text boxes and emboldened and italicised. The question numbers correspond with those used in the tabulated summaries.

Weather and outdoor temperature

As highlighted previously, warm, sunny weather was considered to be key for supported outdoor use. Comments from some residents who went outside indicated that they enjoyed these conditions:

10:50: Care worker supervises 06-A (walking frame) from dining room to garden chair. 06-A asks to sit in the sunshine. [A - Day 1]

10.55: "It's warm today, I like it like this" [07-A - Day 2]

11.50: "It's warm". She is nodding to music. [03-A - Day 2]

One resident associated sunshine with relaxing:

11.05: Activity Coordinator to 08-A: "Do you want to read your newspapers?" 08-A: "No, I'm just relaxing here in the sunshine" [A - Day 2]

Whilst another had a history of outdoor work:

10:35: 06-A appears to be enjoying sitting directly in the sun. He told me previously that he loves the outdoors and the warmth of the sun, he used to work outside [A - Day 4]

Some residents were quick to feel a change in conditions, even when it was still relatively warm:

12.00: 08-A to Activity Coordinator: "I'm going inside, I'm cold". It is cloudy, the sun has gone in and there is a light breeze.

12.05: 07-A: "I'm cold, can I go in?" She goes in.

[A – Day 6]

When the outdoor temperature became cooler from mid-September onwards, some residents who were indoors demonstrated awareness of this:

13:55: 11-B walks up to and away from the open door three times. She shudders to express it is cold and says to me: "It's going to rain again, isn't it?" [B- Day 6].

14:15: 12-C "Is it cold out?" Care worker: "It's freezing", she touches her hand. [C– Day 2]

The cold weather did not deter all residents and the motivation to smoke appeared to minimise this as a barrier:

13:45: 09-B says to me "It's cold, but it doesn't put me off going outside". [B – Day 5]

Overall, there were indications that some residents preferred warm, sunny weather and disliked colder weather:

> ***W1: Some residents seemed to prefer warm, sunny weather. Can you tell me more about that?***
>
> ***W3: Many residents seemed quite averse to feeling cold. Can you tell me more about that?***

There may have been factors other than resident preferences. Given that it was the care team who mainly instigated outdoor use, it was feasible that worker attitudes about the sort of the weather that was appropriate for residents were more influential. Perhaps warm weather was somehow more appropriate or desirable for residents than rainy or colder weather:

> ***W4: From staff perspectives, is there weather that residents should and should not be outside in? Can you tell me more about that?***

As the weather was considerably colder during the observations in C, maybe this was the main explanation for the lack of outdoor use

there. On one of the rare occasions when a resident was heard asking to go outside, this was the reason given for the refusal:

11.25: 13-C with team leader who says she is going out for a cigarette. 13-C asks her to take her with her, team leader: "No, it's too cold". [C - Day 3]

Perhaps residents were perceived as being too frail for cold weather, or maybe there were other reasons. For instance, perhaps cigarette break-times were the only opportunities for staff to spend time away from residents:

W6: Do you think that sometimes, workers use the weather to discourage residents from wanting to go out/going out? Can you tell me more about that?

There was one scenario that seemed to challenge the notion that cold weather was always constraining. During the resident recruitment period for care home C, there was a bonfire night event and afterwards, it was reported that many of the residents from both floors went outside to watch fireworks and eat supper. If cold weather was so constraining for outdoor use, why was bonfire night an exception to this? Perhaps special, seasonal events were a contextual factor which minimised weather as a barrier, but it was unclear why this would be the case.

Maybe increased staffing was provided, or relatives provided additional support. There was some indication of this when AK visited care home B to meet residents at a summer fair in the garden during the study recruitment period. There were additional numbers of staff present and a rotation of different residents being supporting outside, plus family members were present helping with food and drinks.

W2: C - None of the residents here were observed using the outdoor spaces during the study, but I am aware that many did go outside on bonfire night. Can you tell me more about that?

In care home C, there was also a notably higher incidence of falls than in A and B and given that the observations in C took place in winter, perhaps residents mobility-related risks were heightened by the weather:

W5: Are there risks for residents in relation to the weather?

The posited context and mechanism configurations and focus group questions for weather are summarised below in Table 50.

Table 50: Weather - outdoor access and activities

Weather - outdoor access and activities			
Enabling Context	**Causal mechanisms**	**Focus group questions**	
Warm, sunny weather	Resident pleasure and enjoyment from sitting in sunshine and/or preference for feeling warm Staff perception that warm weather appropriate for residents to be outside in	**W1**	Some residents seemed to prefer warm, sunny weather – can you tell me more about that?
Winter seasonal events = increased staffing	Additional encouragement from relatives and/or staff Staff less risk averse to residents being exposed to cold weather – more help with transfers to outdoors?	**W2**	**C:** None of the residents here were observed using the outdoor spaces during the study, but I am aware that many did go outside on bonfire night. Can you tell me more about that?
Constraining context	**Counter mechanisms**	**Focus group questions**	
Rain, wind, mixed conditions, colder temperatures	Resident sensitivity to feeling cold – related to year-round warm indoor temperatures? Staff aversion to risks to resident health, mobility and discomfort Smoking – not weather dependent	**W3**	Many residents seemed quite averse to feeling cold - Can you tell me more about that?
		W4	From staff perspectives, is there weather that residents should and should not be outside in? Can you tell me more about that?
		W5	Are there risks for residents in relation to the weather?
+ staff need for a break or increased workload	Staff discomfort denying resident request due to need for a break/workload - easier to discourage using poor weather	**W6**	Do you think that sometimes, staff use the weather to discourage residents from wanting to go out/going out?

Organisation

Activity provider and activity programming

In addition to weather, having a designated activity provider and activity programming were key for supported outdoor use, however, given the ad hoc nature of this practice, it was important to determine how it usually came about. In most cases, activity providers were the main instigators and facilitators, but on occasion, outdoor use was also supported by other workers. As this support was intermittent and variable, perhaps workers made distinctions about whose responsibility supported outdoor use was:

O4: During my observations, outdoor use was mainly supported by activity providers, but at times, I did see other workers involved: whose job is it to support residents to spend time outside?

In A, where there were more activity coordinator and team leader/care worker hours to resident numbers than in B and C, there was more frequent outdoor use. However, there appeared to be more at play than staffing levels:

12.00: Activity coordinator asks the group if they would like to eat lunch outside. All say yes…The activity coordinator explains to me that it is a lot of work to facilitate lunch outside and that it depends who is on duty. She explains

that residents have different levels of mobility and most need hands-support to move. [A– Day 1]

Given that most of the residents needed supervision and support to access and mobilise outside at any time, perhaps offering the option of outdoor use was influenced by which workers were on duty, rather than how many. In C, there were further references to differences in the care team:

11.15: Care worker is doing notes on table next to me. She says: "we do like to have a routine, it's heavy". She talked about liking to be two steps ahead so that they don't get behind and can "get done". She said that things go better when certain people are on duty as they work as a team.

[Ground floor, C - Day 2]

Maybe team work only occurred under certain circumstances:

O5: How does outdoor use normally work – does it depend who is on duty?

The absence of regular, outdoor programming in the care homes appeared to be highly constraining for outdoor-specific activity provision. Reflecting on the provision reported in section 4.3.4, perhaps the most interesting finding was that all of the group activities could have been facilitated indoors. There were no outdoor-specific activities offered, such as gardening, potting or nature-based sessions, despite evidence that some residents might

have enjoyed these opportunities. The activities provided did not always correspond with the displayed timetables and, given that residents were not heard requesting any, it was not entirely clear how the activity providers decided which activities to provide or why they were so table-top oriented.

In care home A, there were some indications of other worker influences on activity selection. On the first day of observations, one of the activity coordinators explained that she was good at arts and crafts, whilst the other activity coordinator enjoyed delivering reminiscence sessions and manicures. In care home B, the administrator said that she was asked to become the activity coordinator because she was good at arts and crafts. So perhaps the activity providers were not interested or experienced in outdoor-specific activities, or they tended to play to their strengths and did not feel confident or skilled enough to tailor activities to the outdoor environment:

O6: I didn't see any outdoor-specific group activities like gardening or nature-based activities - do you tend to choose activities you feel skilled and confident about delivering?

One of the care workers in care home C had mentioned that she had ensured the patio was fit for use and provided the potted

plants, so it was feasible that there was some interest and expertise in the wider teams:

O11: Do you have any workers who are interested or experienced in delivering outdoor-specific activities?

Primarily, the care home outdoor spaces appeared to be utilised as social spaces and, as demonstrated in section 4.3.4, much of the outdoor time was spent talking or passively looking around. Overall, there was a lack of physical movement around the outdoor spaces and residents tended to remain seated in the same place whilst outside. As previously highlighted by the activity coordinator in care home A, many residents required physical assistance to move. On a different day, the challenge of resident diversity was highlighted:

12.05: Activity coordinator speaks to me: "It's tricky when you've got all different types of ability." [A – Day 3]

12:10: The activity coordinator is responsible for activity for all of the residents. There are vastly differing levels of mobility, cognitive impairment and hearing ability. Also, some are indoors, some outdoors. This makes it very difficult for activities to be person-centred and individualised. [Reflection: A - Day 3]

In the context of group activity, it would not have been possible for the group to move safely around the outdoor spaces without a significantly higher worker to resident ratio. As there were also no safe walking paths in any of the homes, it was of interest to determine how workers accounted for the lack of movement around the outdoor spaces:

O12: I saw very few residents physically moving around the outdoor spaces - can you tell me more about that?

Leadership

Clearly, the inclusion of programmed activities within the workforce rotas indicated that there was some leadership in relation to activity provision but given the ad hoc nature of outdoor access and the absence of regular outdoor programming, the role of leadership was of some interest.

In care home A, the deputy manager was observed supporting residents in the outdoor space on three days and on occasion, the manager was involved in individual and group use:

11.00: 01-A walks into garden with the manager who is pointing at the flowers. [A – Day 4]

9:45: Manager informs me that she has bought canvasses in for residents to paint in the garden. The activity coordinator arrives at 9:55 and the care workers spend next 45 minutes

setting up the activity outside…Manager: "It will be good for people to feel the sun on their skin." [A - Day 4]

Whilst the activity coordinator was not consulted about the change of plan, this level of managerial input and direction was not observed in care home B. Similarly, in C, the managers were not observed directing the activity coordinators, however, they were not often in view from the observation location:

O1: Who is in charge of what you do each day?

O2: Are your duties often changeable – how does this affect activity provision?

Perhaps these managers were less concerned about the location of the activity facilitation provided that this was occurring to some extent and activities were being delivered. Or maybe in the context of staffing resource constraints, the basic needs, safety and comfort of residents necessarily took precedence.

Overall, there did not appear to be any regular or consistent leadership approach to outdoor use. Nonetheless, perhaps the more frequent outdoor space use in A was somehow related to the 'day-to-day' managerial involvement observed. It was feasible that this communicated an expectation of outdoor use to the activity

coordinators and other workers, at least when the weather was very warm and sunny:

O3: What is the role of managers in activity provision and outdoor use – do you feel that there is a managerial expectation about supporting residents outside?

Basic care routines and staffing levels and time

Managerial influence and expectation was perhaps more tangible in terms of how the daily routines were structured than for outdoor use. Each care home followed task and time-oriented routines and the extent to which these impacted on activity provision and outdoor use varied. On the first day of observations in A, a care worker didn't come in for a morning shift and this not only delayed activity provision, but had negative consequences for one resident:

10.05: Activity coordinator is being drawn into care tasks due to lack of staffing and cannot accompany residents into garden - this is exacerbating 07-A agitation. [A- Day 1]

The impact on the activity coordinator and residents continued throughout the day, but the usefulness of external provision was emphasised:

14.00: The Activity coordinator walks into the garden with 07-A and says that an entertainer has arrived. She tells me…it is handy he is there because she has been asked to

do the 'afternoon teas' at 2.30 due to them being short-staffed. [A- Day 1]

O7: When there is not usual care worker staffing, what is the impact on activity provision?

In care home B, the way that activity provision was organised meant that in practice, there were only ten hours of provision additional to usual care worker staffing and this was in the afternoons. It was difficult to discern how activities were supposed to be provided by care workers in the mornings:

11:15: The care workers begin taking residents to the toilet. Care worker says to me: "We have half an hour to toilet people". [B – Day 1]

12:30: The two care workers have been completing basic care and domestic tasks since 10:50 (tea, toileting, cleaning toilets, ad hoc support). They are expected to provide activities as per the timetable…but it is difficult to imagine how this might happen when there are approximately 20 residents sitting in the lounges. [Reflection: B– Day 1]

O8: Do you have time to support residents with activities and outdoor space use - what is the impact of basic care routines?

O9: B - I saw that there are cleaners or housekeepers, but I also saw care workers cleaning the toilets every day. Can you tell me about this?

In care home C the resident to worker ratio was equally challenging, for care workers and the activity coordinators. Again, external provision seemed to alleviate the pressure somewhat, but the resident to activity provider ratio was still an issue:

10:00: There are 18 residents in the room. The instructor has been told to start on the ground floor as there is a Remembrance service on upstairs and activity coordinator is helping with that (she usually assists with the exercise classes). [C – Day 6]

Given that the activity coordinator could only be present on one floor at time, with potentially up to 30 residents to consider, it was difficult to imagine how a group might access the outdoor spaces without considerable care worker support and coordination. Whilst workforce resources were potentially less of an issue for resident-initiated use, the building layout and physical access were problematic:

010: C - What is the impact of having one activity coordinator per week-day for so many residents?

The posited context and mechanism configurations and focus group questions for organisation are summarised below in Table 51.

Table 51: Organisation - outdoor access and activities

<table>
<tr><th colspan="4">Organisation - outdoor access and activities</th></tr>
<tr><th>Enabling Context</th><th>Causal mechanisms</th><th colspan="2">Focus group questions</th></tr>
<tr><td rowspan="3">Manager presence and or involvement with outdoor use</td><td rowspan="3">Activity provider/staff awareness of and response to managers expectations re: outdoor access</td><td>O1</td><td>Who is in charge of what you do each day?</td></tr>
<tr><td>O2</td><td>Are your duties quite changeable – how does this affect activity provision?</td></tr>
<tr><td>O3</td><td>What is the role of managers in activity provision and outdoor use – do you feel that there is a managerial expectation about supporting residents outside?</td></tr>
<tr><td rowspan="2">Activity coordinator provider present

Allocated activity programming time

Adequate care worker numbers to support with access</td><td>Staff attitudes about role differences in team</td><td>O4</td><td>During my observations, outdoor access was mainly supported by activity providers, but at times, I did see other workers involved: whose job is it to support residents to spend time outside?</td></tr>
<tr><td>Staff perceptions of colleagues “It depends who’s on”</td><td>O5</td><td>How does outdoor use normally work – does it depend who is on duty?</td></tr>
<tr><td rowspan="2">Indoor focused activity programming

Social group activities</td><td>Staff knowledge of which residents' do and do not like to use the outdoor spaces, and why</td><td colspan="2">See R5</td></tr>
<tr><td>Activity providers play to strengths e.g., arts/crafts, social, table-top activities</td><td>O6</td><td>I didn’t see any outdoor-specific group activities like gardening or nature-based activities - do you tend to choose activities you feel skilled and confident about delivering?</td></tr>
<tr><th>Constraining context</th><th>Counter mechanisms</th><th colspan="2">Focus group questions</th></tr>
<tr><td>Inadequate staffing levels and activity provider hours

Higher resident to worker ratios</td><td>Prioritisation of basic care tasks above activity provision and outdoor use</td><td>O7</td><td>When there is not usual care worker staffing, what is the impact on activity provision?</td></tr>
</table>

Task-oriented, basic care routines			
		O8	Do you have time to support residents with activities and outdoor space use - what is the impact of basic care routines?
		O9	**B**: I saw that there are cleaners or housekeepers, but I also saw care workers cleaning the toilets every day. Can you tell me more about this?
		O10	**C:** What is the impact of having one activity coordinator per week-day for so many residents?
Lack of outdoor focused activity programming	Lack of interest, experience, skills, confidence delivering outdoor-specific activities?	**O11**	Do you have any workers who are interested or experienced in delivering outdoor-specific activities?
No outdoor specific group activities No movement around the physical space	Risk reasoning in response to managing large group with diverse mobility, cognitive and BPSD needs	**O12**	I saw very few residents physically moving around the outdoor spaces - can you tell me more about that?

Physical environment

Visual access

For both supported and resident-initiated outdoor use, visual access from indoors was posited as important in terms of providing a cue to residents that there was an appealing outdoor space to visit.

In care home A, much of the outdoor access was initiated from indoor areas where there was a partial view of the outdoor spaces. There was some indication that the view of the garden prompted one resident to go outside and connect with the natural, green features there:

10.25: 01-A walks over to the window and kneels on an armchair to look into the garden… "Look at the way the trees move. They do a bit of this and a bit of that" - she mimics branches/leaves with her hands.

[communal living room: A - Day 6]

11.35: 01-A walks into the garden. She picks up some feathers off the grass. She points at the flowers: "Aren't they beautiful? Ooh, there's one, two, three, blimey, there's four". ***[A - Day 6]***

There was only one other example of the view of the garden being motivational for outdoor access and BPSD was potentially an additional influence:

9.50: 07-A is sitting at the table by the large window overlooking the garden. She opens the window curtain and looks outside frequently – she is asking what is happening and if she can go outside. [A - Day 1]

For most residents in care home A, the extent to which visual access was enabling for outdoor use was unclear. Only half used the indoor communal areas and only those that did were observed outside, so it was unclear if the other residents had a view of the garden:

P1: A - It was difficult to work out if all of residents had a view of the outdoor spaces from indoors. Do you think that most are aware that there are outdoor spaces to visit?

In care homes B and C, whilst most residents were observed using the indoor communal areas, visual access and the distances to gardens was considerably more problematic, particularly for those in the locked, first floor unit in C. Given that only one resident from

these settings accessed the garden, it was feasible that many did not know or could recall, that there were gardens to visit:

P4: B - The garden is not visible from anywhere indoors and some distance from where most residents sit during the day time - do you think some might not be aware that there is a garden to visit?

P5: C - Most residents cannot see the garden from indoors and the exit is some distance away from where most of them sit during the day - do you think these residents know the garden is there?

P6: C - Do residents on the first floor get outside as much as those on the ground floor?

The other key function posited for visual access was to enable workers to supervise the more independent outdoor users from indoors. Given that there were so few instances of residents being outdoors alone, perhaps this was partly due to the poor visual access from indoors and lack of worker availability which in turn, led to physical access restrictions:

P2: I did not see many residents outside on their own - are there any who you feel comfortable about being in the garden without supervision?

Physical access

Physical access for all of the outdoor use was provided by workers. This was an important contextual enabler for resident-initiated use, because whilst these residents were independently mobile, they would not have been able to unlock the doors by themselves. There were some days on which the exit doors were kept locked and closed, which might have been discouraging, although none of the residents were observed trying door handles:

P7: When the doors are locked, do you think this discourages some residents from trying to get outside?

In care home A, there appeared to be a connection between access provision and favourable weather but in B, the front door was kept open for part of the time when the weather became colder. However, this may have been influenced more by the resident who smoked, than workers:

13:45: 12-B tries to shut the door and 09-B shouts: "Leave it, leave it". 12-B leaves the area. 09-B says to me: "It's cold, but it doesn't put me off going outside". [B - Day 5]

In care home C, where there was no observed outdoor space use, the case for colder weather being the most constraining influence on outdoor access was compelling. However, the resident to activity coordinator ratio and the building layout were likely to be

influential. In the absence of an open-door policy in any of the care homes and the variations in access practices, it was necessary to clarify how access decisions were made:

P3: During my observations, the doors were sometimes locked and sometimes unlocked and open? Can you tell me more about that?

Outdoor design

In care home B, there was a steep concrete path down to the garden area which might have been problematic for most residents, prompting the need for staff supervision:

P8: B - Is the concrete path to the garden safe for residents who want to access the garden?

Overall, only one resident was reported to have fallen outside compared with 25 in the indoor spaces, so perhaps this reflected worker risk aversion to residents being outside on their own. Or maybe there were other perceived risks, for instance, those related to BPSD:

P9: What are the main risks related to residents being by themselves in the outdoor space and why?

In terms of supported group activities, it was likely that the resident to worker ratios were highly inhibitive for outdoor mobility due to resident dependency for support. However, even had there been more workers available, staff might have been risk averse to

supporting residents using walking aids and wheelchairs on the lawn areas, which were often uneven and exposed to wet weather.

Furthermore, none of the gardens offered multiple activity areas to support residents with a range of needs and abilities, so there was little option but for them to remain in one location, which was usually a small, concreted patio area.

P10: Do you think the outdoor spaces are suitable for providing different sorts of activities for a range of needs and abilities?

The posited context and mechanism configurations and focus group questions for physical environment are summarised below in Table 52.

Table 52: Physical environment – outdoor access and activities

Physical environment – outdoor access and activities			
Enabling Context	**Causal mechanisms**	**Focus group questions**	
Visual access of outdoor spaces from indoors	View provides cue or reminder to resident that outdoor space is there	**P1**	**A:** It was difficult to work out if all of residents had a view of the outdoor spaces from indoors. Do you think that most are aware that there are outdoor spaces to visit?
	Visual access does not affect staff practice – activity coordinator usually in garden with residents	**P2**	I did not see many residents outside on their own - are there any who you feel comfortable about being in the garden without supervision?
Physical access provided by workers	Staff perceive weather to be appropriate and there is time to supervise or support	**P3**	During my observations, the doors were sometimes locked and sometimes unlocked and open? Can you tell me more about that?
Outdoor space Patio areas adjacent to main communal area (not C upstairs)	View provides cue or reminder to resident that outdoor space is there Staff feel comfortable due to proximity to residents	**See P2**	
Constraining context	**Counter mechanisms**	**Focus group questions**	
Lack of visual access Distance to garden	No visual cue or reminder for residents that outdoor space is there	**P4**	**B**: The garden is not visible from anywhere indoors and some distance from where most residents sit during the day time - do you think some might not know there is garden to visit?
		P5	**C**: Most residents cannot see the garden and the exit is some distance away from where most of them sit during the day. Do you think these residents know the garden is there?
		P6	**C**: Do residents on the first floor get outside as much as those on the ground floor?

	Risk averse reasoning – staff uncomfortable or anxious if residents are not observable, so physical access restricted	**See P2**	
Physical access not provided – doors locked	Negative cue and discouraging for residents	**P7**	When the doors are locked, do you think this discourages some residents from trying to get outside?
	Staff perceive weather to be inappropriate or staffing unavailable – risk reasoning	**See P3**	
If outdoor spaces away from main communal areas – only used for group special events or 1:1	Prior planning and risk averse reasoning coordination – rotation	**See P9**	
Outdoor design Lack of safe access, walking paths and multiple activity areas	Risk averse reasoning – fear of residents falling on way to outdoor space or whilst outside – physical access restricted unless staff available	**P8**	**B**: Is the concrete path to the garden safe for residents who want to access the garden?
		P9	What are the main risks related to residents being by themselves in the outdoor space and why?
		P10	Do you think the outdoor spaces are suitable for providing different sorts of activities for a range of needs and abilities?

Residents

Mobility

Of the fourteen residents who accessed the outdoor space most required supervision and support with outdoor mobility, so resident dependency on staff support did not appear to be inhibitive, particularly in care home A.

However, it was of note that the majority of care home B resident participants did not go outside during the observations and over half of these were reported to be dependent on support. In care home C, the numbers of residents requiring support with physical access and outdoor mobility was higher than in A and B, and outdoor mobility appeared to be considerably more variable, with more residents requiring wheelchairs at times. Perhaps, the colder weather was not the only constraint in C, particularly considering the activity resource issues and the physical environment:

R8: Are residents with higher mobility support needs less likely to get outside?

Only two residents in care home A and one in B initiated their outdoor use when the outdoor exit doors were open. They were all independently mobile, so this was an important context enabler. However, it was unclear why more residents did not do this, particularly in B where there a number of residents who consistently walked around the indoor communal areas. Perhaps

they were not accustomed to accessing the outdoor spaces independently or did not feel safe to do so:

R1: Do any of the residents seek to access and/or move around the outdoor spaces by themselves – do you think they feel comfortable with this?

Dementia and BPSD

Although most residents had dementia, relatively few who used the outdoor spaces appeared to experience BPSD. For those who did, their triggers and behaviours varied. One resident, 07-A, expressed agitation and distress throughout the observation period and repeatedly asked to go outside. However, when access was provided, she always declined to go outside on her own and her distress escalated when there was no worker in proximity to her:

10:05: Activity coordinator is helping others finishes breakfast and is in/out of dining room. 07-A is verbalising displeasure at being left alone'. [A – Day 1]

11:10: Activity coordinator goes inside to fetch tea and biscuits. There is no interaction amongst residents whilst she is gone. 07-A is becoming agitated…she is talking to herself: "It's horrible here, horrible, horrible, horrible". [A – Day 2]

In one of only two instances of residents being in the outdoor space alone, one resident, 08-A, appeared to have become disoriented and frightened by the experience:

13.40: 08-A is sitting in the dining room and asks permission to stretch his legs. He gets up and walks outside by himself. ***[A – Day 3]***

14.10: 08-A returns indoors and is very anxious - he keeps saying he is frightened…He keeps saying he doesn't know where he is, and he asks me for help several times.

[A – Day 3]

Another resident, 01-B, expressed agitation after a seated exercise class to music had finished:

15:30: 01-B remains outside and is in the shade, but she has disengaged. She looks agitated and is making comments, but I cannot hear her. I cannot see any care workers… after drinking her tea, she looks unhappy and irritable again.

[B - Day 1]

This resident had shown considerable positive mood and engagement during the session, so perhaps her agitation was because it had finished. Or once again, maybe worker absence was a factor.

Due to the limited number of examples of BPSD observed, the extent to which outdoor use exacerbated or alleviated symptoms was unclear, as was staff awareness about this, given that they were sometimes absent when some residents became distressed:

R2: Do you think any of the residents seek to go outside for relief from dementia symptoms? Under what circumstances?

Initiation and communication

Interestingly, the resident who expressed BPSD most frequently, 07-A, was one of only two residents heard asking to go outside during the observations. She repeatedly sought interaction with the activity coordinators, with whom she seemed to enjoy positive relationships:

10.00: Activity coordinator arrives in dining room. 07-A is asking her to go outside. Activity coordinator responds saying she will go for a walk in the garden with her soon.

[A – Day 1]

10.00: Activity coordinator arrives. 07-A is asking her if she can go into garden. ***[A – Day 3]***

The only other resident who requested to go outside, 13-C, also expressed BPSD at times and seemed particularly attached to one

of the team leaders, whom she asked to take her outside on two occasions:

13:30: The team leader is interacting with two female residents, 13-C is asking her to take her out, but she says she can't. ***[C – Day 1]***

11.25: 13-C with team leader who says she is going out for a cigarette. 13-C asks her to take her with her, team leader: "No, it's too cold" ***[C - Day 3]***

Overall, most residents did not initiate verbal or non-verbal communication related to activities and outdoor use. In some cases, this seemed to be due to speech and language difficulties caused by dementia, but in others, perhaps residents had become unaccustomed to asking for support. For resident-initiated use, verbal communication appeared to be less important than the ability to make a choice or follow an impulse to enter the outdoor space and be independently mobile, provided the doors were unlocked and open.

In terms of supported use, it was likely to be important for staff to be able to interact and engage effectively with residents with a range of communication and cognitive abilities. For those unable to initiate communication, it would perhaps be important for staff to be able to employ a range of strategies to understand their outdoor

preferences and to offer regular outdoor opportunities for those known to enjoy this:

> ***R3: I heard very few residents asking to go outside - for those who do not initiate communication, how do you know what they like to do and whether they like going outside?***

Mood and engagement

As previously highlighted, the majority of supported outdoor use was provided in groups and initiated by the activity providers rather than the residents. Although there was little evidence that outdoor activities were tailored to the specific likes and interests of the residents, there was some indication from DCM and ME values that being outside was generally a positive experience.

For each day of outdoor DCM, resident ME values were combined to give a mean well-being score. Table 53 shows that the mean scores ranged from 0.5 to 3.0 and none were negative. This indicated that in the outdoor spaces, residents spent more time engaged in well-being than 'ill-being' relatively speaking.

Table 53: Mean well-being score for DCM outdoor space use.

Resident ID	Duration of DCM in outdoor space	Number of days DCM in outdoor space	Average well-being score
02-A	2:45	2	**1.2**
03-A	4:35	2	**2.1**
04-A	1:15	1	**0.5**
05-A	1:25	1	**1.8**
06-A	4:40	2	**2.6**
07-A	4:10	2	**0.9**
08-A	4:35	2	**2.4**
01-B	1:20	1	**1.9**
02-B	1.25	2	**1.7**
04-B	1.15	1	**3.0**
06-B	:40	1	**1.8**
08-B	:15	1	**1.0**
09-B	:40	2	**2.0**

Clearly, outdoor use was not always an enjoyable experience for some residents and this was not just the case for those experiencing BPSD. Table 54 shows the residents who were ascribed negative ME values, in accordance with DCM coding rules. Excerpts from the field notes are provided to give contextual information.

Table 54: Negative ME values of residents in outdoor space

Resident ID	ME value	Field note excerpt for negative ME value
02-A	-1	**Group painting activity:** *02-A looks distressed – and he is intermittently engaged in self-stimulation, touching/rubbing clothes, hands, face and wheelchair [A - Day 4]*
04-A	-1	**Group painting activity:** *Activity coordinator tells me that the manager had persuaded 04-A and 05-A to come and join in, even though they had said they didn't want to [A - Day 4]*
07-A	-1, -3	**Multiple incidences, most days:** See excerpts above in section 0
01-B	-1, -3	**After armchair Zumba session finished:** *01-B remains outside and is in the shade, but she has disengaged. She looks agitated and is making comments, but I cannot hear her. I cannot see any care workers… after drinking her tea, she looks unhappy and irritable again. [B - Day 1]*
02-B	-1	**Quiz:** *02-B did not seem to enjoy the quiz…unprompted, she stands up and walks inside [B - Day 1]*

As highlighted by the excerpts, there were potentially a range of staff-related influences on negative mood, for instance, worker absence, dislike of the activity offered/provided and feeling coerced. It was feasible that these sorts of factors might impact on residents' motivation to access the outdoor spaces, as well as their mood whilst there. In home B there was some indication that residents were perceived negatively at times and there were references to them being difficult to motivate:

10.40: Two residents who are awake in Lounge 1/2 are asked by care worker if they want to go into garden to do some leaf collecting. They decline. There is no further

encouragement. Care worker says to me, "It's hard to get them out any time of the year". ***[B – Day 5]***

14.25: Care worker comes in and asks two residents if they wish to do some colouring or a jigsaw. They refuse. Care worker says to room: "Well no-one wants to do anything" and then to me: It's so hard, especially with this weather". ***[B – Day 5]***

But perhaps this partly a consequence of residents having become accustomed to being unoccupied or staff lacking the motivation or skills to engage them in activities:

> ***R4: Do residents' moods affect them wanting to take part in activities and spend time outdoors – are they difficult to motivate? Can you tell me more about this?***

There were occasions when some residents did appear to experience considerable or very high positive mood and/or engagement, despite the activities not being particularly person-centred. In DCM terms, these equate to ME values of +3 and +5. These results, with descriptions of the activities are summarised in Table 55, by resident.

Table 55: Positive ME values and associated activity, by resident

Resident ID	BCC	ME value	Activity descriptions
03-A	E, G	+3	Singer/entertainer, reminiscence
05-A	E	+3	Drawing/painting
06-A	E, G, I, J,	+3	Singer/entertainer, reminiscence, jigsaw, ball game,
07-A	E, G, J	+3	Drawing/painting, singer/entertainer, reminiscence, ball game
08-A	E, L	+3	Drawing/painting, looking at Daily Chat
01-B	E, J	+5, +3	Armchair Zumba, singing to music
02-B	J	+3	Armchair Zumba
04-B	E, J	+3, +5	Armchair Zumba, singing to music
06-B	L	+3	Floor games (quoits, bean bag target)
08-C	E	+3	Playing instruments to music

These results highlight that music-related activities were well liked by some, but they were not outdoor-specific. Therefore, it was not possible to establish how mood and engagement in accordance with DCM was impacted by outdoor-specific activities.

Outdoor interests, activities and history

Although the provision of outdoor-specific activities was not observed, some outdoor interests, activity likes/dislikes and elements of outdoor life history were revealed through verbal interactions and behaviour. Using excerpts from the field notes, Table 56 presents examples from residents who spent time outside with support.

Table 56: Resident outdoor likes, dislikes and history – supported use

Resident ID	Excerpts from field notes	Outdoor likes/dislikes - outdoor history?
04-A	*10:15: 04-A…has remembered what my study is about and says that she feels the cold, so it has to be really hot for her to go outside. She then said that she had sunstroke as a child and was told it would always be a problem for her, so she has become anxious about going out in the sun. [Day 3]*	Likes hot weather, but fearful of sunstroke
05-A	*10:15: 05-A says she hates going outside. [Day 3]*	No reason given
06-A	*10.50: Deputy manager supervises 06-A (walking frame) from dining room to garden chair. 06-A asks to sit in the sunshine. [Day 1]*	Sunshine, visual appeal of garden, gardening, flowers, camping, walking,
	10:45: A person waiting for an interview…comments on how nice the garden is. 06-A responds "I like this sort of garden. I don't like bedding plants – too regimented". [Day 2]	
	14.10: 06-A is talking about the flowers: I reckon that's a camellia…there are one or two magnolias. [Day 2]	
	10:35: 06-A told me previously that he used to work outside and go walking and camping – he said he loves the outdoors and the warmth of the sun. [Day 4]	
07-A	*07-A: "Oh look at them, they are beautiful (pointing at flowers)". 07-A asks AC if she can sit in the garden and asks if others will come and sit outside. [Day 1]*	Visual appeal of garden, socialising in garden, sunshine, ball games/netball
	10.55: 07-A: "It's warm today, I like it like this". [Day 2]	
	11:00: Activity coordinator brings some balls over to the table and starts a game of seated catch…. Activity coordinator comments to me that 07-A is really good at catch as she used to play netball. [Day 2]	
08-A	*11:05: …08-A: "…I'm just relaxing here in the sunshine". [Day 2]*	Sunshine, relaxing

Most of the resident participants who made verbal comments appeared to enjoy sitting the sunshine, the visual appeal of the garden and the summer flowers, so perhaps less physically active, but more sensory-oriented and relaxing engagement was motivational for them. Given that the majority of residents were not observed requesting particular activities or outdoor use, activity provider knowledge of residents' outdoor needs, likes, and activity preferences was potentially crucial for outdoor access and activity engagement:

R5: Which residents like to spend time in the outdoor spaces and why?

For residents, feeling that their previous and current interests were known and viewed positively by workers may well have been important relational mechanisms for them agreeing to go outside, hence, for outdoor access. However, in the context of supported group activities, worker knowledge and positivity did not seem to translate into tailoring activities to residents' interests. For instance, 06-A was an experienced gardener and might have enjoyed some related activities, but none were observed.

Two of the A care home residents did not seem particularly enamoured of spending time in the outdoor spaces and this was confirmed on the day of the group painting activity:

10.50: 04-A to activity coordinator: "I've been manoeuvred, shall we say?". The activity coordinator tells me that the manager had persuaded 04-Aand 05-A to come and join in, even though they had said they didn't want to. She tells me that the manager's view is that some people need 'manipulating' to do activity and it is for their own good - she did not agree with this. [A - Day 4]

Interestingly, 05-A was ascribed +3 ME values once the painting activity started and the manager was aware that 05-A enjoyed art, so perhaps she used this knowledge to encourage her. 04-A always usually sat with 05-A indoors so maybe she went outside because her friend did. Rightly or wrongly, the manager was able to ignore their refusals, but the activity coordinator clearly did not agree with this approach. Given that the activity coordinator was responsible for providing activities most of the time, it was likely to be equally important for activity providers to know who disliked gong outside and why:

R9: What are the reasons why some residents do not go outside or dislike doing this? Can some of them be overcome in some way?

Table 57 shows outdoor likes/dislikes and history for residents who initiated their outdoor use. Their motivations were perhaps more

transparent and less contingent upon worker knowledge and relational factors.

Table 57: Resident outdoor likes, dislikes and history – independent use

Resident ID	Excerpts from field notes	Outdoor likes/dislikes - outdoor history?
01-A	*11:35: 01-A walks into garden independently again and picks a leaf up. She begins trying to pick flowers and activity coordinator returns to group, saying to me: "She loves to pick the flowers, don't you?". [Day 1]*	Visual appeal of garden, picking flowers, trees, nature, birds, animals, collecting feathers
	10:25 01-A to me (unprompted): "Look at the way the trees move. They do a bit of this and a bit of that (mimicking branches/leaves with her hands)"…I love animals, there are people here who know nothing about animals". [Day 6]	
	10:45: 01-A sits down and takes a plastic flower out of her pocket (orchid). "Oh, look what I've done to it…its beautiful isn't it?". [Day 6]	
	11:35: 01-A walks into the garden, near to me. She picks up some feathers off the grass. She points at the flowers: "Aren't they beautiful? Ooh, there's one, two, three, blimey, there's four". [Day 6]	
09-B	*09-B tells me she uses the garden every day to smoke. [Day 1]*	Smoking

01-A was the only resident observed actively connecting with nature and there was an indication this was related to her background. For 09-B, the garden was somewhere she smoked, sometimes with workers, and there was no evidence of any other motivation to be outside.

There was some indication, albeit fairly limited, that for some residents, their present-day outdoor use might have some connection with their previous outdoor history and identity, prior to care home admission. Again, for residents unable to recall or process this information, worker knowledge was potentially essential for knowing who to offer outdoor opportunities to and how to encourage engagement:

R6: How important is knowing residents' life history – are they more likely to get outside if you know that they enjoy this, or enjoyed it in the past?

Relatives/significant others

Having a relative or significant other was posited to be an important enabling factor for outdoor use. Only two of the residents who used the outdoor spaces received visits from relatives/significant others who sat in the garden with them. This was not a positive experience for one resident:

10.55: 07-A has a visitor and becomes tearful and distressed with the visitor. This continues on and off for the duration of the visit. They remain with the group.

[A – Day 1]

For the other resident, the visit did appear to be welcome and they did talk about the garden:

14:00: 06-A has two visitors. They talk about how nice the weather is and ask if he has been sitting outside all day. 06-A is talking to them about the flowers: "I reckon that's a camellia…there are one or two magnolias". [A: Day 2]

Given the high proportion of residents reported to have relatives/significant others who accompanied them to the outdoor spaces, it was perhaps surprising that there were so few observed instances of this, particularly when the weather was so favourable in August and September. However, maybe this was related to the timing of the observations. Social visits to the care homes usually occurred at the weekends and there were no weekend days during the observations when the weather was warm and sunny.

Given the impact of staffing constraints on outdoor use, relatives were potentially a valuable additional resource in terms of activity and outdoor use engagement, so it was of interest to explore staff expectations of relative involvement and whether they felt that residents outdoor use was more the responsibility of relatives, potentially a countervailing influence.

For residents unable to recall, convey or enact their outdoor interests, having a relative to convey this information to staff was

likely to be enabling for outdoor use, but again, it was not clear whether this happened:

R7: Do you think relatives/significant others have a role to play in supporting residents to spend time in the outdoor spaces?

The posited context and mechanism configurations and focus group questions for resident are summarised below in Table 58.

Table 58: Resident characteristics - outdoor access and activities

Resident characteristics - outdoor access and activities			
Enabling characteristic	**Causal and/or counter mechanisms**	**Focus group questions**	
Independent or less dependent on mobility support	Resident feels safe / does not feel safe accessing and moving around outdoor space independently	**R1**	Do any of the residents seek to access and/or move around the outdoor spaces by themselves – do you think they feel safe to do this?
BPSD symptoms prompt resident to want to access outdoor spaces	Resident experiences /does not experience symptom relief in the outdoor space – some residents feel distressed if staff not present?	**R2**	Do you think any of the residents seek to go outside for relief from dementia symptoms? Under what circumstances?
	Staff awareness / lack of awareness of BPSD support needs – staff proximity important for reassurance?		
Some capacity and ability to initiate and enact outdoor use, or communicate wish to access outdoor space	Resident feels able / unable to make a request to go outside – more likely to ask staff members they like	**R3**	I heard very few residents asking to go outside - for those who do not initiate communication, how do you know what they like to do and whether they like going outside?
	Staff knowledge regarding residents' outdoor likes and dislikes		
	Staff awareness that some residents do not make activity requests, despite being able to do so – regular outdoor opportunities offered / not offered		
Positive mood and engagement	Resident is pre-disposed to engage in outdoor activities and experiences positive mood and engagement whilst in outdoor spaces	**R4**	Do residents' moods affect them wanting to take part in activities and spend time outdoors – is it difficult to motivate them? Can you tell more about that?
Outdoor interests, activity likes and history	Resident experiences feeling of pleasure, enjoyment and/or relaxation from engaging in preferred activities	**R5**	Which residents like to spend time in the outdoor spaces and why?
	Resident feels known and experiences positive relationships with activity providers and other staff		

	Staff knowledge about residents' outdoor likes, dislikes and history	**R6**	How important is knowing residents' life history – are they more likely to get outside if you know that they enjoy this, or enjoyed it in the past?
Relative/significant other visits resident regularly or involved in care	Relatives spends time with residents in outdoor space	**R7**	Do you think relatives have a role to play in supporting their loved ones with to spend time in the outdoor spaces?
	Relatives/significant others and staff communicate effectively about residents' outdoor preferences and history		
Constraining characteristic	**Mechanisms**	**Focus group questions**	
Physical assistance with outdoor mobility	Adequate or inadequate staffing to support residents with outdoor access and mobility. If there is usual staffing: "it depends who's on"	**R8**	Are residents with higher mobility support needs less likely to get outside?
Unable to initiate or request support with outdoor use	Staff lack knowledge of resident outdoor preferences and/or skills to communicate effectively with residents with speech, language and cognitive impairments– do not offer regular opportunities to access outdoor space	**See R3**	
Negative mood and engagement	Resident is not pre-disposed to engage in outdoor activities offered or the outdoor spaces	**See R4**	
	Staff have negative perceptions of residents regarding their lack of engagement		
	Staff lack awareness about how the impact of staff-related factors on resident mood and motivation		
	Staff lack skills to engage effectively with residents who decline to engage in outdoor activities or who have low motivation		
Outdoor lack of interest, dislikes and history	Resident does not experience pleasure and enjoyment in the outdoor spaces and/or dislikes being outside	**R9**	What are the reasons why some residents do not use the outdoor spaces or dislike doing this? Can some of them be overcome in some way?
	Lack of staff knowledge about residents' dislikes and history		

No relatives or significant others, or they do not visit resident / are not involved in care	Relatives/significant others do not spend time with resident in outdoor space	**See R7**
	Relatives/significant others and staff do not communicate effectively about residents' outdoor preferences and history	

Other - observer impact

From day one of the observations, there were many field note entries querying whether participants' comments and behaviour were being influenced by the nature of the research and the presence of an observer. For residents, this mainly manifested as having an additional person to speak to or ask for help:

14:05… I realise that I will not be able to continue DCM as 07-A is constantly trying to interact with me and we are now being observed by 06-A and 03-A. I cease DCM at 14:15 but remain in the garden with residents until the singer finishes at 15:15. [A – Day 1]

However, there were two distinct ways that this appeared to affect staff. Firstly, they might have made more comments about outdoor use than they would have ordinarily. Perhaps they were motivated to cast the care home or their own views and practices in a positive light:

10:55: There are some comments from activity coordinator and visitor about how nice it is outside… activity coordinator looks at me…. I wonder if these 'outside' comments happen because I am present? [Reflection: A – Day 1]

10:55: Activity coordinator: "Everybody loves sitting outside – from the minute get here, it's 'can we sit outside?'…. She directs these comments at me – does she feel the need to confirm that people do go out?

[Reflection: A – Day 3]

10:45: Care worker asks residents if they want to go out, but there is no response. I am not sure if they heard her…. I wonder if the talk and consideration about going outside is to do with my presence? [Reflection: B – Day 1]

11:15: Care worker tells me that a few residents went outside yesterday afternoon (Sunday). [B - Day 4]

OI1: Do you think my presence and knowing what the research was about affected what you said about outdoor use during the observations?

Curiously, there were very few comments made about the outdoors in care home C, apart from how cold it was, and none were directed at AK. It almost appeared as if there was no expectation that

residents would or should go outside in winter. Hence, the question relating to bonfire night was particularly pertinent.

Secondly, worker awareness about the research may also have influenced outdoor use practice; the mechanism was potentially similar to that described above:

12:15: I am wondering if lunch in the garden is happening because I am present – I don't think it happened the day before, when it was hot, because there was no table under the gazebo when I arrived. [Reflection: A - Day 1]

In care home B, it was considered whether the group outdoor use would have occurred at all, without an observer being present:

11:10: Care worker says to residents: "The sun's coming out now, so you'll be able to sit out there (pointing to the patio) this afternoon when the Zumba lady gets here" …. She looked at me as she was saying this, and it feels like it was for my benefit? [Reflection: B – Day 1]

The next day, the same worker encouraged some residents to go outside, so perhaps some workers were affected more than others by the presence of an observer:

12:10: Care worker is encouraging residents to go and sit outside after lunch (it is very warm, and the sun is out) as the weather is due to change soon and become cooler…. Is this because I am observing? [Reflection: B – Day 2]

OI2: A/B - Do you think that residents might have gone outside more than usual because you knew I was exploring outdoor use?

The posited context and mechanism configurations and focus group questions for observer impact are summarised below in Table 59.

Table 59: Observer impact – outdoor access and activities

Observer impact – outdoor access and activities			
Context	**Staff mechanism**	**Focus group questions**	
Observer presence	Staff keen to portray care home or themselves positively – seeking approval regarding existing practices?	**OI1**	Do you think my presence and knowing what the research was about affected what you said about outdoor use during the observations?
		OI2	A/B: Do you think that residents might have gone outside more than usual because you knew I was exploring outdoor use?

4.3.6 Summary

In this chapter, the methods and results for phase two of the ROAM theory development cycle have been reported. The important contextual characteristics and potential staff and resident mechanisms have been configured and questions were identified for the care worker focus groups planned for phase three.

5 Phase three – Refining the initial theory of outdoor use

5.1 Introduction

This chapter describes the methods and results for phase three, in which the aim was to refine the configured theory identified in phase two further. In the first instance, sampling, recruitment and data collection and analysis methods are outlined. Data were collected via three care staff focus groups using the empirically derived questions identified from phase two findings. A realist analysis of the data were conducted to confirm, refute or amend the context and mechanisms configurations. The results are reported narratively and then summarised in tables which are presented at the end of each section.

5.2 Methods

5.2.1 Ethical approval

During the recruitment process for the focus groups in October and November 2016, it became apparent that it would be challenging for managers to ensure staff attendance at focus groups during paid work time as they would usually be working directly with residents for the duration of their shift. A substantial amendment was submitted to NHS Health Research Authority North West -

Greater Manchester South Research Ethics Committee to provide an incentive payment to each care home (see Appendix 14).

5.2.2 Defining the sample

The focus group participants were drawn from staff who had participated in the observations. This was on the grounds that they would be familiar with the study aims and processes and perhaps more amenable to participating in further data collection. The care manager in each home was excluded from participating because of their involvement in the recruitment process.

Focus group composition and size require careful consideration and decisions are usually influenced by the research objectives, study design and resources available[227]. In the initial theory, it was posited that differing job roles might impact differently on outdoor use. Therefore, to understand the similarities and differences with regard to 'who knew what', potential participants were approached on the basis that they performed differing roles within care homes, such as activity coordinator, care worker, team leader and deputy manager.

Whilst it might have been advantageous to restrict group participation to like staffing roles to avoid role hierarchy, this would have meant conducting a number of focus groups in each care home in order to test the role-related initial CMOs. This was

potentially too burdensome for the care homes in terms of time and resources. Therefore, it was considered more ethically and practically feasible to conduct one focus group in each care home, for a minimum of one hour, and recruit a range of roles per group. Whilst there was no guarantee that all members would feel able to contribute, a strategy was introduced to manage this which involved offering participants the opportunity to withdraw consent after the group had finished.

Predetermining and limiting data collection in this way is somewhat out of step with realist research design, which should accommodate revisiting the same respondents and repeated dialogues as part of the iterative process of explanation building[138, 200]. However, using other methods of enquiry, such as questionnaires and observation was intended to build up the initial theories from relevance to rigour[111]. As described by Manzano, this is a useful, triangulation-friendly analysis strategy which also serves to embed the realist fieldwork experience[138].

5.2.3 Sample size

Focus group sizes vary widely depending on the nature of the topic. They should be small enough to allow for each member to participate and large enough to accommodate diversity of perspective[190]. A key deciding factor, in addition to the funding and space available, relates to the experience of the facilitator[227]. AK,

who would be the lone facilitator of each group, had previously conducted two research focus groups, but not using a realist approach. Methods texts generally advise six to eight participants as the optimum size and the usual strategy is to over-recruit to compensate for interested participants not being able to attend[228]. It was therefore decided to limit recruitment to eight participants, whilst aiming to have between four and six participants per care home.

5.2.4 Recruitment and consent

Managers supported recruitment by providing each worker who had participated in the observations with a participant information sheet and an expression of interest slip. Recruiting to focus groups via an intermediary can be a successful strategy, the main benefit being reduction in the recruitment effort for the researcher[228]. For the study, it was advantageous that the staff were known to the managers and in the same professional location, however, there were potential pitfalls to using this approach. It was possible that the managers might only approach staff likely to present a positive view of the care home, this type of sampling bias might well have implications for the trustworthiness of data[141].

There were also ethical considerations. For instance, there was potential for staff to be coerced to participate[183]. One of the safeguards instituted was to exclude managers from participating

in the focus groups, enabling the researcher to establish if participants were present voluntarily and to reaffirm the option of withdrawing.

Managers agreed to release staff from their usual duties without detriment to their colleagues and residents and to organise a suitably sized, private space where interruptions were likely to be minimal. AK went through the PIS with each focus group and sought written informed consent just prior to the commencement of the focus group.

As highlighted by Goodman and Evans[227], it is extremely challenging for an individual participant to withdraw consent once in the group setting and silence may seem the only viable option. However, researchers may misinterpret this as agreement with the statements of others. They suggest offering participants the option of withdrawing consent after the group has met if there are concerns[227]. Each group was informed of this option and advised to contact AK afterwards if necessary.

5.2.5 Data collection

As highlighted in Chapter 3, a principal investigatory strategy in realist evaluation is the realist interview. Pawson and Tilley emphasise that when planning to collect data from stakeholders, realist evaluators should avoid being drawn into choosing between

differing approaches for example, unstructured, semi-structured or standardised interviews, which are often aligned to distinct philosophical traditions[109].

Instead, it is recommended that the interview format and structure is guided by the evaluator's theory. A model is posited in which the 'teacher–learner function' enables participants to understand the theoretical ground being explored. Elements of the programme theory are exposed to the interviewee who then teaches the evaluator what they know about what works, for whom and so on. It is the evaluators' theory that is the subject matter of the interview and in the 'conceptual refinement process', the interviewees responses are used to confirm, refute or refine this theory[109, 200].

Using this model in realist interviews with care home staff was considered entirely appropriate, and perhaps even optimal for testing the initial configurations. However, the time required to conduct the required number of interviews in each setting was likely to be too detrimental for the care homes, in terms of imposing pressure on staff, basic routines, activity provision and residents. Nonetheless, it was requisite for AK to engage in some sort of dialogue with the care home staff in order to test the initial configured theories derived from the observations. Therefore, the focus group method, a facilitated, group discussion on a pre-

defined set of issues[229], was selected on the grounds of ethical and practical suitability.

Whilst methodological guidance has been provided for realist interviews[138, 200], discussion about group interviewing techniques or the focus group as a distinct method of primary data collection in realist evaluation is conspicuous by its absence. This is perhaps surprising given the differing influences that group interactions might have on programme theory discussion and also due to the growing popularity of this method in health and social care-focused care realist evaluation[230-239].

Fortunately, this method is now recognised by the RAMESES project group[113]. It is suggested to be useful for uncovering or developing initial theory, the latter being the case for the ROAM study. There was no reason to assume that the teacher-learner cycle could not be operationalised in groups although, in the evaluations referenced above, this process was not explicated. Focus groups may well provide an effective and more immediate medium than one-to-one interviewing for eliciting and contrasting what different stakeholders know about programmes or services. However, given the differing roles and hierarchies that might be present in a group, it would be particularly important to be mindful of power imbalances between participants and to develop strategies to manage this[240].

Manzano proposes that there are three phases of the realist interview: theory gleaning, theory refinement and theory consolidation. She acknowledges that due to time and resource constraints, it might not be possible to incorporate all of these phases in the same evaluation.

Theory gleaning interviews assist the evaluator to explore first order theories, that is, those that focus on how programme context impacts on behaviour and outcomes. The objective is to guide the interviewee into comparing the impact of differing contexts on outcomes. In the ROAM study, this data were sought via observations and questionnaires and explored against the framework of an initial theory of outdoor use.

This provided some clarification regarding outcomes, which contextual characteristics might be important and some ideas regarding potential worker and resident mechanisms. However, these first order, newly configured dyads required some testing and refining. Necessarily, some of questions were tailored to the specific care home due to contextual differences, for example, in relation to outdoor design. The questions summarised in Chapter 4 section 4.3.5.3, comprised the focus group interview schedule.

In 'theory refinement' follow-up interviews, second order theories are articulated as the evaluator is becoming more knowledgeable about the nuances of the programme, and questions become less

standardised and more tailored to specific outcome patterns and how mechanisms are being fired to produce these. Similarities and discrepancies within and across settings are explored and the evaluator might openly refer to what a colleague of the interviewee has said about the programme or what is happening in a different setting. In the ROAM study, the focus group data were utilised for this theory refinement phase. It was anticipated that some of the dyads would be confirmed, some refuted and some amended in terms of their likely impact on outdoor use, or not.

Theory consolidation involves continuation of theory refinement to establish third level theories. The aim is to further elicit how the theory performs for different configurations of stakeholders, for example, doctor, patient, nurse and relative. Detailed consideration is given to a smaller number of CMOs which traverse many families of CMOs. Due to practical constraints in the ROAM study, it was not possible to revisit participants either via focus groups or interviews in order to consolidate the refined configured theory. Nevertheless, it was anticipated that a measure of consolidation would be achieved by refining and/or adding questions prompted by the responses in the previous focus group. For instance, if a new potential mechanism was suggested by focus group one participants, this was taken forward to the other groups.

Once the focus group questions had been generated, some consideration was given to how to 'teach' the group participants

the differing components of the configured initial theory in a way that then encouraged them to feel at ease enough to engage in some group discussion and interaction.

Two exercises were designed which involved participants having brief discussions and then recording group responses on sheets provided. The intention was to use these written responses to frame the associated focus group questions and also, to inductively follow any new lines of enquiry introduced by the participants. Another objective was to observe group interactions and dynamics during the exercises and consider how these might be pertinent to the configured initial theory.

The first exercise was resident-focused on the grounds that at the beginning of the session, staff might feel more comfortable talking about residents than organisational factors and team practices. This exercise was designed to not only confirm or refute some of the resident observational data regarding outdoor use preferences and history, but also to establish worker knowledge about this, which had been posited as a potential mechanism for outdoor use. Participants were informed about the resident outdoor preferences/history element of the initial theory before completing the exercises, thus the teacher-learner cycle was instituted at the outset.

The second exercise was directly focused on the care practice environment and was designed to gauge worker perceptions of outdoor use enablers and constraints prior to any 'teaching' in relation to the organisation, physical environment and resident characteristics posited in the initial theory. The plan was to then utilise the teacher-learner cycle during the question and answer section of the focus groups.

- **Exercise 1: Residents who like to go outside and those who don't**

Sheets were provided detailing the resident participants names and columns were labelled 'likes to use outdoor space', 'does not like to use outdoor space', 'not sure'. Participants were asked to briefly discuss each resident in turn, whilst considering why residents might like or dislike outdoor use, and then tick the appropriate box. In focus group C, this was done in two groups according to which staff worked with those on the ground floor and the first floor.

- **Exercise 2: What helps and gets in the way of residents using the outdoor spaces?**

For each group, two sheets were provided, labelled: 'facilitators of outdoor use' and 'barriers to outdoor use'. Participants were asked to have a brief discussion and record their comments in the appropriate column. The intention was to focus on the most

enabling or constraining influences, relating these to the focus questions where possible. Where there were questions about context characteristics and potential mechanisms that participants had not discussed or written down, these were integrated into the session as appropriate.

By necessity, the three focus groups were conducted over a short period of time. Between groups, the audio-recordings were listened to in full and notes were made about follow-up questions to ask, which were added to the interview schedule. These additional lines of enquiry are reported in the focus group results section (5.3).

All of the focus groups were digitally recorded using an MP3 recorder and transcribed verbatim. The word-processed transcripts were checked twice against the audio recording to ensure that they represented an accurate reflection of the group discussion. During these checks, various notes were added, for instance, about how participants were interacting, tone of voice, feelings about particular issues, potential reasons for periods of low engagement. To encourage reflexivity, researcher reactions, strengths and limitations were also noted on the transcripts. It should be noted that the recordings did not indicate that any of the participants might wish to withdraw their consent.

5.2.6 Data analysis

Each focus group transcript was imported into NVivo 11 Qualitative Data Analysis Software. Data were analysed inductively and deductively. This involved exploring the transcripts for emergent causal and countervailing mechanisms in relation to the context categories in the initial theory: weather, organisation, physical environment, resident and observer impact. Additionally, data were reviewed seeking evidence to confirm, refute or amend the initial configured context and mechanism dyads identified in the phase two analysis.

Whilst it was acknowledged that some rigour might have been conferred to the analytic process by asking participants to check transcripts or initial findings[190] or perhaps utilising a second researcher to check the transcript coding against the coding framework, this was not possible due to time constraints.

In stage one, node folders were created comprising the configured theory context categories: weather, organisation, physical environment, resident, other. In each category, two sub nodes were created and labelled: 'enabling context' and 'constraining context'. Two additional nodes were labelled: 'worker mechanisms' and 'resident mechanisms' to capture any data that indicated causal and countervailing reasoning, motivations and behaviour related to outdoor use. Starting with the transcript from focus

group one, the nodes were populated in accordance with these definitions.

Figure 12 demonstrates the stage one coding hierarchy and provides a visual depiction of the following example. If a group talked about the negative impact of basic care routines, a new sub-node would be created under 'constraint' and labelled: 'lack of time' to store the excerpt. However, if they also talked about the structure of a routine helping with time management, which then allowed some 1:1 time with residents, a new-sub node would be created under 'enabler' and labelled: 'structured routine helpful'.

If there was further talk in relation to lack of time or staffing levels which revealed perceptions and attitudes about the staff team, for instance, "it depends who's on", this would be coded in both the causal and counter worker mechanism nodes, in that the influence for outdoor use might be either. A memo was created for each care home and each category node to record any apparent connections, discrepancies and contradictions between and across nodes.

Figure 12: Stage 1 analysis - focus group coding hierarchy example

Organisation			
Pre-created nodes			
Context enabler	**Context constraint**	**Worker causal mechanisms**	**Worker counter mechanisms**
Nodes created from transcript data			
'Structured routines helpful'	**'Lack of time'**	**'Team differences'**	**'Team differences'**
"I like having a structured routine, it means that if I get done early, I can take someone in the garden"	"there is always too much to do, breakfast, teas, toileting, laundry and most of them need two to move… there is never enough time"	"It depends who's on…when some staff are on, it's a lot easier"	"It depends who's on…some of them are always smoking, so I don't even bother.

In stage two, node folders were created according to the enabling and constraining context-mechanism dyads summarised in the tables containing the focus group questions. A blank memo was attached to each node. Starting with focus group one, each transcript was explored for data which confirmed, refuted, or suggested an amendment to these dyads and notes about this were made using the memo function.

Once both stages had been completed, the coded data and the memos were compared, context category by context category. The second stage coding hierarchy was then used as the master framework and any emergent context and mechanisms were added via sub-nodes to the relevant a priori dyads. During this process, some data were re-coded, and some was un-coded.

As for phase two, the focus group results are reported narratively, by context category and quotations are used to provide evidence for differing elements of the resulting refined configured theory. As intended, the reported results continued to be delineated by context category. In phase four, more abstracted connections between these categories were explored using the relevant literature with the aim of producing an initial , middle-range theory of outdoor use.

5.3 Results

5.3.1 Recruitment

Focus group recruitment was restricted to those staff who had participated in the observational study. From a total sample of 35 staff, 14 consented to participate in the focus groups. See Table 60 for the numbers recruited, by care home. All of the participants were female except for one of the team leaders in C.

Table 60: Focus group recruitment, by care home

Care home and bed size category	Number of eligible workers	Number of workers recruited	Job roles
A **<20**	12	5	Deputy Manager x 1 Team Leader x 1 Care Worker x 2 Activity Coordinator x 1
B **20-39**	6	3	Team Leader x 1 Care Worker x 1 Activity Coordinator x 1
C **39>**	17	6	Team Leader x 3 Care Worker x 2 Activity Coordinator x 1
Total	**35**	**14**	**N/A**

5.3.2 Focus group exercises

Table 61 shows the results from focus group exercise one in which participants recorded their views about which residents liked and didn't like using the outdoor spaces. Whilst only 14 (28%) resident participants accessed the outdoor spaces during the observation study, at least 33 (66%) residents were reported to like doing this.

Table 61: Exercise 1 - worker views of resident outdoor space use preferences, by care home

Care home	Number of resident participants	Likes to use outdoor space		Does not like to use outdoor space		Not sure	
	No.	No.	%	No.	%	No.	%
A	8	6	75%	2	25%	0	0
B	14	10	71%	2	14%	2	14%
C	28	17	61%	4	14%	7	25%
Total	50	33	66%	8	16%	9	18%

Table 62 shows the results from focus group exercise two in which participants were asked to identify the enablers and barriers to residents' outdoor use. These were grouped in accordance with the relevant context categories in the configured initial theory. None of the participants identified any physical environment characteristics.

Table 62: Exercise 2 - Worker perspectives regarding enablers of and barriers to residents' outdoor use

Enablers and barriers	Care home A	Care home B	Care home C	Alignment with initial theory
Enablers	Leadership	Planned outdoor activity	Time	**Organisation**
	Staff levels	Time for activities	Extra support staff	
	Activity Coordinator		Coordinator	
	Weather	Nice weather	Good weather	**Weather**
	Moods			**Resident**
	Motivation, encouragement		A reason to go out, e.g., events and incentives, more interesting things to look at, outdoor games e.g., giant chess	
	Mobility		Mobility	
		Inviting friends and family to join in	Family support	
Barriers	Staff levels	Staff shortages	Staffing	**Organisation**
	Time	Time	Time	
			Task oriented as opposed to resident orientated	
			Staff competency	
	Adverse weather	Bad weather	Weather	**Weather**
	Mobility		Mobility	**Resident**
		Residents needing two carers to move	Levels of dependency (x 2 staff)	
			Lack of wheelchairs	
	Resident lack of interest		Behaviour / mood	
	Fear of being alone		Fear (resident)	

5.3.3 Context and mechanisms: explanations in narrative

Illustrative quotations from the focus group transcripts are italicised. As the specific roles of staff were relevant to theory testing, abbreviated job titles are presented with the quotations. Questions asked by the researcher are accompanied by the initials AK. Where there was more than one participant with the same job title, they were allocated a number and the same number was used for each quotation from the same person: AC-01. For each quotation excerpt, the care home identification code is provided. Questions asked by the researcher are accompanied by the initials AK. Table 63 provides a key of abbreviated job titles.

Table 63: Abbreviated job titles for focus group quotations

Job title	Abbreviation
Deputy manager	DM
Team leader	TL
Activity coordinator	AC
Care worker	CW
Researcher	AK

At the end of each section, results are summarised in tables which indicate whether the posited context and mechanism was supported, partially supported, unsupported or refuted. Table 64 below provides a key of descriptions for each context and mechanism status.

Table 64: Key of 'context and mechanism status' descriptions

Context and mechanism status	Descriptions
Supported	Support for CM across all groups
Partially supported	Support for CM in one or two groups
Unsupported	The reasons why the context and mechanism dyads were unsupported are provided e.g., insufficient evidence
Refuted	Consensus that posited CM not applicable
	New context and/or mechanisms are emphasised by blue shading

5.3.3.1 Broader environment

Weather and outdoor temperature

In focus group exercise two (5.3.2) weather was identified by all of the groups as an enabler of and barrier to outdoor use and the discussion revealed that it was one of the most influential context characteristics for prompting staff to consider providing outdoor access and activities. These practices were only ever likely to occur during periods when the outdoor temperatures were consistently very warm or hot, usually summer. However, these conditions did not always guarantee outdoor use.

Overall, staff focused less on why warm sunny weather triggered outdoor use practices, and more on why less favourable conditions were so constraining. However, in some cases, being out in the sunshine and by association, the fresh air, was perceived as an activity that some residents enjoyed and that was beneficial:

AC: Fresh air important is important to us, who can move around and go outside when we want and that. Fresh air is important to everybody. Sunshine is important to us. [A]

AC: …we do use the garden. We encouraged it because I mean you're indoors all the time so you're going to need your vitamin D… [B]

AK: So, what sorts of things might you see if people have been out in the sunshine for a bit…?

TL02: More relaxed

TL01: They are happy

CW03: Content [C]

Potentially, appreciating and valuing resident enjoyment, as well as the well-being benefits provided by warm, sunny weather and fresh air, were additional worker causal mechanisms for outdoor use practice.

Conversely, there was broad consensus that rain and/or colder weather made it inappropriate for residents to be outside and it was confirmed that they were not usually offered the choice to go outside under these conditions:

CW01: That's the way we've all been brought up isn't it, it's raining, no you can't go out, you go out when the sun comes out… [A]

TL: Sometimes it's cold…so residents can't go out [A]

TL: I only tend to say it like if it's raining…I'd say 'I wouldn't go out there, it's too cold or it's raining' ***[B]***

AC: I've never taken anybody out in the rain, no.

AK to AC: How much does that influence whether you would take somebody out?

AC: A lot, yes, yes, I wouldn't like to take anybody out if I know it's raining. ***[C]***

Congruent with the posited counter mechanism, the dominant line of reasoning was that wet or cold weather had potential to negatively impact on residents' health, therefore, staff were averse to supporting outdoor use under these circumstances:

CW: Cold is not so bad, but then if you take somebody out in the cold, then you're always running that risk that they're going to get ill. ***[A]***

AC: …they might catch cold, you know if I didn't wrap them up warm enough, dry enough then they've got damp clothes… ***[C]***

There was also some suggestion that wet or colder weather rendered the outdoor spaces unsafe for resident mobility:

AC: They slip as well, they slip over, I mean that gets sodden that lawn out there, doesn't it? And that's, with me, it is when it's really wet, them sliding and slipping. [A]

Focus group A presented a connected counter mechanism to explore which suggested that residents going out in wet weather created a detrimental impact on team workload:

CW01: Because it would be great to take them out in the rain…but we know if they get wet, it's going take possibly most of our residents, two of us to then have to change all of their clothes, we do all the laundry, put dry clothes on and bring them back in for meal times, get them all dried and stuff. [A]

So, perhaps the issue was less about safeguarding resident frailty and health and more about not having enough staff to support outdoor mobility during poor weather. There did not seem to be support for this counter mechanism in the B and C focus groups:

CW03: Not here, no, because we'll go and get them a cardigan on, they've all got cardigans and coats. [B]

CW03: Never even thought about it. [C]

TL01: I don't think anybody here, because it never hit any of us. Never thought of the extra work. [C]

However, some staff confirmed that they did use weather talk to discourage residents from going outside:

AK: Do you think you can perhaps talk about the weather to discourage people from going out if you haven't got time?

TL02: Yeah, I think it does happen definitely… I've said, 'you can't go out there it's raining, look at it…. or 'look at how windy it is'. [C]

There was some acknowledgement that whether these comments were made consciously or not, they might well be an effective deterrent:

TL01: I don't think…to discourage negatively, but we can walk in and somebody's in the lounge and we say 'oh it's freezing outside, so straight away that resident thinks, 'well, I'm not going out, you're not getting me out'. [C]

It was perceived by some respondents that residents were averse to feeling cold and that this made it easy to dissuade them from going out:

AC: A lot of them don't want to go out.

CW02: A lot are too cold to go out.

CW01: Yeah, they're all cold in here, so you can imagine how cold they're going to be outside. [A]

TL: I only tend to say it like if it's raining…I'd say 'I wouldn't go out there, it's too cold or it's raining'.

CW: But they wouldn't go out anyway would they…they'd be straight back in… [B]

TL: It's like sometimes they'll walk, we'll let, like if they are, say a bit a bit distressed, you open the door just, so they can have a look, as soon as they feel the cold, that door's shut, they come in straight away. [B]

TL03: Sometimes you will take them out and somebody will say 'It's too cold, it's too cold, I can't stay here'. [C]

There was some evidence that participation in particularly valued outdoor activities, such as Halloween or Bonfire festivities, could modify resident and staff carer attitudes to the cold:

CW03: Cos same as Halloween, if we have Halloween or bonfire, it's freezing, but we never say, 'It's too cold to go outside', everybody goes outside, we don't stop them…[C]

The proposed contextual enabler of increased staffing was supported, albeit, in an unpaid capacity:

AK: So, for the special events like…bonfire night, is extra staffing available then?

TL01: People come in their own time.

CW03: People give their own time, their own money [C]

Table 65 below summarises the context and mechanism status for weather – outdoor access and activities.

Table 65: Weather - outdoor access and activities

Weather - outdoor access and activities			
Enabling Context	**Causal mechanisms**	**Context and mechanism status**	**Comments**
Warm, sunny weather	***Resident: Preference for feeling warm***	**Supported**	
	Staff: Appreciation of resident enjoyment of weather	**Supported**	
	Staff: Appropriate weather for residents	**Supported**	
	Staff: Appreciation of weather-related outdoor benefits for residents	**Supported**	Change of scenery, sunshine and fresh air beneficial = happiness, contentment, relaxation, Vitamin D
C only – Winter seasonal events	***Staff: Increased staffing, but provided in own time***	**Supported**	
Constraining context	**Counter mechanisms**	**Context and mechanism status**	**Comments**
Rain, wind, mixed conditions, colder temperatures	***Resident: Aversion to feeling cold***	**Supported**	
	Resident: Unconscious, negative staff weather talk	**Partially supported**	
	Staff: Inappropriate weather - resident health-impact risk aversion (falls, colds, chest infection)	**Supported**	
	Staff: Poor weather outdoor use increases workload	**Partially supported**	
	Staff: Using poor weather to discourage outdoor use due to lack of time	**Partially supported**	

5.3.3.2 Organisation

Outdoor access and activities

In focus group exercise 2, there was consensus that staffing levels, time and activity provider hours were important organisational characteristics for supported outdoor use. Worker reasoning and volition varied, depending on the staffing resources available in the care home and the operant model of activity provision.

In terms of providing support for more dependent residents to use the outdoor spaces, this was perceived to be part of everyone's role:

CW03: I'd say it's everybody's…

AC: It's everybody, it's everybody, yes. [C]

At a team-level, as posited, this was potentially influential, as well as having knowledge of residents' outdoor use preferences and history:

AK: In terms of life history, do you know much about their outdoor life? Do you do 'This is Me'?

AC: Yes, we do, and it all depends on the residents' families, doesn't it? I mean we can get quite a lot if they're able to communicate, but it's a case of we're having to ask them

aren't we and trying to, you feel like you're badgering the family, but you need that history really. [B]

AK…how important is knowing them and perhaps their life history and their history of outdoor use?

CW03: Very, the most important thing, the most…

Group agreement [C]

However, for activity and care providers alike, inadequate staffing levels and lack of time were believed to be the main barriers to outdoor use which potentially prevented the 'shared responsibility' and 'staff knowledge' mechanisms from firing:

AK: Do you think that if you know that somebody likes going out…that they are more likely to go out?

CW04: …It just depends on lots of other things…

AC: Yeah…

TL01: Yeah, in an ideal world, we could all say right, we're are going to do so and so today…time, staffing… [C]

AC: It depends on that as well [points to slip saying 'staffing levels'] big style, because I have took them all out myself and moved the tables on my own out there, for dinner as well…. ***[A]***

CW02: There's not enough of you… ***[A]***

AK: …if you had to pick the biggest barrier, what would it be?

AC: Lack of time. ***[C]***

The care staff in the groups confirmed that their time was dominated by task-oriented basic care routines and some reported how impactful these were:

CW01: Nearly all of them are two people carers and we've still only got three care staff and we are still doing the washing and still doing the tea and still doing the breakfasts. ***[A]***

CW02: We've got a timetable, we have to get the teas out, get all that collected, we have the toilets to do, toileting the residents, laundry, care plans… ***[B]***

In care home B, care workers were expected to complete a wide array of tasks ranging from cleaning to activity provision, which potentially came into conflict:

CW: But some days it's just 'no, it's not happening'...

AC: Yes, if anything, it's got more to do with cleaning than it has to do with care. [B]

TL: We've got housekeepers until 3pm, we don't mind taking over from 3... [B]

In each group, participants also reported paperwork as a barrier to spending time with residents and some made references to how much this had increased compared with the past:

CW02: Some days, you really haven't got time to....

TL: Paperwork...

CW01: Yeah, all the paperwork...

AC: Your paperwork takes longer, now doesn't it? [A]

TL01: …but it wasn't only the staffing, it was the paperwork…

TL01: … and the paperwork's massive, absolutely massive.

AK: And that's changed a lot?

Group response: Yes. ***[C]***

Overall, participants seem to feel fairly conflicted in their work roles due to not being able to spend time with residents outside of basic care tasks:

CW01: How many of them won't let you go when you go and talk to them? And if I'm completely honest, I know if I go past [refers to a resident] bedroom and pop in and say hi, I'm sometimes grateful if she's asleep. That sounds awful because I need to get to her… ***[A]***

CW02: …You haven't got time to sit and have five minutes with the residents, have you? ***[A]***

AC: The reason why we've signed up for all this (focus group) and I'm sure the rest will agree with me, is because we believe that they should spend time outside…

AK: It sounds like you feel quite frustrated?

CW01: Yeah, frustrated and sad really…. ***[A]***

TL02: Sometimes it's a bit erm sad on the other residents because [activity coordinator] could only work as one-to-one out there, so all your other residents… ***[C]***

In care home B, participants also lamented the lack of time they had to spend with residents and frequently referred to their shifts being challenging:

TL: And it's just if there was ever like an incident or anything, then it puts you really behind, you all kind of, have to come all together. So sometimes the other residents may feel pushed out, because obviously… ***[B]***

CW: You don't get to spend, I'd love to spend more time with them personally. ***[B]***

The activity coordinator clearly empathised with her care worker colleagues:

AC: I do feel for the carers here, because they have got, they've got to follow this plan and then their action plan and then they've got the residents to actually look after and to try and fit the activities in as well, it's, it can be hard. [B]

But also seemed to feel conflicted and somewhat demotivated:

AC: It feels like this time last year, I became the activity coordinator and I was very enthusiastic about it and I had the time to do stuff with them. Whereas, a year later, the enthusiasm is going… [B]

Some of the care home C participants, who had previously worked together for a different provider, recalled having more time for activity provision in the past:

TL01: But it might not just be outdoor, 'activities' is the main word. You know, we used to have activities every afternoon, if you remember, [refers to TL02] will remember…

TL01: Yes, we used to take them out, but after lunch, and before tea, we used to put music on, we had tea dances…

TL02: Cheese and wine evenings…

TL01: Fish and chip supper… [C]

Overall, participants seemed to feel that they were letting the residents down, due to not being able to spend enough time with them. As a consequence, they reported feeling sad, frustrated, demoralised and/or demotivated, feelings and experiences which were potentially a countervailing influence for supported outdoor use.

Some participants were very conscious about how their work actions and behaviour might affect their colleagues, indicating that there was some conflict between meeting the activity and engagement needs of residents and supporting colleagues with task-oriented routines.

The activity coordinator in care home A expressed feeling guilty about needing to request care worker support with residents:

AC: ….I feel guilty, I would feel guilty ringing that bell if I could do something myself, but I'm not supposed to do it according to [manager], but then [manager] says 'deal with it' when I speak to her. [A]

The care workers also felt compelled to avoid putting additional pressure on their colleagues:

CW01: Say, I was on shift with these two, and I said: "I want to go and have an hour in the garden with 06-A and I'm going to help him plant a plant". They'd go: "Like hell

you are, we've got all the commodes to do, it's nearly lunch time". I'm not going to expect them two to do all the personal care whilst I go and sit for an hour outside. [A]

As staff seemed to have little influence over how constraining staffing levels were, perhaps avoiding team conflict and disapproval from valued colleagues was a greater influence on their practice than feelings about letting residents down. Thus, a new counter mechanism was suggested.

Discussions about trips beyond the care home further highlighted the sense of responsibility, conflict and guilt that some staff experienced in relation to their team mates:

CW01: …would love for them to be one on one, to be taken out to have their hair done, have their nails done, have a coffee, even if it's for an hour, walk down…cup of coffee…everybody being able to…

AC: It's having the time…

CW01: …but while I'm doing that, these two are stuck doing the commodes, the sinks…you know, their stuck here…[A]

AC: I've been down the village with one for a cup of coffee, but I've had to leave all the rest…

CW01: Which then leaves it with us…

AC: Which leaves it to you yeah, it's all about…

CW02: staff… [A]

Whilst these trips seemed to be challenging in terms of the distribution of staffing resources, it appeared that they did occur occasionally during programmed activity time. For care homes' B and C however, the main solution to supporting residents beyond the care home boundaries appeared to be staff doing this in their own time to avoid impacting on basic care routines. Perhaps this enabled them to meet residents' needs, whilst also avoiding disapproval from colleagues:

AK: [to the care workers] what you do in your job, how much of an impact does that have on people going out?

CW03: A massive impact, if I'm thinking of taking somebody out, it's got to be in my own time, realistically, it's got to be in my own time. [C]

TL: He likes to go and get a bit of like, I just take him to McDonalds… …and I take him up Tesco if he ever needs any new trousers or anything.

AK: Do you do that in your own time?

TL: A lot of the time yeah… ***[B]***

In terms of using the outdoor spaces in the care homes, again there were differences in how this came about. In care homes' A and C, where there were permanent activity coordinator hours, there was some inference that residents would need to initiate the request, which would then prompt communication and coordination between the activity providers and care workers:

TL: So, if someone wants to go out, we ask you [to AC] or [refers to the other activity coordinator] what you are doing. ***[A]***

TL01: [refers to AC] would escort that person out, which she does.

AC: I go and ask the carer and the supervisor 'is it okay for me to take out that person?' ***[C]***

On occasion, outdoor use was not contingent upon the activity coordinators being present. However, in care home B, the way staffing and routines were organised appeared to be highly constraining for activity provision and outdoor use. The group were asked how they might improve the situation:

CW: To hire someone for an hour to come and do activities with them…I'd rather we did it because we know them. [B]

AC: I'd get a full-time activities coordinator because I physically can't do it, there's only one of me. But I'd get a full-time one, or at least someone who can do a couple of hours a day. Because a couple of hours a day is better than nothing a day. [B]

There was some discussion about whether the gardeners or volunteers might be a useful resource for supporting outdoor use:

CW02: They'd have to have a carer with them, because a gardener wouldn't want to be responsible…

AC: Or a volunteer, or a volunteer that was caring. [A]

However, there were perhaps challenges recruiting and retaining unpaid staff:

AC: Yeah, I mean we've had people wanting to be volunteers, we've said yes, but that's as far as it goes, they never seem to get back in touch with you, to sort the DBS out… [B]

There were also indications that increasing staffing and activity provider hours alone would not necessarily result in more activity provision and outdoor use, at least in A and C:

AC: …it depends on who the staff are, it's this, not staff levels, it's personality like you've just said, it's staff and that includes all of us.

AC: It depends on what teams' on whether I do any activity in here… ***[A]***

In focus group exercise 2, care home C participants had identified lack of staff competence as a barrier and there was a suggestion that some staff did not use their initiative or were proactive:

TL01: …. because you could have three staff on, who one day takes the residents into the garden, a different three staff the next day…

CW03: …Who won't even think, 'it's lovely out there today'…

TL01: You have to think for them. ***[C]***

Participants made further distinctions between the staff who supported outdoor use and those who didn't:

CW01: It's those that do it for the money, that do it for a job and those that love doing it.

TL: To me personally, you can't do this job for the money.

[A]

CW01: There's a difference, you're more interested in the whole, the roundness of the person… ***[A]***

AC: Some people really do care, probably over care…

CW01: And some don't. ***[A]***

DM: Everybody here, every staff member here has got some sort of care, but some less than others. ***[A]***

There was sense from some, that working in a care home was not merely a job, but a vocation and there was a suggestion that these staff were somehow more resident-centred.

In focus group C, the staff reported to support outdoor use were contrasted with those who focused purely on tasks or a list of jobs:

TL01: Three staff who I do work with regular and I know would [support residents outside] and then three staff who wouldn't, who wouldn't think of the needs.

CW03: Cause they're just thinking, I've got to get this done, that done, that done…

TL01: Who with them it would just be about task-oriented care…

CW03: They just thinking about what they've got to do and 'we don't have to do any more than that'. [C]

However, it appeared that some staff used the structured routine to organise their workload and occasionally, this enabled opportunities for one-one time with residents:

CW01: … but that's very, very important to allow the relationship-centred work to be able to happen. Because if that doesn't happen, we've all been on shifts where you've been so behind, that you haven't got a minute to speak to a resident. I'm afraid I'm one of those that you've just mentioned, to me if you get everything done, it doesn't always happen, but I have to be a step ahead……

DM: You are, but…but you still take time out to take [refers to 02-A] out into the garden, you walked around the garden with him for 45 minutes, an hour.

CW01: But that's what I'm saying, that allows me to have the time to do that, because otherwise, you wouldn't… [A]

So, it appeared that some staff were better equipped to manage the day-to-day tension between task-oriented and resident-

centred approaches, being both able to deal with busy check-lists of tasks and make time for one-to-one communication. There was some confirmation of this in focus group C, despite the previous comments:

AK: …you got 'done', that was something I heard quite a bit, you got 'done' quicker and then….there might be a bit of time for activity?

CW03: Yeah, if there's certain staff on… ***[C]***

In both of the A and C focus groups, there was several indications that the participants aligned themselves with each other and potentially, a more resident-centred ethos:

AC: I think we in here, we are all quite…

TL: We're tight, aren't we? ***[A]***

AC: The reason why we've signed up for all this [focus group] and I'm sure the rest will agree with me, is because we believe that they should spend time outside…

Group agreement ***[A]***

TL01: The people who are here [referring to focus group] are the people who are thinking about the residents. [C]

Whilst there was strong confirmation of the 'it depends who's on' mechanism in focus groups' A and C, the B group took an alternate stance, perceiving outdoor use to be more contingent upon what was happening in the care environment, rather than who was on duty. The lack of designated activity provider hours was highly constraining for outdoor use:

AK: …do you have time to support residents with activities and garden use, in the main?

TL: It's just hard to say because it depends on what happens every day… [B]

CW: …because if we've got more residents that we have to turn every hour, or we've got to go and give them, push fluids with them, it just goes out the window. [B]

There was some ambivalence about how helpful the daily action plan was, and participants did not appear to make distinctions between types of staff within the team:

CW: It does help, it keeps us on track, but sometimes, it does get in the way, don't it?

AK: In the first focus group, sometimes it depended who was on, as to who got outside…

CW: I think they're all pretty good here.

AK: You've got a smaller team though…is that why?

AK: So that is less of an issue here then, you don't feel like it depends who's on?

AC: No, I don't, I think everybody's the same, yeah…

CW: Everyone pulls in…

TL: Yes. ***[B]***

There was still a sense that participants aligned themselves with others, albeit the staff team as a whole. In contrast with care homes' A and C, nearly all of the care home B care staff observed were full-time and comprised a fairly small team. There was also a care staff shortage at the time of the study. This meant that most of the team were on duty together for many consecutive days in a row. Perhaps the care workers, who were observed to be working under particularly challenging conditions, did share a very similar work ethic, and maybe this was cohesive. Or perhaps there were other reasons why the group participants felt compelled to express that the care staff were 'the same'.

As in the A and C groups, focus group participation was mentioned, but construed somewhat less positively:

CW03: It's like today, we're not getting in no activity because we're doing this, sort of thing…not blaming you, but… ***[B]***

Given the variations in how supported outdoor use was operationalised, the role of managers and leadership was of interest. Overall, participants confirmed that it was the team leaders who were in charge of the day-to-day routines, but the extent to which the managers and/or deputy managers influenced the team leaders, other staff, the routines and also outdoor use, varied significantly between the care homes.

In focus group exercise 2 (see section5.3.2), only focus group A participants identified leadership, and this was as an enabler of outdoor use. Whilst the deputy manager and team leaders did have responsibility for the daily routines, it was reported that when the manager was present, the plans and tasks of staff were frequently changed at short notice:

AC: That person there [manager] who's in charge, can change your whole day. You can plan your day at home and you can come in with a plan and if you come in and something else is going on…. ***[A]***

However, some staff felt there were contradictory messages at times:

AC: Yeah, one minute she's telling me to get, ring the bell and get staff and the next minute she's telling me to deal with it, so, what do I do?

CW01: Because if you've got a minute's space of time, you're put onto something else. [A]

This may have been constraining for supported outdoor use if the manager had other priorities, but essentially, participants agreed that if the manager felt that staff should be supporting residents outside, this is what happened, as was observed to be the case during the observations.

Focus group B participants reported some dissonance between the messages managers gave about the importance of activities and the staffing resources provided for this:

AC: In my view, they see it as important, they always, they make such a big deal of it in the general meetings, they always say that activities are important to the residents. It's quality of life, they've got to be stimulated, they can't just sit there, but then on the other hand, you've got them saying, if you tell the management you've got no time for a

toilet check or doing something, that's not an excuse 'you've always got time'… ***[B]***

So perhaps the way staffing resources and routines were organised indirectly communicated that there were more important priorities than activity provision and outdoor use. Consequently, this was potentially more influential for team practices than how the managers spoke about activities in team meetings.

For care home C, it was difficult to determine the influence of manager expectations on worker reasoning and practices, mainly because participants seemed reluctant to discuss their managers:

TL01: Do you mean [refers to the manager and deputy manager] coming down and saying: 'it's a lovely day, how about going outside?'

AK: Yeah, in one of the care homes I went in, it was very clear that the manager was very invested in people getting out and sometimes came into the shift, if you like, and made sure that happened.

Group silence ***[C]***

After a long pause, one of the team leaders did state that they did not often see the managers on the first floor. Due to the apparent discomfort within the group, this line of questioning was not

pursued any further. Perhaps there was no strong awareness amongst the staff of manager expectations regarding outdoor use. Or like group B, maybe the way that staffing was resourced indirectly communicated that activity provision and outdoor use were less of a priority.

Table 66 below summarises the context and mechanism status for organisation - outdoor access.

Table 66: Organisation - outdoor access

Organisation - outdoor access			
Enabling Context	**Causal mechanisms**	**Context and mechanism status**	**Comments**
Manager presence in outdoor spaces and/or involvement	***Staff: Responding to managerial expectation outdoor use***	**Partially supported**	
Activity coordinator or provider present Activity programming Adequate care worker numbers to support with access	***Staff: Supporting outdoor use is 'everyone's job' - shared responsibility***	**Supported**	Prevented from firing by inadequate staffing levels and activity provider hours?
	Staff: Knowledge of residents' outdoor preferences and history	**Supported**	
	Staff: "It depends who's on"	**Partially supported**	Refuted in B - perhaps due to not having enough staff or part-time staff for micro-cultures to develop?
	Staff: Shared resident-centred ethos ***Staff who: 'do it for love, care or over care, see wholeness of resident'***		
	Staff: Resident request triggers communication between care staff and activity provider (request forwarded to activity coordinator)	**Partially supported**	
	Staff: 'It depends what's happening' ('staff all the same everyone pulls in')	**Partially supported**	Relevant in B only
<u>New context - A and C only</u> Permanent activity coordinator not on duty - outdoor use enabled and supported by care workers	***Staff: "It depends who's on"*** ***Staff: Shared resident-centred ethos***	**Supported**	Relevant in A and C only

<u>New context</u> Staff provide outdoor support in their own time or on days off	***Staff: "It's got to be in my own time"***	**Partially supported**	
Constraining context	**Counter mechanisms**	**Context and mechanism status**	**Comments**
<u>New context</u> Managerial prioritisation of basic care tasks	***Staff: Responding to managerial expectations – task-focused ethos***	**Supported**	
Inadequate staffing levels and activity provider hours Higher resident to worker ratios Task-oriented, basic care routines **<u>Added context</u>** Increased paperwork (reflection of audit culture?)	***Staff: "There's not enough of us"***	**Supported**	
	Staff: "It depends who's on"	**Partially supported**	Refuted in B
	Staff: Task-focused ethos ***Staff who: 'do not think, do it for the money, do the minimum required'***		
	Staff: Role conflict – sadness, guilt and frustration about not being able to spend time with residents / letting them down	**Partially supported**	
	Staff: Avoidance of colleague disapproval at risk of letting residents down	**Partially supported**	

Supported outdoor activities

As highlighted in the previous section, knowledge about residents' outdoor preferences and history was confirmed to be important to the staff team. There was also some evidence of staff interest in and/or experience of delivering activities in the outdoor spaces, and this was not role-specific:

TL: …Why don't we get a greenhouse, one of those little green houses and start growing veg and stuff, tomatoes and whatever? [A]

AC: …because I did gardening activities with them out on the patio, so we did use the garden. [B]

AC: …And we did win that gardening competition and [refers to handyman] and I were taking out residents to plant baskets… [C]

Participants from group A became particularly animated when discussing residents' participation in day trips and reported a number of benefits:

AC: [refers to member of staff] was driving the minibus and taking them out on outings each day…singing and the mood of the residents changed just in an hour of going out.

CW02: They loved it, they loved it.

TL: They went up…

AC: And your garden idea is the same thing. [A]

AC: And they communicate with each other outside, it makes a difference, just the fresh air. [A]

AK: What do think the benefits are then, what do you think happens?

CW01: Change of scenery, the fact they can talk about something…

AK: Their mood improves?

AC: The fresh air, everything, the sun….

CW01: They sang, sing songs…

AC: I think it is the good weather. [A]

Witnessing and experiencing resident enjoyment and the perceived benefits, such as, improved mood and communication appeared to be highly motivational and rewarding for participants and also seemed to counteract some of the frustration and challenges imposed by inadequate staffing resources:

DM: …. only one member of staff to go with them all…

CW01: which left only two here….

DM: But then afterwards, you didn't care because you saw how happy they were…

CW01: Yeah, absolutely. [A]

This line of enquiry was pursued with focus group B, however, their experience of residents during and following day trips was less positive:

CW: She (manager)took them out though, didn't she, for a posh tea somewhere and they was only out for ten minutes and they all wanted to come home again, she spent a lot of money, can you remember?

CW: They just all wanted to come back, they didn't want to be out.

TL: …Yeah, I went down to the marina, I took them down for tea, coffee and a cake. Soon as they finished it, they wanted to go back.

AK: What do you think that's about?

CW: I think they're comfortable here, it's their home, isn't it?

AC: Yeah, they like their comforts around them, I think.

[B]

Given the reports from the activity coordinator that outdoor use did not occur regularly or frequently, this was queried further:

AK: Do you think that when you don't go out that much, it becomes overwhelming?

CW: Might be…

TL: It shocks because it's so bright, you don't realise because you've been inside, that's only a day, so imagine so many days… ***[B]***

After beginning to consider their own experiences of being indoors for long shifts, there was some recognition that lack of regular opportunity to go outside might result in day trips being too challenging to manage or enjoy when these were provided, once or twice year in summer:

TL: …they're used to seeing inside, so like outside, it's all different to them isn't it, they're not used to going out.

[B]

However, given the staffing constraints in care home B, this recognition was perhaps unlikely to change outdoor use frequency. Perceiving residents to be unappreciative was potentially a countervailing influence for organising further trips out or time in the garden, as opposed to the patio.

The experiences of the group C appeared to be more closely aligned with those of group A:

AK: Do you see changes in mood when people do go outside?

TL03: Yeah, they relax.

AK: So, what sorts of things might you see if people have been out maybe in the sunshine for a bit or on a day trip? What's the differences in people?

TL02: More relaxed…

TL01: They are happy…

CW03: Content…

TL01: More chatty, they can talk about where they've been and what they've do. [C]

Initially, it seemed that day trips were perceived to be more beneficial for residents:

AK: Do you think it is more important for people to access community facilities and do trips like that than go in the garden?

AC: I think it's on par…

TL: It's equally important. [A]

CW03: I think even when they've been in the garden, say they are coming in for lunch…

TL02: Even 10 minutes there….

TL01: …they're different. When it's cold and the heating's on and they're all sluggish and sat in chairs asleep. Outside, different environment, stuff going off, things to see over the road and cars pulling in and people. [C]

However, both groups reported that garden use was just as beneficial, plus it was recognised that the garden was more accessible:

AC: They can go out in the garden, every day is nice, but they can't go out in the minibus every day. [A]

There was some indication that worker competency and confidence were more suited to indoor activities, which potentially explained why the outdoor activities provided were similar:

CW01: You see, I would perceive it as somewhere to sit, I wouldn't see as 'let's grow vegetables' because I'm not a gardener, so people perceive the garden in different ways. [A]

AK: …everything that I've seen happening outside…was nothing that couldn't be done on a table top inside and I just wonder if we are missing an opportunity…?

TL: Like planting and stuff…

AC: We probably are yes. [A]

AK…do people tend to do something that you feel competent and capable to do…again, I'm not a gardener…

AC: No, I'm not good in the garden…. ***[A]***

AK: One of things I was interested…I felt that the activities being offered played to the workers' strengths…the activities boards were generally around puzzles, quizzes and…

TL01: Bingo.

Group laughter ***[C]***

AK…in terms of gardening or doing outdoor stuff, would you feel like you would need a bit of training…?

CW03: I don't know, it's like activities, I wouldn't know what to do, practical things, I'm very practical, but if you come in and said to me… 'this afternoon we're going to be making these cakes', I'd think oh my God. I suppose that's where some people must think about 'you know today we're going to go outside and pot some plants and some people

would think 'Oh God, I don't know how to do that, I've never done it my life'. ***[C]***

Whilst staffing resources and programmed activity time were important enabling contextual characteristics for outdoor access, high resident to worker ratios and resident dependency for mobility were highly constraining in terms of residents moving around the outdoor spaces. Accounting for this, outdoor activity provision, which was always seated, was then more contingent upon activity provider interest, experience, skills and confidence. Participants reported some sporadic outdoor-specific activity, but it appeared that the absence of regular, outdoor-specific programming, which would likely have required owner/managerial buy-in, was a major barrier.

Tables 67 and 68 below summarise the context and mechanism status for social and outdoor-specific group activities.

Table 67: Organisation - supported social outdoor activities

Organisation - supported group outdoor activities						
Group outdoor activities	**Enabling context**	**Causal mechanisms**	**Context and mechanism status**	**Constraining context**	**Counter mechanisms**	**Context and mechanism status**
Social activities	Designated activity provider Activity programming	***Activity provider: Knowledge of residents' outdoor preferences and history***	**Supported**	Large, diverse group of residents' requiring support with mobility = all activities seated	'Depends who's on' OR 'Depends what's happening'	**Supported**
		Activity provider: Playing to strengths'	**Partially supported**			
		Staff: Valuing residents' enjoyment of outdoor use	**Partially supported**			
		Staff: Valuing weather and other outdoor benefits for residents'	**Supported**			

Table 68: Organisation - supported outdoor-specific activities

Organisation - supported group outdoor activities						
Group outdoor activities	**Enabling context**	**Causal worker mechanisms**	**Context and mechanism status**	**Constraining context**	**Counter worker mechanisms**	**Context and mechanism status**
Outdoor-specific activities	Designated activity provider Care staff Activity programming	***Staff: Knowledge of residents' outdoor preferences and history***	**Supported**	Absence of regular, outdoor programming (requiring owner/managerial buy-in) Lack of additional staff support with outdoor access and mobility	***Staff: Lack of interest experience, confidence or skills – outdoor-specific activities***	**Partially supported**
		Staff interest in and experience of delivering outdoor activities	**Supported**			
		Staff: Valuing residents' enjoyment of outdoor use	**Partially supported**		***Staff: Residents unappreciative of outdoor opportunities***	**Partially supported** –
		Staff: Valuing weather and other outdoor benefits for residents **Happy, relaxed, contented - change of scenery stimulates conversation and interaction**	**Supported**			

5.3.3.3 Physical environment

During focus group exercise 2, it was of particular note that none of the participants identified any physical environment characteristics as being enabling or constraining for outdoor use. However, the discussions confirmed that there were a range of constraints in each environment that impacted significantly on both resident-initiated access and supported outdoor use practices. Some new mechanisms were introduced.

Visual access

When focus group A were asked if residents knew there was a garden, the activity coordinator seemed somewhat taken aback:

AC: …do you know what that has not even entered my head that. ***[A]***

AC: Yeah, if they were in a room down this side, they wouldn't see it…I would have to remember to go in there and tell them there's a garden… ***[A]***

In focus group B, there was also a sense that participants had not really considered the impact on residents of the garden not being visible from indoors:

AK: It's [the garden] not really visible from inside, is it?

TL: No.

AK: Do you think that because you can't see the garden, people forget that it's there?

AC: Yeah, I think so…

TL: Possibly, yeah. ***[B]***

In focus group C, one of the team leaders seemed convinced that residents knew there was an outdoor space:

TL01: I don't know about the people upstairs, but they know there's a garden outside downstairs because the lounge leads onto the garden and when it's warm, the doors are open, so people downstairs are well aware that there is a garden out there. ***[C]***

However, there was perhaps an assumption that opening the doors in summer meant that all of the residents were aware of the patio. It was not possible to see the patio doors from some parts of the lounge, plus some residents were visually impaired, although it might have been possible to sense outdoor noises, smells and air from indoors. Thus, lack of staff awareness and understanding about the importance of visual environmental cues residents was potentially, a new counter mechanism for residents' outdoor use.

Some participants went on to suggest that the experience of being supported outside might help some residents them to realise or remember there was a garden to visit:

CW01: In fairness, AB knows…

CW01: Because they get taken out. ***[A]***

CW04: …she's a sun worshipper, do you know when she realised, she wanted to be down there every day…

TL02: Yeah, everyday…

CW04: …she loved it. ***[C]***

In terms of resident-initiated use, whilst participants had previously indicated that some residents did seek to go outside on their own, they also confirmed that they preferred to be able to see them if they were in the outdoor spaces. Group A confirmed that the doors to the garden were always kept locked unless a member of staff was available to supervise or be outside:

CW01: The only reason those two doors are locked is CD and EF, but like I said before we have got assessments…

TL: They've got deprivation of liberty, so technically, we have to because it's for their own safety. [A]

CW01: EF was really bad at that time, wasn't she and she was escaping. Well she's a lot better now [A]

For care homes B and C, it was reported that the doors to the gardens were kept open when the weather was warm. In terms of supported outdoor use, it was clear that unless the outdoor space was near to the main communal living areas, advance planning and coordination was required. This was particularly relevant for care home C, where the main garden was a significant distance away from the communal areas:

TL01: …it's got to be planned and arranged…

TL01: You can't suddenly think, oh we'll do so and so, unless it's just outside and it's like, it's lovely outside, the doors are open, let's everybody outside and have a drink and coffee time outside [C]

This group C participant worked on the ground floor locked unit and were referring to the concrete patio adjacent to the communal lounge. Group garden use only seemed to occur on special occasions. These were planned in advance by the activity coordinator and supported by the care workers as necessary:

TL01: Yes, the jubilee, where we had scones and stuff, yeah that was fabulous, that was lovely.

AC: Scones brought out…and they did enjoy it, the residents that were there, they really enjoyed that time round the tables. ***[C]***

Group garden use was also queried with group B:

AK: …how would it work if people wanted to use the garden, would it be possible unless it was a special occasion?

AC: It would be possible, if they've got the time. What they could do is take one group out in the morning, for so long and then bring them in, and like you say, do it on a rotate, I think that's the only way it would work. ***[B]***

Presumably, this sort of rotation would also require some team work and planning, but like care home C, it appeared that garden use was mainly reserved for special events, otherwise, use occurred on an individualised basis without staff support:

AK: Since I was here, can you think of anybody else that's used the garden apart from GH?

AC: Not really, no, unless IJ relatives come with the dog and they go outside. ***[B]***

Physical access

In terms of physical access, questions were framed around the differing door locking practices in each care home. Consistent with the posited causal mechanism for physical access, the exit doors to the outdoor spaces were generally unlocked and opened when staff perceived the weather to be appropriate. This was usually when it was very warm or hot and sunny and never when it was raining or cold.

As described previously, an additional condition for opening the doors in A was that staff were available to supervise or support outdoor use, due to the two residents with Deprivation of Liberty Safeguards (DoLS)[241]. Clearly, this practice had the knock-on effect of preventing access for other residents who might seek to use the garden. The group did not perceive this to be an issue though:

DM: They will all try the door and if it's locked they do come find us to say: 'can I go outside?'

CW01: We could open them at any time, it wouldn't stop anyone going out because nobody would go out without saying they were going out anyway, because we need to know that the gate is locked and stuff. [A]

Given that most residents required two carers to move and some were not directly able to communicate their preferences, there was

some discrepancy here. Again, staff appeared to make assumptions about residents' abilities and there appeared to be a lack of awareness about how constraining the locked doors might be for some.

For care home B, the group confirmed that the front door to the building, which was also the only exit to the garden, was kept open when the weather was warm. However, participants confirmed that there was another barrier to negotiate:

TL: …and like with 09-B, she's with a stick, she's very unsteady. 02-B, she can be unsteady and 08-B with his frame. Right down to the garden with slope…. [B]

AK: And what about that…slope and that handrail? How much of a problem is that?

CW: None if you're with them. [B]

So, whilst the open front door was perhaps encouraging, the concrete path down to the garden was considered to be sufficiently hazardous to warrant staff support.

In care home C, as highlighted previously, it was confirmed that the experience of locked doors did eventually discourage some from seeking to go outside:

TL02: Some of them have learnt that the doors are locked so there's no point in going to the doors because they are locked, they can't get through them. [C]

Outdoor design

Participants were also asked to consider the design and functionality of the outdoor spaces in relation to outdoor use. There was some indication that the supported outdoor activities provided and how these were delivered did relate to staff perceptions regarding the purpose and function of the outdoor spaces. These were perceived mainly as somewhere nice for residents to sit and socialise and also, to enjoy special events, at least when the weather was favourable:

AC: You can even go outside and sit in the shade, you don't need the sun on you, it's just that fresh air and hearing the birds…you don't hear the birds inside, do you? [A]

AC: Yes, because I arranged the Boys'90% Brigade band coming to play and yeah, some of the residents were sitting near the door. Yes, they focused that on outside, they were enjoying the music. [C]

Again, there was a sense that some participants had not really considered the impact of environmental characteristics, for instance, how functional the outdoor spaces were for enabling a range of activities. Once prompted in terms of the initial theory, group A participants became more reflective, if not somewhat critical about their garden:

AC: I thought that thing that's up on the hill with the little bench in, I think that's useless…

CW01: Yeah, waste of time, nobody can get up there. [A]

These participants were referring to a pagoda feature that was inaccessible to most. It was perhaps relevant that most of the residents used walking aids of some description and the group began to recognise the impact of having no level, walking paths through or around the garden:

AK: You've got a really lovely…sensory garden with loads and loads of things going on….

CW01: They can't take, like CW02 just pointed out, they can't push their walkers around the garden, so anybody that is like KL, I know he's not quite so good on his feet now, but some that are that could walk around, can't because they can't push the walkers, can't wheel their own wheelchairs. [A]

In terms of health and safety, falling was perceived to be the main risk for residents in the outdoor spaces, which was perhaps why they were usually seated during the observations:

CW01: …but the garden is unsafe for wet weather. [A]

AC: They slip as well, they slip over, I mean that gets sodden that lawn out there, doesn't it? And that's, with me, it is when it's really wet, them sliding and slipping. [A]

TL: …MN is in a wheelchair so he'd need a carer and the rest, they're all very unsteady. [B]

There appeared to be a different attitude towards resident safety in group C:

AK: Do you think it's safe for people to be out there [the garden]?

CW03: …you've got to let people take risks…

TL01: …can't keep them locked in their bedrooms, people have got to be able to take risks. [C]

Perhaps this risk-enabling attitude did manifest in practice. But given the physical access barriers for most residents and the strong emphasis placed on planning for supported garden use, it seemed unlikely that residents would be able to spend time in the garden without supervision.

Overall, there was a sense that participants had not really considered challenging the status quo in their respective care homes, and if and how the indoor and outdoor physical environments could be adapted to reduce residents' dependency on staff and promote a range of activities. The implication from focus group exercise 2 and the discussions was that increasing staffing levels was the main, if not the only solution, to improving residents' outdoor access.

Table 69 summarises the context and mechanism status for physical environment – outdoor access and activities.

Table 69: Physical environment – outdoor access and activities

Physical environment – outdoor access and activities			
Enabling Context	**Causal mechanisms**	**Context and mechanism status**	**Comments**
Visual access of outdoor spaces from indoors	***Resident: Visual cue as reminder***	**Supported**	
Physical access provided by workers – doors unlocked	***Staff: Appropriate weather for residents***	**Supported**	
	If outdoor space visible and/or adjacent to communal area, staff less risk averse, then: ***Staff: Close proximity of outdoor space - manageable risk***	**Supported**	
	In B and C, gardens away from main communal areas, and used mainly for special events, then: ***Staff: Advance planning and coordination***	**Supported**	Not applicable in A as garden next to main communal area
	For both supported and resident-initiated use, adequate staffing levels to supervise or support, then: ***Staff: "It depends who's on"***	**Partially supported**	
	Resident: Experience of using outdoor space mechanism	**Partially supported**	
Constraining context	**Counter mechanisms**	**Context and mechanism status**	**Comments**
	Resident: No visual cue, no reminder	**Supported**	

Lack of visual access			
	Staff: Uncomfortable if out of residents out of sight - risk aversion	**Supported**	
	Staff: Visual access lack of awareness	**Supported**	
Distance to outdoor spaces from indoors	***Staff: Long distance - lack of time***	**Partially supported**	
Physical access not provided – doors locked	***Resident: Locked door - negative cue and discouragement***	**Partially supported**	
	Staff: Locked doors - lack of awareness	**Partially supported**	
	Staff: Upholding Deprivation of Liberty Safeguards (DoLS)' [241]	**Partially supported**	
<u>Outdoor design</u> Lack of: safe access, walking paths, multiple activity areas with safe access, paths	***Staff: Outdoor space mobility risk aversion***	**Supported**	
<u>New context</u> Outdoor function and purpose	***Staff: Perception of outdoor space - "Somewhere nice to sit"***	**Supported**	

5.3.3.4 Resident

In focus group exercise 2, the resident characteristics considered important for outdoor access and activities were broadly reflective of those in the initial theory, but there were variations between the focus groups.

Mobility

Mobility was the only resident-related characteristic highlighted by all of the groups. In terms of resident-initiated outdoor use, participants in focus groups' A and B named five residents each who they considered would feel safe accessing and moving around the outdoor spaces by themselves.

In focus group C, this only applied to one resident, however, she had access to the garden via her bedroom patio door. There was little opportunity for most of the other residents to enact their outdoor use due to the lack of physical access to the outdoor spaces.

As previously highlighted, staff agreed that they preferred to be able to supervise residents when they were outside. So even for those who were less dependent for outdoor mobility, staff availability was still required and therefore, was either an enabling or constraining influence.

Compared with care homes A and C, there were more residents in B who were able to mobilise without hands-on support and who routinely walked independently around the communal areas indoors. When asked about these residents, staff felt that the main reason they might not initiate going outside was related to falling, which was potentially a counter resident mechanism:

CW: Fear of falling, a lot of them have got a fear of falling. Do you know if they'd had a fall once, it just knocks their confidence? [B]

In care home C, participants referred to a resident who previously went out regularly by himself, but then ceased to do this due to fear, but it was not clear why:

TL02: …when he came to us, he went out all the time…but he has now got to the point…wouldn't go out…I don't know what changed, he can't communicate so he can't tell us what changed, but he was anxious, so the son visits, and they stay in. [C]

Groups A and C considered the majority of residents to be dependent on supervision and/or support to move with many requiring physical assistance to move:

CW01: Because now we're going to 90% of our residents now are two staff people.

AK: Are they?

CW02: Nearly everyone's like that now. ***[A]***

TL02: And the type of residents we had as well…

AK: They were less dependent?

TL01: We used to have people who were mobile…

Group agreement ***[C]***

Conversely, this did not seem to apply in B:

AK: How many people have you got that you need two to transfer?

CW: Five at the moment. ***[B]***

For wheelchair users, there was some acknowledgment that the need for staff support to transfer residents to wheelchairs and push them outside was constraining for outdoor access and mobility:

TL: …MN is in a wheelchair, so he'd need a carer… ***[B]***

AC: She does go out but she's wheelchair now, so she does need a carer to take her out.

AK: Do you think that's possibly one of the reasons why I didn't see her outside?

AC: Most probably. ***[B]***

Overall, there was some acknowledgement that those with higher mobility needs might be less likely to get outside, mainly due to inadequate staffing levels to support this. This also depended who was on duty, at least in homes A and C.

Dementia and behavioural and psychological symptoms of dementia (BPSD)

In focus group exercise 2, resident behaviour and fear were identified by the groups A and C as barriers to outdoor use. However, in discussion, there was some support for the posited mechanism that some residents did seek to be outside due to experiencing BPSD, but there were differing reasons for this.

Group A identified three residents who experienced BPSD. One was considered to be physically restless and liked to walk in the garden and connect with nature:

CW02: Anything to do with wildlife, animals and birds.

[A]

It was acknowledged that another resident, who was always asking to be in the garden, preferred to be outside with others:

CW02: And she'll go if everybody else goes…

AC: Yeah, she won't go on her own… [A]

There was another potential motivation suggested for these two residents, particularly when their symptoms escalated:

CW01: …was really bad at that time, wasn't she and she was escaping… [A]

The group showed some awareness about why this resident seemed to become distressed when alone and that she had probably tried to leave in order to get home:

AC: She had a big family, she's still got a big family who used to visit her a lot at home….so she's always had people in her house, she's never been alone.

DM: And even when she first came here, they used to visit quite a lot, but when her memory got worse.

AC: They don't bother now, do they?

DM: And her behaviour got worse, they don't come as often. It upsets them and it upsets her… [A]

Group B identified several residents who experienced BPSD and mainly, these seemed to be the residents who routinely walked

around the indoor areas. Some were perceived as wanting to be near staff:

CW03: Well they follow the staff round, don't they? They follow us. ***[B]***

For those who did seem to be seeking to go outside, physical restlessness was identified as a potential causal mechanism, although this seemed to be weather dependent:

CW: I'd say QR with the confusion because he does have restless days where he won't sit down.

AK: Do you think he specifically seeks to go outside?

TL: When the weather's nice. ***[B]***

TL: It's like sometimes they'll walk, we'll let, like if they are, say a bit distressed, you open the door, just so they can have a look, as soon as they feel the cold, that door's shut…

[B]

In group C, four residents were identified for whom BPSD was the main impulse for their outdoor use. It might well have been coincidental, but all of these residents lived in the locked units and

did not have the opportunity to view the outdoor spaces or go outside without staff support.

Overall, staff demonstrated some awareness of how outdoor use might alleviate or exacerbate BPSD and residents' support requirements whilst outside, but it was unclear how influential this was for outdoor access. Locked doors and/or lack of staffing were highly constraining, so if there was any therapeutic benefit related to residents accessing the outdoor spaces as a conscious or unconscious response to BPSD, residents and staff were unlikely to experience this consistently, due to lack of opportunity.

Initiation and communication

As highlighted previously, participants appeared to believe that a proportion of residents would be able to initiate and enact their outdoor use or request this, despite evidence to the contrary during the observations. For those with communication difficulties, staff used varying strategies in relation to outdoor use.

In care home A, those with the most significant speech and language impairments, who were also wheelchair users, did not always seem to have a choice:

CW01: …gets persuaded to go out, doesn't he? He doesn't choose to go out, because he can't choose to go out, outwardly. ***[A]***

AC: Sometimes they're made to go out and then when they get out there, by made to go out, I mean in a wheelchair you're pushed out there and you don't get a choice, 'right you are going out'. [A]

Not providing a choice was justified on the grounds that residents enjoyed being outside once there and staff experience of this and resident well-being perhaps mediated for variable resident communication abilities, although not in all cases. Lack of resident knowledge and the motivation of the other activity coordinator were called into question:

CW01: Yesterday at work…she was sat next to me and she went: 'I'm bored, I want to do something'. I said: 'what do you want to do?' She went: 'I don't know, don't know'. I shouted [refers to activity coordinator] over and said, 'what can she do?' and she said: 'well there's nothing she can do really'.

AC: There is…. you've not got to be lazy, you've got to make an effort, you've got to sit with them. [A]

In care home B, there was also some indication from the activity coordinator, that some staff either did not know how to communicate effectively with residents or were not motivated to do so:

AC: It's engaging them and getting them on the right…instead of like 'do you want to do this', you've got to say, 'ooh you've done this before, it's really good, you did really well at it, do you want to try it again?

AK: What's that about?

AC: There's a few members of staff here, fairly new ones, it's like 'I cannot be bothered'.

AC: You can't just go 'who wants to do this, you just can't, they're all going to say no.

AK…lack of confidence or do you think motivation?

AC: Lack of motivation. [B]

There was a similar indication in group C that not all staff were particularly motivated to support outdoor use:

TL01: …. because you could have three staff on, who one day takes the residents into the garden, a different three staff the next day…

CW03: …Who won't even think, 'it's lovely out there today'.

TL01: You have to think for them. [C]

In group B, some emphasis was also placed on the abilities of residents to communicate or on their families for providing life history information:

Do you think the people that are able to tell you that they'd like to go out, are more likely to get out?

CW01: Yeah, than somebody who can't communicate, yeah.

AK: So, those people are really dependent upon you for knowing them, aren't they?

AC: Yes. ***[B]***

AK: …if families were a bit more forthcoming….for people that couldn't tell you, do you think that that would mean they would be more likely to get out?

CW: It would be helpful. ***[B]***

The team leader went on to say that her colleague recorded when staff had asked relatives for life history information so that there was evidence this had been requested:

TL: …but a lot of the families, we've been asking and asking, one of them, about over a year and still not had nothing. But

like [refers to team leader], she just notes down when they've been asked, so if like CQC questioned, it shows that we've asked. [B]

However, this was perhaps not the most effective strategy for obtaining important information about residents and it was likely that activity and outdoor use preferences might remain unknown for some.

Group C participants reported using different strategies to understand the outdoor preferences of residents with communication difficulties, including conversation, observing behaviour and experimentation:

AK: How do we know then, if people can't tell us and they haven't got relatives…?

CW04: You just keeping talking to them and you find things out all the time about them…

TL01: Behaviours.

TL03: Sometimes you will take them out and somebody will say 'it's too cold, it's too cold, I can't stay here'. That's how you know they definitely don't want to be outside…

TL01: Or agitated, anxious. [C]

Overall, there was confirmation that residents had differing abilities in relation to initiating or requesting outdoor use, the extent to which these were enabling, or constraining varied significantly in each care home. Worker communication and skills and motivation related to engaging with those with communication difficulties were potentially influential for outdoor use and not necessarily role-specific. However, inadequate staffing resources, lack of visual access and locked doors were likely to prevent outdoor use, regardless of how able residents were.

Mood and engagement

In focus group exercise 2, resident mood and motivation related-factors were identified by focus groups A and C as both enabling and constraining. When discussing which residents liked or didn't like spending time outdoors, participants often identified the motivations and mood states underpinning residents' outdoor preferences, supporting the notion that these did influence whether residents engaged in outdoor use or not:

AC: Her daughter takes her out in the wheelchair, for the fresh air and they'll go in the village for a coffee, but garden-wise…she doesn't like outside….

TL: I'd say it's more the company. [A]

AC: …he really loves it out there…he was listening to the aeroplanes when he was out there. [A]

AC: Mind you 02-B is quite a sociable person isn't she, she likes to sit and talk. [B]

CW04: … she's a sun worshipper, do you know when she realised, she wanted to be down there every day… [C]

AC: Yes, because I arranged the Boy's Brigade band coming to play and yeah, some of the residents were sitting near the door. Yes, they focused that on outside, they were enjoying the music. [C]

There was some suggestion that residents' moods were variable, and that activity engagement was a self-directed, conscious choice, which might well have been the case for some:

DM: I'd say it depends entirely on her mood, she will go outside on her own and if she wants to go somewhere, she will go if she's in one of those moods. [A]

AK: Is it hard work getting residents outside…?

CW: No, if they want to go, they'll go. If they don't they don't

TL: No.

AK: So, you're talking in terms of motivating them?

TL/CW: Yes. ***[B]***

In some cases, the notion that residents generally lacked interest and motivation to take part in activities was supported and there was a sense that this was perceived negatively by some participants:

CW01: But then if you ask them what they want to do, nobody has an answer. The only thing you'll get is 'I want to go home'.

TL: Or 'I don't know'. ***[A]***

CW: Also, we can have all the time in the world to do an activity with them, and they'll all just sleep through it, they don't want to do it. ***[B]***

CW: Sometimes I'm dead excited, I bought paper chains in to make with them, they didn't want to know…

[Group laughter]

CW: I just sat there making them myself while they were asleep… ***[B]***

AC: Yes, it's like I had one carer the other day, we were doing some glitter fireworks and err, she says 'no-one's interested, they're not doing it'. ***[B]***

However, there was perhaps a lack of awareness about other influences that might impact on resident engagement, for instance, their cognitive capacity to make activity choices or the level of stimulation in the care environment:

AK: …another way of looking at it, is why people are asleep in the first place?

AC: Yeah, lack of interaction. ***[B]***

In B, the activity coordinator reported that it was not a particularly effective strategy to walk into a room and ask a group of residents what they wanted to do:

AC: You can't just go 'who wants to do this', you just can't, they're all going to say 'no'. [B]

She went on to agree that when activities were offered, it was probably to the same residents, who were more alert, but she reported advising the care workers to use a different, more encouraging approach:

AC: It's just how you approach them, 'ooh we're doing this, you're really good at it, you really enjoy it'. That's it, well away and he did loads. It's engaging them and getting them on the right...instead of like 'do you want to do this', you've got to say, 'ooh you've done this before, it's really good, you did really well at it, do you want to try it again? [B]

The activity coordinator in A used a different strategy and demonstrated some awareness that residents might find it challenging to make choices. As with outdoor use, she did not appear to take 'no' for an answer and encouraged residents by getting materials out and sitting near them to model how to take part:

AC: They can do.... I do tell them though, when I go in, 'look, do you want to paint? Do you want to colour? Do you want to...? If they say no, I put something out. I get something out, whatever.

AC: They'll do it, they usually join in, even those that don't normally do anything, if you sit there and you start doing it, colouring, painting, whatever you're going to do…

TL: They help…

AC: They're like this…. you see them starting to look and then they'll have a little dabble, yeah… [A]

However, once again, there was some indication that the activity coordinators, at least in A and B, played to their 'arts and crafts' interests and strengths rather than to the preferences of residents. This was potentially demotivating for some residents and provided more confirmation that staff lacked awareness about their impact on resident mood and engagement.

Outdoor interests, activities and history

In focus group exercise 2, none of the groups explicitly identified residents' outdoor interests, preferences or history as being influential for outdoor use. However, in most cases staff were aware which residents liked and disliked using the outdoor spaces. Whilst it was not possible to directly establish if residents 'felt known' by staff, there was some indication that there was much potential for this. Some participants, particularly in care homes A and C engaged in animated discussions about residents, revealing knowledge about their needs, interests and behaviour:

AC: He was a gardener.

CW01: He was an outdoors man…

AC: He was always outside at home. ***[A]***

AC: He would grow the tomatoes and 06-A would, he'd do it… ***[A]***

TL: To feed the chickens…

CW02: She likes animals…

TL: Feeding the chickens, 01-A likes doing ***[A]***

TL: I know 13-B used to be quite fond of the garden, he used to like feeding the birds and everything…

AC: He used to go out watering when he first came…but he can't…

CW: Be nice if we got him a little potting shed though…

CW: And plant seeds and things… ***[B]***

CW: I think OP would probably have a go, I think a few of them if you took them out there and introduced them to it, they'd…

TL: Yeah

CW: …once they start doing something, they enjoy it

[B]

AC: …. taking out residents to plant baskets… I think QR did some, some people from upstairs, I brought them down and we won the competition [C]

Whilst staff agreed that knowledge about residents' outdoor use preferences was extremely important, it was not clear if this was influential enough to mediate for staffing resource constraints.

Relatives/significant others

In focus group exercise 2, relatives were identified by groups' B and C as an enabler of outdoor space use, but overall, there were mixed perceptions about relative involvement.

Previously, managers had reported that that the majority of residents were accompanied to the outdoor spaces by relatives, however, participants indicated that this was not the case:

AC: We have a few, most of the relatives don't though…

[B]

In care home C, there seemed to be more relative support, but this was for trips beyond the care home:

TL03: Most of them have them on top floor. Because like over the weekend, most of the families come and take their mum or dad out for meals. ***[C]***

There were mixed views amongst the team leaders on whether relatives should be taking residents outside:

AK: Do families and relatives have a role to play in people getting out, should they be taking people out?

TL03: Yeah, they should be yeah. ***[C]***

TL02: they should help us, we should…all do it. ***[C]***

TL01: But I don't think that if I see a family member coming in here, that they should be taking mum out, or dad out. You know just come in to support mum or dad and to give them that quality time…

TL03: (talking at same time) I think it's nice that they do, or they want to… [C]

Although there were differing views, there was no sense in any of the groups that relative involvement somehow released staff from the obligation of supporting outdoor use. Overall, there was insufficient evidence to establish how influential relatives were for care home outdoor space use, in terms of supporting residents to access these areas or their impact on staff practices. As highlighted previously, care home B participants did expect relatives to provide outdoor preferences and history information but did not seem to employ other strategies to obtain this information, which was countervailing for outdoor use. Table 70 below summarises the context and mechanism status in relation to resident characteristics - outdoor access and activities.

Table 70: Resident Characteristics - outdoor access and activities

<table>
<tr><th colspan="5">Resident Characteristics - outdoor access and activities</th></tr>
<tr><th>Context characteristics</th><th>Causal mechanism</th><th>Context and mechanism status and comments</th><th>Counter mechanism</th><th>Context and mechanism status and comments</th></tr>
<tr><td colspan="5">Mobility</td></tr>
<tr><td>Independently mobile or requires supervision only</td><td>Resident: Feels safe to access and move around the outdoor space independently</td><td>Not known

Contradictory evidence</td><td>Resident: Feels unsafe to access and move around the outdoor space independently</td><td>Partially supported

Related to fear of falling, plus fear (reasons unknown)</td></tr>
<tr><td rowspan="2">Dependent on physical assistance for mobility

<u>Added context</u>
Residents requiring two staff for transfers / mobility e.g., wheelchair users</td><td rowspan="2">Adequate staffing to support residents with outdoor access and mobility (context)

Team composition OR Workload/incidences</td><td rowspan="2">Supported</td><td>Inadequate staffing to support residents with outdoor access and mobility (context)

Team composition OR Workload/incidences</td><td rowspan="2">Supported</td></tr>
<tr><td>Staff: Residents are harder physical work than before</td><td>No comment in B</td></tr>
<tr><td colspan="5">BPSD</td></tr>
<tr><td rowspan="4">BPSD prompt / do not prompt resident to want to access outdoor spaces</td><td>Resident: Experiences some BPSD relief in outdoor spaces</td><td>Supported</td><td>Resident: Experiences some BPSD relief in outdoor spaces - but becomes distressed without staff presence</td><td>Partially supported</td></tr>
<tr><td colspan="4">New resident BPSD-related motivations:</td></tr>
<tr><td colspan="2">Causal mechanism</td><td colspan="2">Counter mechanism</td></tr>
<tr><td colspan="2">Connecting with nature
Seeking company (staff and residents) outside</td><td colspan="2">Fear - reasons unknown
Hot weather sensitivity</td></tr>
</table>

	Physical restlessness			
	Seeking to leave the care home			
	Being near staff			
	Staff: Awareness of outdoor BPSD support needs	**Supported**	***Staff: Lack of awareness of outdoor BPSD support needs***	**Unsupported** **Insufficient evidence**
Initiation and communication				
Able to initiate and enact or request outdoor use (independently mobile)	***Resident: Feels able to enact outdoor use or request to go outside***	**Unsupported** **Contradictory evidence**	***Resident:*** ***Able to communicate, but has become accustomed to not asking for support***	**Unsupported** **Contradictory evidence**
Unable to initiate and enact outdoor use or make requests for support (dependent on mobility support)	***Staff: Knowledge of residents' outdoor likes and dislikes***	**Supported**	***Staff:*** ***Lack of knowledge regarding residents' outdoor likes and dislikes***	**Supported**
	Staff: Knowledge and skills to communicate effectively with residents and/or use of different strategies to understand outdoor preferences	**Supported**	***Staff: Lack of knowledge and skills to communicate effectively with residents and /or do not use different strategies to understand outdoor preferences***	**Supported**
	New staff communication strategies			
	Not providing a choice or ignoring a refusal on grounds that residents enjoy being outside once there			
	Requesting preference and history information from relatives and significant others		***Lack of effective communication with relative and significant others***	

	Talking, behaviour, experience and experimentation			
Mood and engagement				
Positive mood and engagement	***Resident:*** ***Motivated to engage in outdoor activities and experiences positive mood and wellbeing whilst outside***	**Supported**		
Negative mood and engagement			***Resident: Lacking in motivation to engage in outdoor activities/does not like being outside***	**Supported**
			Staff: ***Negative perceptions of residents regarding lack of engagement***	**Partially supported**
			Staff: Lack of awareness about the impact of staff-related factors on resident mood and motivation	**Partially supported**
	Staff: ***Knowledge and skills to motivate and engage residents in outdoor activities***	**Partially supported**	***Staff:*** ***Lack of knowledge and skills to motivate and engage residents in outdoor activities***	**Partially supported**
Outdoor activity interests and history				

Outdoor interests, activities history	***Resident: Feelings of pleasure, enjoyment and/or relaxation from engaging in preferred outdoor activities***	**Supported**	***Resident: Dislikes being outside***	**Supported**
	Resident: ***Feeling known by activity providers and other staff***	**Unsupported** **Insufficient evidence**	***Resident:*** ***Not feeling known by activity providers and other staff***	**Unsupported** **Insufficient evidence**
	Staff: ***Knowledge about resident likes, dislikes and history***	**Supported**	***Staff*** ***Lack of knowledge about resident likes, dislikes and history***	**Supported**
Relatives and/or significant others				
Relative/significant other involvement in residents' care	***Resident: relative enables outdoor use for those dependent on support***	**Unsupported** **Insufficient evidence**	***Resident: relative does not spend time with resident in outdoor space***	**Unsupported** **Insufficient evidence**
			Staff: Relatives should spend time with residents in the outdoor spaces	**Unsupported** **Insufficient and contradictory evidence**
			Staff: Responsibility of relatives to provide outdoor preference and history information	**Partially supported**

5.3.3.5 Observer impact

As shown in section 4.3.5.3, focus group questions about observer impact were included in the interview schedules. However, these were included at the end of the schedules and there was insufficient time to explore staff views about this thoroughly. This is discussed further in 'strengths and limitations'. Table 71 summarises the context and mechanism status for observer impact – outdoor access and activities.

Table 71: Observer impact – outdoor access and activities

Observer impact – outdoor access and activities			
Context	**Staff mechanism**	**Context and mechanism Status**	**Comments**
Observer presence	***Staff keen to portray care home or themselves positively – seeking approval regarding existing practices?***	**Unsupported**	Insufficient time to explore

5.3.4 Refined theory of outdoor use

5.3.4.1 Outcomes: outdoor access, activities and mobility

Findings from the focus groups confirmed that whilst there were occasional, planned special events made possible by unpaid extra staffing, outdoor access and activity provision tended to be unplanned, irregular and restricted to periods of very warm, sunny weather. In most cases, access was staff-initiated and contingent upon staff availability to be present in the outdoor spaces due to fears about the physical safety of residents, particularly in relation to falls. Where residents did initiate a transition to the outdoor space, this generally only occurred after staff had provided physical access and, in most cases, was still contingent upon staff supervision and support.

The lack of regular, outdoor activity programming appeared to be highly constraining for regular outdoor access and outdoor-specific activity provision. There was some direct evidence of residents' outdoor activity preferences and history and whilst some staff were very knowledgeable about these, there was little evidence that provision reflected the current or previous preferences of residents. Although there was evidence that staff highly valued resident enjoyment of the outdoors and the perceived benefits, resident preferences seemed to be less influential for supported outdoor activity provision than the interests, skills, experience and

confidence of activity providers, who tended to provide activities in accordance with their interests and strengths.

5.3.4.2 Context

Accounting for the influence of weather, the extent to which the care home contexts were then enabling or constraining for outdoor use varied, but there were sufficient similarities to indicate that the overall context was constraining for outdoor access and activity provision. This was characterised by: variations in weather and outdoor temperature, a lack of regular, outdoor-specific programming and variable leadership involvement, high resident to activity provider/care staff ratios, task-oriented basic care routines, variations in team composition and workload, poor visual and physical access to the outdoor spaces, poor outdoor design for safe resident mobility and enabling activities for differing needs and abilities and finally, high resident dependency for mobility, communication, motivation and activity engagement.

5.3.4.3 Staff mechanisms

Staff reasoning in relation to outdoor access appeared to be more influential than resident mechanisms. Within the refined, constrained context described above, this was often related to health and safety and managing risks to residents, particularly regarding the weather, mobility and dementia symptoms. The

extent to which staff reasoning was causal or countervailing for outdoor use related to perceptions regarding staff availability, workload and attitudes and beliefs relating to colleagues on shift, plus resident characteristics and motivation. There was a strong suggestion that team work to support residents outside was more likely to occur if the shift composed of workers who identified with each other and shared a resident-centred ethos.

5.3.4.4 Resident mechanisms

Whilst intrinsic resident mechanisms for spending time outdoors may have been prevented from firing by contextual constraints, there were indications that the warmth of the summer sunshine, the visual appeal of the garden, sensory experience, connection to nature, social interaction and some of the outdoor activities, particularly, music, singing and special events were enjoyable and/or relaxing. For those who were independently mobile and able to initiate outdoor use, BPSD, smoking, connection with nature and environmental cues provided by windows or open doors appeared to be causal mechanisms. Some of those with a history of spending time outdoors seemed to continue to enjoy spending time in the garden or on day trips.

As very few residents initiated their outdoor use or heard asking to go outside, they were highly dependent on staff for offering outdoor opportunities, providing physical access and support to engage in

activities. Therefore, staff ability to engage residents based on their knowledge of residents' communication needs and outdoor likes, dislikes and history was of high importance.

5.3.4.5 What works…

Whilst it was concluded that the overall care home context in the ROAM study was somewhat constraining for outdoor use, there was evidence (as reported in section 5.3.3) of context characteristics and mechanisms that 'work' for outdoor use, despite these constraints. These are summarised below:

- ✓ Sunshine and warm outdoor temperatures, because these fire staff values about the benefits to residents of being outdoors. Favourable weather also minimises staff fears about risks to resident health and safety, such as falling, colds and chest infections.

- ✓ Observable managerial/leader involvement in planning and facilitating outdoor activities, plus some physical presence in outdoor areas, because this models good practice and communicates outdoor practice expectations to activity providers and the wider staff team.

- ✓ Scheduled activity time and dedicated activity providers who are knowledgeable, interested, experienced and/or skilled and confident in planning and delivering outdoor-specific activities.

- ✓ Activity providers and care workers who believe that supporting outdoor use is part of everyone's role and who work together to achieve this.

- ✓ Care staff who are knowledgeable about residents likes, dislikes, history and communication needs, plus which residents will enjoy and/or tolerate sitting outdoors in a group.

- ✓ A proportion of care staff who are resident-centred and who feel rewarded and satisfied by experiencing resident enjoyment and benefits. Team work for outdoor use happens when staff perceive that their colleagues on shift share similar attitudes and values in relation to care provision.

- ✓ Person-centred care workers who are able to use the structured routines as a workload organisation tool to safeguard time before the end of the shift - because they value spending one-to-one time with residents.

- ✓ Provision of outdoor-focused special events that residents' and families are known to enjoy, for example, summer fairs, Halloween, bonfire night, Christmas carols etc. Because there is managerial and wider care home commitment to facilitating these, some staff feel motivated to provide support in their own time.

- ✓ Outdoor spaces that are visible from indoor communal areas because these provide a reminder and cues to residents that there are outdoor spaces to visit. These also provide opportunities for staff to supervise outdoor use from indoors,

thus minimising staff fears about risks to resident health and safety.

- ✓ Keeping exit doors open and unlocked when staff are present in the outdoor spaces because this encourages residents who are independently mobile to walk outside if they like the weather and the garden or are experiencing dementia-related symptoms, such as restlessness.

- ✓ Outdoor spaces that are accessible and in particular, next to indoor communal areas because this encourages lone working activity providers to reason that supporting resident transition outdoors is manageable and low risk. Care workers present in communal areas may then feel some obligation to support their colleague(s), at least with the transition outdoors.

- ✓ Outdoor spaces that are visually appealing, with abundant natural features, which also provide a concreted, seated area for residents to sit together. This enables activity providers (who feel responsible for occupying the majority of residents during scheduled activity time), to more safely support a group of residents with mixed abilities.

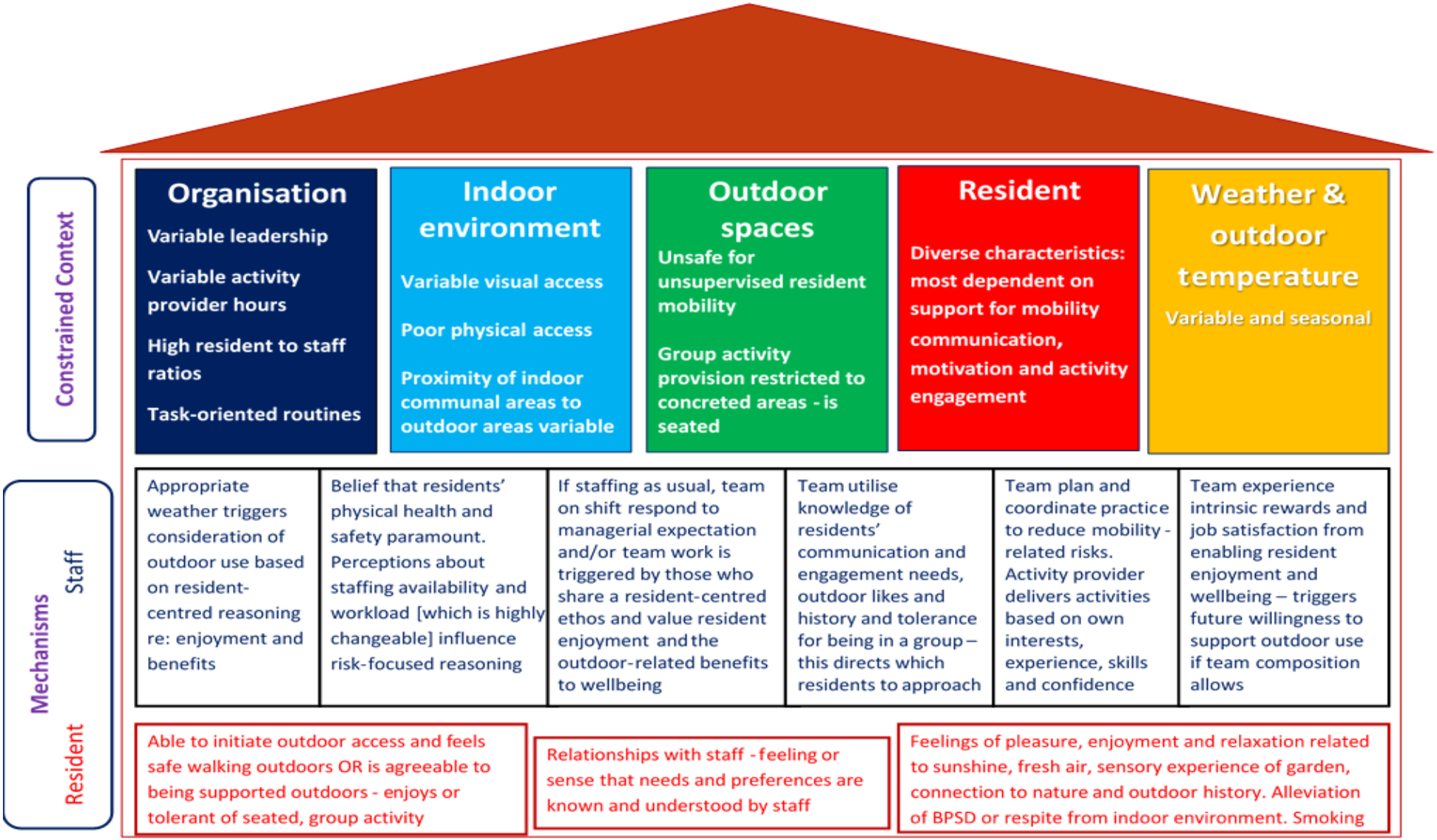
- ✓ Residents who are amenable and responsive to opportunities to spend time outside and are tolerant of sitting with other residents. Motivations may be social and relational and/or connected to outdoor use-related interests, preferences, history.

- ✓ Staff and residents who smoke because this is restricted to outdoor areas only and is a compulsion that may override

other constraints, such as, distances to exits and unfavourable weather.

Based on this summary of 'what works' within the constraints observed, 'The refined theory of outdoor use' (Figure 13) demonstrates the process of how outdoor use came about in the ROAM study care homes.

Figure 13: Refined theory of outdoor use



5.4 Summary

In this chapter, the methods and results for phase three of the ROAM theory development cycle have been reported. The refined configured theory of outdoor use and practices is presented. In the first part of Chapter 6, the phase three results are discussed with reference to the broader literature.

6 Discussion

6.1 Chapter overview

This discussion chapter is presented in three sections. The first two sections report on the processes and findings that correspond with phase four of the ROAM theory development cycle: articulating a middle-range theory of outdoor use.

In phase four (i), the ROAM study findings relative to outdoor access and outdoor activities and mobility are interpreted in the context of the wider literature. An initial middle-range explanation for outdoor occupational engagement in care homes is then presented. The section concludes with a summary of the main challenges for care homes. These are construed as opportunities for action and taken forward to phase 4 (ii) to inform the recommendations for change.

In phase four (ii), recommendations for the frequency and duration of residents' outdoor use are explored. Then, a range of pragmatic and culture-change strategies are identified, informed by an occupational justice perspective. Where possible, recommendations to increase residents' outdoor use are provided at individual, practice environment, community and population based-levels.

In the third and final section of the chapter, the strengths and limitations of the ROAM study are discussed. The research implications are explored and some recommendations for further enquiry are made. A conclusion is then presented.

6.2 Phase four (i) – Articulating a middle-range theory of outdoor use

6.2.1 Overview of findings – access, activity and mobility

In terms of UK care homes, residents' use of care home outdoor spaces has not been quantified and is poorly understood[67]. Therefore, in reporting on the numbers of residents who accessed the outdoor spaces in three East Midlands care homes, this research has usefully begun to address a gap in the UK evidence base. Unlike some of the research sites described in the outdoor literature reviewed (Chapter 2), which were selected for having exemplary design features[154, 164], the ROAM study sites were selected based on some of the diversity observed during the recruitment site visits. For instance, differences in the outdoor spaces and care home layout. As emphasised in section 5.3.4.2, organisational and physical environment characteristics varied considerably, but were generally constraining for outdoor use.

Whilst resident characteristics also varied, the Resident Characteristics Questionnaire results (4.3.2.2) did demonstrate that participant age, gender, dementia, mobility and number of falls, were consistent with UK care home population data[35, 132]. Most residents were dependent on staff either for supervision or physical assistance in the outdoor spaces and there was very little self-

initiated or independent use. Of course, it is impossible to assert how representative the ROAM environments are of other UK care homes. However, it is feasible that the challenges observed across the range of characteristics reported might be well-recognisable to those in other settings.

In the ROAM study, the phase two observations confirmed that overall outdoor space utility was fairly low (14, 28%), relative to the numbers confirmed to like spending time in the outdoor spaces (33, 66%). Just over half of these resident participants (19, 57%) were not observed outside. Some outdoor space use by non-participant residents was observed during the study. Therefore, it was not possible to calculate a percentage relative to the overall numbers living in the care homes.

As anticipated, the most frequent use was in the summer period. It should be noted that the overall number and percentage of residents observed using the outdoor spaces at least once during the observation period (14, 28%) is skewed by variations in the sample sizes. Whilst over half of the sample were from care home C (28, 56%), none were observed using the outdoor spaces. Therefore, the overall number of those who used the outdoor spaces represented less than half (22, 44%) of the overall sample.

The numerical frequency data reported in the ROAM study are not directly comparable with the survey data reported in the

international literature[152, 157, 168] (3.8.3.3). However, due to conducting the observations in summer, autumn and winter periods, the study was able to demonstrate that across the care homes, outdoor frequency and duration did vary significantly throughout the year. Hence, the highly seasonal nature of outdoor use, as indicated by the literature overall, was corroborated in a UK setting.

There was virtually no outdoor use in the winter period or under any other conditions except for sunshine and warm or hot outdoor temperatures. Even when residents did access the outdoor spaces, the outdoor activities provided appeared to be more contingent upon staff interest, knowledge, experience and confidence than resident needs and preferences.

The focus group findings confirmed that for long periods throughout the year, many residents did not venture outdoors unless there was a special event, or they were accompanied by relatives. Notwithstanding variations in resident mood and engagement levels, this state of affairs was understood to be highly contingent upon factors beyond the control of most residents, due to the extent of their dependency on staff support to access and spend time outside. Therefore, it is contended that outdoor occupational deprivation was a consistently experienced phenomenon for the ROAM study residents. This occurred in two distinct ways:

- Limited opportunities to engage in meaningful or preferred occupations whilst in the outdoor spaces.

- Year-round lack of opportunity to access the outdoor spaces.

6.2.2 Interpreting the outdoor meaningful activities and mobility findings

The ROAM study observations demonstrated that in the absence of embedded, outdoor activity programming, outdoor engagement occurred mainly in groups during programmed activity time, which is consonant with the UK study conducted by Gibson et al.[105]. Studies exploring quality of life and activity provision in UK care settings[46-49] suggest that this model is not particular to outdoors. Indoor activity provision is often structured and group-oriented, despite widespread evidence and recommendations for more individualised models of activity engagement, as highlighted in UK best practice guidance[4, 12].

Outdoor activities were observed being delivered by activity coordinators, external providers and a general assistant. These were reported to be supported by care staff during special events. Most of the outdoor activity provision was facilitated by one provider. Group sizes varied from two to eight residents, although the overall group numbers included non-participant residents and were therefore higher than those reported in section 4.3. In a USA survey of 334 dementia care facilities[157], the mean staff to resident

ratio in the outdoor spaces was reported to be one to eight, demonstrating that this issue is problematic elsewhere.

Although care staff in each of the ROAM study homes may have expressed that supporting outdoor use was part of everyone's role, in practice, this did not usually extend to supporting the activity providers to deliver activities outside. In large part, this appeared to be due to organisational constraints. Given the diverse range of cognitive, sensory and functional abilities of the residents, from a safety perspective, the activity providers had little choice but to facilitate chair-based group activities.

This was highly restrictive for staff in terms of being able to offer tailored and meaningful activities, and opportunities for residents to experience the potential health and well-being benefits of these. Given that this scenario appeared to be beyond the control of activity providers, care staff and residents, the risk of experiencing occupational deprivation was significant for these groups[61, 64].

Overall, there was no discernible difference between activities provided indoors and outdoors, and these were mainly table-top. Due to the paucity of evidence in this field, it is not known how typical this is of other UK care homes. Although embedded outdoor programming was considered essential for optimising garden use in Grant and Winemans study[164], programme content and how this was delivered was not explicated.

In the care home literature, there is increasing recognition that 'activity' is not the sole responsibility of designated activity providers and should be a shared endeavour of the wider staff team[36, 49, 134, 242]. Recent evidence suggests that the activity practices observed in the ROAM study are typical of other UK settings. A focus group study involving 119 care home staff from 16 UK care homes[49] found that whilst care staff valued one-to-one time with residents, structured activities were considered to be the province of activity coordinators, whose hours varied considerably. Overall, the wider care staff implied that they did not know how to deliver activities or expect to have to do this. In consequence, some activity coordinators felt that there was an overreliance on them to meet residents' occupational needs and that 'activities' did not happen unless they were there.

Problematic attitudes pertaining to role differences were not particularly detectable in the ROAM study focus groups, perhaps because a mix of roles from the staff teams were represented. However, there were clear indications from the observations and the focus groups that some staff, including activity providers, struggled to identify appropriate and meaningful activities, engage residents in these and also adapt them for different levels of ability. Research evidence suggests that some care home staff lack sufficient knowledge and skills to support residents' occupational

engagement, particularly those experiencing more advance stages of dementia[7, 42, 43, 49].

Whilst this may be related to resident capacity to some extent, there is also evidence to suggest that residents lack motivation[46]. In the ROAM study residents were observed declining opportunities to go outside and engage in activities. However, at times, it was queried whether staff communication and engagement skills were more the issue, and perhaps even a lack of professional motivation.

In response to some of these issues, research recommendations and best practice guidance have emphasised a role for occupational therapists to provide training, guidance and ongoing support for care home staff[4, 12, 31, 42, 243-245]. However, the endorsement of occupational therapy expertise at a population level, for instance, via National Institute for Health and Care Excellence (NICE) and Royal College of Occupational Therapists (RCOT) guidance[4, 12, 104] appears to have had little influence on raising the profile of meaningful activity in care homes. As highlighted by Tancock[30], the commissioning approach regarding statutory therapy services appears to be reactionary, rather than preventative.

Consonant with best practice guidance which highlights the importance of referring to life history information when planning activities[208], the ROAM study staff indicated that knowing residents' needs, preferences and life history was important for both their

care and activity engagement. The activity coordinators present in the focus groups demonstrated extensive knowledge of the preferences and backgrounds of most residents. Amongst care workers, there was some awareness about which residents did and did not like to spend time outside, and why. However, this was variable and it was grudgingly conceded that this knowledge was unlikely to counteract the operant contextual constraints for outdoor access. Potentially, this also impacted on the range of outdoor activities offered.

As highlighted previously, no outdoor-specific activities were observed in the ROAM study and there was little indication that the outdoor activities provided had been tailored or adapted to differing levels of ability. Nonetheless, the socially-oriented group activities may still have been meaningful and restorative in terms of offering valued social support, as described in Ulrich's supportive garden theory[80]. Tentative support is provided by the Dementia Care Mapping (DCM) results which indicated that on average, residents spent more time engaged in well-being than ill-being whilst outdoors. Perhaps the social nature of the activities evoked a range of feelings, sensations and experiences which were causal for positive mood and engagement.

However, it is not clear if these well-being experiences were connected to the social element of structured activities or the significant amount of time that residents spent interacting in the

absence of an accompanying activity or passively observing their surroundings but disengaged from activity. Like the residents in the outdoor studies reviewed[76, 153, 154, 160], it is feasible that the ROAM participants preferred non-structured engagement, such as, sitting in the sunshine, drinking tea and coffee, chatting, observing surroundings and the sensory appeal of the outdoor spaces. Some residents from care home A indicated they were experiencing pleasure, enjoyment and relaxation in relation to the natural features around them, which lends some support to Ulrich's notion that access to these and other positive distractions may be restorative[80].

These types of activities may have contributed to a sense of connectedness, which is understood to be facilitated by restorative outdoor spaces[80, 154] and also, of high importance to people with dementia[246-248], as described by the qualitative synthesis of studies[45] discussed in Chapter 1. 'Connectedness with others' was exemplified as: being with others to not feel alone and isolated, doing activity with others to gain a sense of belonging and remain motivated and developing meaningful relationships, often to compensate for a sense of loss of family connection.

Whilst there were indications that some of these phenomena might have been operant during the group activities, there was little indication that invoking a sense of connectedness was a deliberate aim of the group activity sessions. Furthermore, there were clear

indications from staff and residents that other activities might have been at least as restorative and potentially, more meaningful.

For instance, there were several residents who were known by staff to enjoy gardening and/or nature-based activities and these were valued pastimes prior to care home admission. The value of horticultural activity engagement as a medium for receiving restorative social support is emphasised by Ulrich[80]. Furthermore, studies have suggested that these types of activities encourage significantly higher levels of engagement in people with dementia, compared with more traditional activities[249-251]. The ROAM study staff participants inferred that whilst activities of this type had been provided in the past, they were absent from current activity programming. Weather conditions might have been a barrier, as discussed in 6.2.4. However, these activities are considered highly adaptable for indoor use and provide a useful medium for 'bringing the outdoors in', when appropriate[79, 134, 252, 253].

There were several occasions where a one-to-one walk around the garden might have been beneficial for residents experiencing behavioural and psychological symptoms of dementia (BPSD)[160, 162, 165] and those who regularly patrolled the indoor areas. Reported as a preferred activity in the care home outdoor spaces, walking outdoors[69, 76, 154, 158, 160, 210] would also enable care staff to spend one-to-one time with residents. This has been reported as a valued activity by care home staff[49, 165] as a means to reconnect them with

their caring values[162]. However, in the ROAM study care homes, some staff felt that the spaces were not particularly suitable for walking or providing a range of activities.

For some residents, walking may represent the only viable opportunity for non-seated physical exercise in the care home environment. The systematic mapping review reported in Chapter 2 identified only one intervention which specifically included outdoor walking[254]. Whilst the sample size was small, quality of life measures did indicate a positive effect, which was attributed to the social interaction in the walking group. This lends more support to the hypothesis that outdoor activities offering opportunities for connectedness might be highly motivational for those with dementia[45].

In the ROAM study care homes, safe outdoor mobility (independent or supported) would have been challenging regardless of staffing levels, due to the lack of safe, suitable walking paths through the garden areas. Residents lacked the opportunity to benefit from the restorative benefits of physical exercise in the garden spaces[80], due to external physical environmental factors beyond their control.

Although staffing resources were constraining for offering a range of outdoor activity and mobility options, there was some indication that activity programme content was contingent upon the characteristics of activity providers, for instance, interest,

knowledge, experience and confidence. Whilst there was some interest and experience in outdoor-specific activities amongst the ROAM study staff, some of the activity providers tended to play to their strengths, which were perhaps more suited to table-top indoor activities. In one study investigating the use of plants in care work[79], care staff who did gardening as a hobby were more likely to use horticultural therapy with residents at work.

The overwhelming conclusion of occupational research in this area is that activities for care home residents must be tailored, meaningful and invidualised to optimise engagement, in order for benefits to health, well-being and quality of life to be fully realised[42, 43, 255]. Of course, this does not preclude group activity as a therapeutic medium if the activity is meaningful to the group participants and there are sufficient staff to support optimal engagement[134]. Using this logic, unless outdoor group activity can be provided in this way, it might well be of little real interest or benefit to those residents who are supported outside en masse. Perhaps one-to-one outdoor engagement supported by a staff member who knows the resident well might be more beneficial for both parties[162, 165].

In the ROAM study, whilst the staff to resident ratios were highly constraining for outdoor access and activities, there did appear to be pockets of time in each shift where it might have been possible

for care staff to either support an outdoor group activity or to accompany residents outside on a one-to-one basis.

For instance, one of the care staff in care home A reported that she sometimes managed to take someone into the garden after finishing the care duties and resident notes. In two of the homes, some care staff were observed taking their breaks together to smoke whilst the activity coordinators or external providers were facilitating large group activities by themselves. In care home B, care staff might have been more freed up to support outdoor use if the communal toilet cleaning had been allocated to the housekeepers.

Many of the issues depriving residents of meaningful outdoor engagement experiences were also highly problematic for residents accessing the outdoor spaces in the first instance, as discussed below.

6.2.3 Interpreting the outdoor access findings

Whilst a key driver for the ROAM study was to understand the contextual constraints related to resident outdoor engagement, the findings suggest that staff practices which denied residents' opportunities to access the outdoor spaces were far from intentional. Staff reasoning, choices and capacity to act were highly constrained by the care home context and there was clear evidence

that some staff felt that they were unable to provide the type of care they valued due to factors outside of their control. This has been reported in other studies exploring care staff experiences[46, 47, 256] and might also constitute a form of occupational injustice.

Thus, from a realist perspective, outdoor occupational deprivation might be conceptualised as an unintended consequence of the prevailing social structures in the care home. Potential areas for future intervention are perhaps opened up by recognising that the actions of care home staff to limit residents' outdoor mobility are influenced by important contextual factors.

Unfavourable weather, lack of staff time, restricted physical access and resident dependency characteristics were largely uncontested as the barriers to outdoor use, in both the literature and the ROAM study focus groups. However, in realist terms, these phenomena did not *cause* residents' outdoor occupational deprivation. Rather, these contextual characteristics fired chains of reasoning or impulses, which then influenced staff and resident agency.

There is little doubt, that if implemented, many of the organisational and physical environmental solutions suggested by the outdoor literature, might be somewhat effective for increasing outdoor use. But there has been no real consideration given to how these might be implemented in a range of real-world care home

contexts, particularly those heavily reliant on state funding which has not kept pace with the rising costs of providing care[257].

Arguably, radical environmental changes enabling visual access and proximity to the outdoor spaces might well enable more independently mobile residents to get outside, because staff concerns and fears that arise in relation to residents being unsupervised might be alleviated. It was clear from Grant and Wineman's study[164] that optimal window views and physical access were crucial for enabling self-initiated use. To a far lesser extent, this was the case in the ROAM study care homes, in which self-initiated use only occurred when the doors were unlocked during programmed activity hours.

There was also a cautious indication that self-initiated use and the very limited requests to go outside were triggered in some way by the experience of BPSD, rather than a desire to engage in outdoor activities per se. Overall, there was insufficient evidence to conclude that the outdoor space represented a restorative resource for these residents, in terms of activity, experience and relaxation[73, 154, 165]. Furthermore, in several cases, the opposite effect was apparent, and symptoms appeared to escalate when staff were absent. These absences indicated that either some staff lacked awareness about resident BPSD support needs whilst outdoors or chose not to act on this. Potentially, the sense of

control offered by 'temporary escape' and enhanced opportunities for privacy[80] was contingent upon staff support.

So even for those who are independently mobile and might initiate their outdoor use, staff presence in the outdoor spaces is still likely to be necessary for some. Given the staffing constraints observed in the ROAM study, it is perhaps understandable why there were no open-door policies. Lack of staff time and possibly, limited awareness, might explain why the outdoor spaces did not seem to be perceived or utilised as a therapeutic intervention to redirect the focus of residents experiencing BPSD. This has been reported as a valued, non-pharmacological strategy in a number of studies[79, 161, 162, 165, 258, 259].

In most cases though, residents were dependent on staff support, requiring close supervision or physical assistance to access and move around the outdoor spaces and/or support to engage in outdoor activities. Therefore, it is highly unlikely that physical environment adaptations could compensate for levels of dependency sufficiently to negate the need for staff presence. If costly environmental adaptations are unlikely to address the issues for the majority, resources and problem-solving should perhaps focus on staffing-related issues.

Whilst leadership-driven, culturally-embedded and adequately staffed outdoor programming might be the most effective solution

for supporting diverse groups to participate in activities outdoors[164], it was inferred that this was not a viable option for the ROAM study homes and others like them. In any case, outdoor provision might not be a priority for managers when there are so many challenges indoors, as implied in two of the homes.

Nonetheless, findings from care home A demonstrated that managerial interest in outdoor activities and day-to-day involvement on the shop floor were somewhat influential for staff outdoor practice, albeit intermittently. Therefore, effective and committed leadership is likely to be an important context characteristic for meaningful and sustainable practice change, although there was no explicit indication of this in the outdoor literature.

Overall, activity coordinators or providers and care staff truly were the gatekeepers for residents' outdoor access and as such, are intrinsic to the theoretically-driven account of how occupational outdoor deprivation came about in the UK study setting, described below.

6.2.4 A middle-range theory of outdoor occupational deprivation

As emphasised previously, the weather was a highly significant context characteristic for residents' outdoor use, which mainly occurred in warm, sunny conditions. It was perhaps unsurprising

to find that most residents preferred warm, sunny weather and were averse to rain and colder weather. This is likely applicable to a large proportion of the UK and other populations. In studies investigating the outdoor environment experiences of community dwelling older people, weather is a frequently reported constraint, both in terms of motivation and risks to safety[260-263]. The ROAM study sites reflected a seemingly widespread perception that many residents are sensitive to feeling cold[105, 160, 165, 176], which may, in part be accurate in terms of physiological characteristics.

Comparisons of thermal comfort between younger and older people have demonstrated various factors that impact on thermal sensation and preference in older people. Summarised by Van Hoof et al.[264], these include: reduced efficiency of warm and cold warm defence mechanisms, lower metabolic rate, diminished vascular reactivity, decreased thermoregulatory response (particular vasoconstrictor response), muscle volume reduction and increases in percentage of fat, reduced muscle strength and therefore, reduced capacity for physical activity and inhibited cardiovascular flexibility, resulting in lower cardiac output.

Furthermore, due to brain tissue changes, people with dementia are understood to have an altered sensitivity to environmental conditions compared to those without dementia and younger people. This is derived from differences in perception of the thermal environment as well as physiological thermo-regulatory processes.

This may compromise the ability of people with dementia to detect thermal comfort and make appropriate behavioural adaptations, such as removing or adding clothing[265, 266].

Whilst some of these factors may result in some residents experiencing cold sensitivity or at least appearing to, there is evidence of considerable diversity within the aged cohort and it is recommended that the thermal environment should be considered at an individual level[264].

Clearly, this presents a significant challenge in shared living environments for older people, in which the tendency may be for most residents to be seated for long periods throughout the day[37, 39] and to keep indoor temperatures raised and static. As reported in section 4.3.2.1, residents who were dependent on supervision or support to walk rarely moved and many were observing struggling to stand when it was time to visit the toilet or dining room.

Also, there were several references in the focus groups to the impact of the indoor temperature on residents, for instance, that the heating made them fall asleep or 'sluggish'. There is a paucity of evidence comparing the experience or impact of indoor and outdoor temperatures on care home residents. However, it is tentatively speculated that resident preferences for hot outdoor temperatures might, in part, be reflective of exposure to

consistently high indoor temperatures. Therefore, the contrast provided by colder weather may feel too uncomfortable.

Even accounting for some of these factors, the extent to which warm and hot sunny weather appeared to be a pre-condition for most observed outdoor use was somewhat striking. Whilst not the focus of the study, other residents were witnessed going out of the care home with relatives in less optimal weather and there was also a strong negative case to consider in the form of care home C and the reported bonfire festivities, which took place on a very cold evening in November. Although there was a bonfire of sorts, the activity coordinator worked with the staff to get residents 'bundled up' with warmer clothing before going out. Other studies have also reported residents going outside in a range of conditions[154, 166, 267], which emphasises the diversity of thermal comfort experience in this population[264].

Whilst inclement weather is reported to be one of the most dominant constraints of residents' outdoor use, there is a tendency in the literature to treat this issue as unproblematic and proposed solutions are design-oriented. For long-term care settings, recommendations for trees and awnings to provide shelter to protect from heat, rain and cold are abundant. More radical solutions include: covered walkways that lead from indoors through the outdoor space[166, 177], structures, such as, extended roofs, porches, conservatories, atriums and gazebos in which exposure

can be partially or fully controlled[71, 157, 160, 161, 164, 176] and outdoor heating[153, 193].

The ROAM study outdoor spaces were not particularly well equipped to manage the vagaries of the English weather. Whilst there were differing areas to sit in the sun or shade, there were no features which might insulate residents from cooler temperatures, for example, heated greenhouses or outdoor heat lamps. On the surface, these might be reasonably pragmatic adaptations for care homes to consider, which could enable more year-round engagement. Recommendations from UK research which has investigated the impact of residential care buildings on quality of life are clear: "Residents should have free, unrestricted access to outside space, with sufficient physical support to enable them to make use of it. They should have the opportunity to be exposed to the normal 24-hour diurnal cycle of light and darkness, and to sufficient daylight in winter months to maintain health"[172](p.524).

Whilst advising on built environment adaptations does fall safely within the remit of occupational therapy practice, UK statutory health and social care services are not commissioned to provide support of this type to independently owned care homes. Owners would be expected to fund the cost of any outdoor environmental changes and as there is no regulatory requirement for care homes in England to provide outdoor spaces and opportunities to access the outdoors, there is little enforcement incentive. Until

commissioners and service providers fulfil their obligations to support people with dementia to access outdoor opportunities[9], there seems to be little scope for UK statutory services to make a difference.

Within the remit of UK statutory occupational therapy, it is likely to be more feasible to explore access issues with individual patients or clients, which might include prescribing outdoor walking aids. It was of note in the ROAM study that residents often used wheeled zimmer frames outside, which are only deemed safe and appropriate for indoor floor surfaces. In the experience of the author (AK), outdoor mobility assessments have not constituted usual practice in community therapy services, but may be offered if this is highlighted by residents or staff.

Outdoor use as a therapeutic intervention is more likely to be the province of specialist dementia teams, who in the UK are commissioned to provide support to maintain residential placements for those experiencing an escalation in BPSD. Congruent with the outdoor literature, outdoor use might be prescribed to re-direct residents away from the indoor environment and provide opportunities for stress and agitation recovery[159-161, 165, 166].

Whilst it is heartening that such statutory provision exists in the UK, occupational therapy input of the type described is unlikely to

address the problems that appear to confine most residents indoors for much of the year. Notwithstanding the highly variable and inequitable access that care homes experience in relation to statutory occupational therapy provision[27, 37, 268], outdoor spaces that are safe and appropriately designed do not guarantee outdoor use. Even for those with features that address thermal comfort, staff and resident motivation have been identified as the most important factors for ensuring that spaces are used[145].

Undoubtedly, in the ROAM study, environmental characteristics such as, lack of staff time, lack of visual access and long distances to exits were highly constraining and led to access restriction as the main safety measure. However, when the staff on duty perceived their colleagues to share a similar resident-centred ethos and the workload demands were not exacerbated by unexpected events, they worked together to mediate for these barriers, although there was only evidence of this within paid staff time when the weather was favourable. The ROAM study staff participants revealed a wide range of attitudes, values and motivations that appeared to underpin their care practices, thus the ubiquitous problem of the weather was explored further in these terms.

It is contended here that the year-round outdoor access problem relates to the seemingly widespread acceptance, by those living and working in care homes, that less optimal weather and cooler temperatures are not appropriate conditions for residents to be

outside in. Whilst protecting residents from the consequences of inclement weather such as rain-sodden lawn, or ice and snow on paths seems congruous with duty of care principles, there still appears to be little scope for residents to spend time outdoors when risk of falling is not heightened by weather conditions. This was not the only concern, however. It was also evident that staff were fearful about other health impacts such as colds and chest infections. Again, such worry is perhaps understandable given that residents are at higher risk of hypothermia than the general population[264] and the risk factors of pneumonia for resident mortality[269].

However, as suggested by the thermal comfort evidence[264], it is supposed that not all residents of care homes are too frail to withstand UK spring or autumnal conditions, or even winter weather, if the reported bonfire night festivities are anything to go by. Given that this event, and also one-to-one trips out with residents were made feasible by staff providing support in their own time, there was a strong implication that inadequate workforce resourcing and the collective responses of staff and residents to this constraint were the underlying, or 'real' countervailing influences, in terms of weather.

Whilst participants in care home A were explicit about the workload impact of taking residents out in poor weather, this was not echoed in the other groups in which staffing levels were lower, likely

because it was such a challenge to support outdoor use, whatever the weather. However, some staff acknowledged that they sometimes construed inclement weather negatively when in the communal spaces and did this to discourage residents from going out. By contrast, sunny warm weather prompted positive weather talk, and staff valued resident enjoyment of fresh air and sunshine and the associated benefits. Over time, weather attitudes and values made explicit through talk and behaviour, might have served as powerful influences for practice and on resident agency.

If an accepted norm in the care home culture is that residents do not go out unless the weather is sunny and warm, and that this is (a): because they cannot tolerate any other conditions and (b): because other weather is potentially harmful, then any staff-related internal conflict arising in relation to time constraints, might well be reduced during periods of less optimal or cooler weather. In the UK, this might feasibly relate to almost three quarters of the year. So potentially, these countervailing influences on outdoor practice provide an effective coping strategy for extended periods of time. However, when the weather cannot possibly represent a barrier to outdoor use, but staffing is still constraining, perhaps this conflict increases, and other strategies are needed to mediate for this.

In the outdoor literature, lack of staff time is another widely accepted explanation for low levels of outdoor use, but like

weather, the underlying issues have not been explored further. Care staff focus on the physical care and safety needs of residents, at the expense of other needs associated with quality of life, such as meaningful connection, interaction and occupation is well-documented[36, 38, 39, 46, 48, 188, 243, 246], but hardly surprising given the highly constraining contexts that care practices are embedded in. However, findings from the ROAM study focus groups suggested that many staff were highly dissatisfied with the status quo. Feelings of frustration, sadness and guilt were particularly evident in participants from care homes A and C, in which there were more part-time workers and larger teams. These expressions highlighted the dissonance between what staff believed they should be doing (spending more quality time with residents) and what they felt they were having to do (maintaining resident basic physical needs and safety), due to the way lack of staff resources impinged on their time.

Role conflict in care environments has been described as the perceived difference between the expectations of managers and care staff[270]. This might occur if care staff do not agree with managerial priorities or when the expectations placed on them are incompatible with other demands in the environment. In the ROAM study, role conflict was observed in several ways. Some staff resented not having more time to spend with residents due to the pre-domination of care routines. The same staff experienced a

conflict between spending quality time with residents and not wanting to let their colleagues down, by 'shirking' care tasks. Staff in two of the focus groups confirmed that their managers subscribed to a person-centred vision and valued resident activity engagement. However, the way that care was structured communicated a differing set of priorities.

In a USA survey of 110 nurses and nursing assistants about supportive communication in nursing homes, Hullett, McMillan and Rogan[270] measured role conflict and stress. They found that staff valued supportive communication more than they perceived their organisation to do this and that whilst role conflict was exhausting and stressful, it did not affect their self-evaluations or those of the residents.

Similarly, in a UK study exploring conflict between nursing values and practice involving 12 nurses, Stacey et al.[271] found that nursing values from entry to the profession remained intact, although workplace constraints often prevented them from applying these in practice. Participants used different strategies to cope and one of these was to consider working elsewhere due to not feeling able to cope. These nurses did not appear to have internalised practice that contradicted their values. They remained aware of this conflict which reinforced their belief in their own perception of good practice. By contrast, a longitudinal study by Mackintosh[272] of 16 pre-registration student nurses found that exposure to practice

placements over two years resulted in a loss of idealism about care and reduced ability to identify negative aspects of care.

The staff-related internal inconsistency highlighted by these studies and the findings in the ROAM study has been described in the psychological literature as cognitive dissonance. This provides a useful explanation for social behaviour across a range of different contexts, thus constituting a theory of the middle-range. First identified by social psychologist Leon Festinger, cognitive dissonance theory refers to the tendency in individuals to seek internal consistency amongst their opinions, beliefs and values. Where an inconsistency or dissonance occurs, this is experienced as psychologically uncomfortable and the individual is motivated to reduce this to achieve consonance. In addition, when dissonance is present, situations or information likely to increase this are actively avoided[273].

In care homes, this disparity is illustrated by Kitwood's depiction of 'what caring involves' in old culture and new cultures of dementia care provision, described in Chapter 1 (1.3.2). Kitwood referred to the collective, routine-focused behaviour in care homes as 'organisational defence'[53]. Individuals are bound and work together in ways that they do not consciously understand. To repress fears and anxieties about dehumanising care practices, authority about what is acceptable is ceded to certain individuals for example, managers or regulators, and workers continue to engage in

entrenched routines which reinforce the status quo. This more abstracted explanation might account for a wide range of collective behaviours and practices in care homes, although Kitwood acknowledged that many of his assertions were shaped by his experiences and insights rather than empirical inquiry[57].

Elements of both cultures were evident in each setting in the ROAM study. Many staff were observed expressing relationship-centred care values in the way that they worked, but they were still restricted to providing care in an 'old culture' way, due to the way staffing resources were organised. It is suggested that this was the main source of their dissonance. At first, the care staff interviewed in the focus groups genuinely believed that the main solution to supporting residents outdoors more was to increase the staffing resources offered by the care home context. This was underpinned by a seeming lack of awareness about how much the physical environment increased resident dependency on staff.

However, in care homes A and C, there were indications that outdoor access was not always constrained by the prevailing conditions. There was evidence of a powerful mechanism being fired – 'it depends who's on' – by certain team compositions on day-time shifts, which resulted in intentioned outdoor practice, at least if the weather was favourable.

Although, this did not appear to be the case in care home B and there was no sense of this during the observations. Due to the staff team being small and comprised of full-time workers, the same staff tended to be on duty for many consecutive days. Care home B focus group participants felt that there were no differences within the team and that workload, plus unanticipated events were the main barriers to outdoor use.

Upon further exploration, it appeared that those experiencing the most dissonance, ostensibly participants from homes A and C, tended to identify with each other and distance themselves from others whom they believed were less resident-centred. This type of practice was characterised as a task-oriented, tick-list approach and perpetrated by those who 'did not think' beyond the bare requirements of the caring role and those who worked 'for money and 'not love'. The implication was that residents were more likely to get outside if the staff who perceived each other to share a more resident-centred ethos were on duty together.

The participant narratives in the study by Stacey et al.[271] highlighted a need for support from colleagues. However, despite espousing person-centred values in relation to service users, it seemed that the nurses often ceased to value each other. In the ROAM study, this was evident amongst participants in care homes A and C, suggesting that some of the role conflict was related to expectations of what peers should be doing, as well as about

managerial expectations. This lends support to the notion that care home environments are likely to be characterised by opposing values and practices, as inferred by Capstick and Baldwin[57].

When shift patterns allowed, it appeared that some of the focus group staff formed an 'in group' and compared themselves favourably against the task-oriented 'out group'. These participants even suggested that their presence in the focus groups was because they were interested in increasing outdoor use, which they viewed as resident-centred practice. In care home B, where the care staff were expected to provide activities, in addition to cleaning toilets and care tasks, there appeared to be no distinct reference groups, possibly due to the small size of the team. Therefore, the 'depends who's on' mechanism was not evident and even in good weather, residents were less likely to get outside, due to workload factors.

The type of social behaviour cautiously indicated by the findings from care homes A and C has been identified across a diverse range of contexts. Robert Merton's theory of 'reference group behaviour'[274] provides a useful account for differing permutations of this. In reference group behaviour, individuals use the standards of significant others as a way of evaluating themselves and their behaviour. Pawson[275] cites a number of examples to demonstrate how this type of middle-range explanation is able to span differing social spheres[275]. For instance, US servicemen drafted in the

Second World War[276], shipyard workers in the north of England[277] and in more recent times, people with Parkinson's Disease[278].

Pawson highlights that where measures of worth and satisfaction are determined by reflecting on a comparison group, preferences might be changeable contingent upon how membership or non-membership is evaluated by the individual. Pawson has instigated a revival of reference group theory in realist evaluation due to the explanatory power this affords in relation to behaviour change interventions. In particular how programme providers might persuade outsiders to become programme participants.

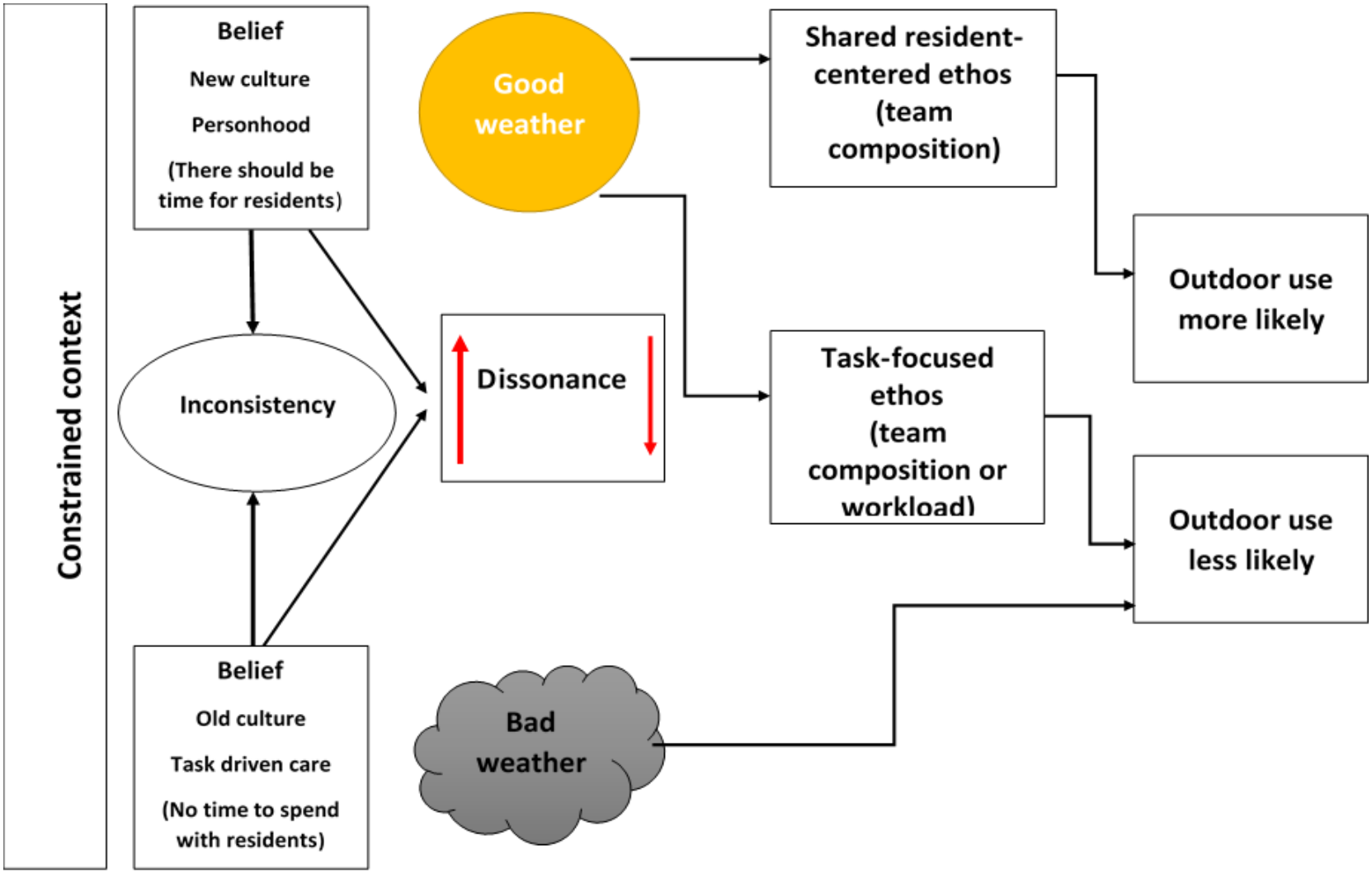
Drawing on experience and insights from a diverse range of evaluations across a differing range of policy domains, a conceptual platform is presented to guide the development of behavioural change interventions. The incremental stages involved progressing from outsider to insider and how these might relate to intervention activities are specified.

One challenge of applying this approach in care homes might be trying to ascertain who is an 'insider' and who is an 'outsider' in terms of the care home culture. If task-oriented practices are the norm and this is endorsed by managers via organisational practices, then perhaps those staff who do manage to occasionally support residents' outdoor use are 'outsiders'. If outdoor use really is most likely to occur in environments which provide relationship-

centred care[270], then change is likely to be necessary at a number of levels, inside and outside of the care home. This is discussed further in the next section.

The middle-range theory of outdoor occupational deprivation described in this section is depicted in Figure 14, below.

Figure 14: Middle-range theory of outdoor occupational deprivation



6.3 Summary

The discussion in phase four (i) (6.2) highlighted a range of challenges relating to residents' outdoor use, which can all be construed as opportunities for occupational justice. These are summarised below and were used to inform the stakeholder recommendations reported in phase four (ii).

Regular, year-round outdoor use and meaningful outdoor occupational engagement may be facilitated by:

- Wider support at the level of the whole system, for instance, to assist care homes to develop an embedded culture of activity and identify physical environment barriers and make suitable adaptations.

- Restructuring staffing resources and the way that care and activities are organised and provided.

- Ensuring that meaningful activity engagement has a similar priority to basic, physical care needs in the team psyche and culture.

- Increasing team knowledge and awareness of residents' occupational needs, preferences and history.

- Minimising the impact of physical environment design features which inhibit the outdoor engagement of older people with a range of conditions and compromised mobility.

- Exploring opportunities for residents to mobilise more during the day so that changes in environment and temperature are less jarring and uncomfortable.

- Exploring how variations in indoor temperatures might encourage residents to experience a change of environment.

- Improving team skills, knowledge, confidence in relation to resident activity engagement and facilitating outdoor access and outdoor activities.

- Exploring care staff-related perceptions, attitudes, values and beliefs in relation to:

    - Leadership interests and priorities.

    - Colleagues, team work ('depends who's on') and the operant models of care provision.

    - Basic care routines and physical care.

    - Time and how this should be spent.

    - Resident capacities and abilities.

    - The obligations and responsibility of the wider care team once residents are outside with activity providers.

    - Risk enablement, including concerns and fears for resident safety.

    - Personal levels of interest and motivation regarding activities and outdoor use.

- The impact of the physical environment on outdoor use practice.

- The purpose and function of the care home outdoor spaces.

- Resident thermal comfort levels and 'perceived' sensitivity to colder conditions.

- Weather and the varying impacts on this for resident health and safety.

6.4 Phase four (ii) Recommendations for increasing residents outdoor use

6.4.1 Frequency and duration of outdoor use - what is reasonable to aim for?

Clearly, it would be preferable if the number of resident visits to the outdoor spaces and the length of time they spent there is determined by residents themselves. Based on focus group exercise 2, at least 66% of the resident participants overall were reported by staff to like spending time outside. It was unclear how representative this was of the total amount of residents in the care homes. Just under half of the total numbers were recruited (46%) and overall, staff were not sure about the outdoor preferences of 18% of resident participants. Nonetheless, it might be anticipated that somewhere between one half and three quarters of residents might like or wish to experience some outdoor use.

There was little discussion in the outdoor literature about optimal frequency and duration. In the ROAM study, the weather and the way that care and activity provision was resourced in care home A did appear to enable daily use of the garden, but only if the activity coordinator was present. There was also evidence from focus group A of care staff providing one-to-one support when care tasks and paperwork were completed before the end of the shift.

However, the resident to staff ratios in the other two homes were significantly higher. In care home B, residents were only observed using the patio which was directly adjacent to one of the communal lounges. Staff expressed that increasing activity provider hours was perhaps the only solution for increasing outdoor use, although, the activity coordinator agreed that some sort of resident rotation system might enable more garden use. Reallocating the communal domestic duties to the housekeepers was highlighted as another potential solution to create more staff time for activity provision.

In care home C, the care staff from the ground floor unit suggested that with prior planning, it would be feasible to facilitate an outdoor activity once a week. Given that care home C had the most challenging ratios for care and activity provision and the most problematic internal layout, perhaps this provides an appropriate starting point in terms of weekly frequency. However, for the first - floor unit residents, additional time would be required to traverse the building.

In terms of continuous periods spent in the outdoor spaces, this varied from five minutes to four hours, 35 minutes. On six of the ten observation days that residents used the outdoor spaces, durations were for one hour or more. However, longer periods were usually contingent upon staff presence in the outdoor spaces.

In respect of health benefits, there is some evidence that as little as 20 minutes in outdoor spaces might be beneficial[70], although this was in a nature garden and based on measures that might not be reliable (see section 1.4). However, in the absence of any other data about optimal duration, perhaps 20 minutes in an outdoor space might be a reasonable minimum period to aim for, at least in terms of individualised support.

If advanced planning and teamwork is required for group outdoor activities, it is perhaps prudent to aim for between 20 and 90 minutes, at least once a week. If groups are tailored to be meaningful and to reflect the needs and preferences of individuals, then group sizes are likely to become smaller than those observed. However, to reflect the differences in needs, preferences and engagement capacity[134, 255], the number of groups might need to increase, which is likely to be problematic without additional resources, for instance, volunteers or external providers. An alternative might be that the greater balance of outdoor use is individualised, but this would probably require the support of most of the staff team and perhaps family carers and volunteers.

Clearly, there cannot be prescriptive recommendations for outdoor frequency and duration. Care homes wishing to improve in this area will need to experiment and test out what works, for whom under what circumstances and so on[109, 111]. Nonetheless, as a starting point, care homes might try to aim for some group and

individualised use at least once a week, for at least 20 minutes, as part of structured activity time and outside of this.

For pragmatic, gradual change, staff might consider starting with residents already known to enjoy and value outdoor space use, on the grounds that they are more likely to be motivated[45]. Also, it may be worth targeting those residents more recently admitted to the care home. Mozley et al.[125] found that these residents were more highly motivated to take part in activities, perhaps because they had not yet become accustomed to the care home routines.

6.4.2 Recommendations for stakeholders - increasing residents' outdoor use

Given that there was evidence of the care home context being highly constraining for residents' outdoor use, an occupational justice perspective was invoked to consider recommendations for increasing outdoor use, as stipulated in section 3.6.9. Clearly, occupational therapists are encouraged to play their part and direct occupational therapy input would likely be useful support for implementing most of the actions suggested. However, this has not been detailed in the tables of recommendations to demonstrate that change is not contingent upon any specific professional role, rather, a collaborative endeavour of a range of stakeholders. Where there is scope for occupational therapist involvement at micro and meso-levels, the use of client-centred assessment tools

are recommended, for example, the Canadian Occupational Performance Measure (COPM)[279] or the Model of Human Occupation Screening Tool (MOHOST)[280].

Beginning with the early stages proposed by Wolf et al.[64], Table 72 provides a worked example in relation to staff unavailability to support outdoor use in care homes. This demonstrates that the occupational justice prompts can be usefully applied to groups as well as individuals. Clearly, in the ROAM study, staffing unavailability was only one of many interrelated factors associated with residents' outdoor occupational deprivation. Still, the 'but why' technique appears to provide a useful strategy for exploring beyond the widely accepted, surface-level explanations to reveal the underlying constraints inherent in social structures.

Table 72: Outdoor use in care homes example using the 'occupational justice practice' framework

Framework for addressing issues of occupational justice	Care home example
Trigger event	Research investigating outdoor use in care homes
Framing issue as an occupational justice	Being able to access the outdoor environment and engage in outdoor occupations is necessary, meaningful and potentially health-enhancing for many care home residents. It is an injustice if residents are deprived of outdoor access and alienated from enriching opportunities. This occurs via staff practices which are restricted by contextual constraints and culturally influenced attitudes, which support the status quo.
Naming specific type of occupational injustice	Occupational deprivation – lack of year-round outdoor access Occupational alienation – lack of meaningful activity engagement
Possible reasons	Residents who are dependent on staff support lack opportunities for outdoor occupational engagement. But why? Because there is a lack of staff available to provide support But why? Because managers distribute resources in a way that privileges physical care needs above meaningful activity engagement But why? Because there is a lack of statutory or independent funding and investment in the care home sector (e.g., central government cuts to local authority funding, or corporate owners may not reinvest some profits back into service development) But why? Due to a legacy of legislation, policy and regulation reforms and changes and also, the resource challenges posed by an ageing population

Given the context-specific nature of quality improvement in care homes, the ROAM study recommendations comprise ideas and strategies for action which can be tailored according to the specific needs, capacities and priorities of different care homes. These are provided at micro, meso and macro-levels and are focused in terms of the stakeholders most appropriately placed to address these.

The development of an embedded culture of meaningful indoor and outdoor activity engagement is likely to be a long-term endeavour, requiring change at all levels. However, for care homes that may wish to begin making changes within existing policy, regulation and funding constraints, care home owners, leaders and staff could prioritise the strategies that encourage a wider network of stakeholders to become involved, thus reducing the total burden of responsibility on the care home.

In addition, prioritising those strategies that aim to surface the opinions, perceptions, values and attitudes of leaders, care staff, residents and family carers may be of value. Understanding what is meaningful to these stakeholders in terms of care provision and activity engagement, may help to ensure that action planning is resident-centred, rather than service-led. Strategies relevant to these priorities are emphasised by text coloured red.

Suggestions for tools and resources are provided, but clearly, the list is not exhaustive. Where possible, references to existing

literature that endorse the ideas, either specifically or more broadly are included. For instance, care staff 'champion' roles have been identified as important for achieving good healthcare[128]. Also, utilising senior staff members in the role of 'locksmith' has been used to positive effect for unlocking a range of opportunities for resident well-being[281] in research evaluating a multi-level activity-based model of care. The use of these types of roles is not yet apparent in relation to increasing outdoor use but this may be a useful strategy to support change.

In some cases, a degree of innovative thinking about ideas was required. These ideas are denoted by a question mark (?) and will likely require some experimentation and testing. The recommendations are summarised below in Tables 73, 74 and 75.

Table 73: Micro-level recommendations

Which stakeholders?	Micro-level strategies	Resources, materials and tools
Health & social care workers	When conducting individualised assessments with residents that relate to health and wellbeing, ensure that outdoor engagement needs and preferences are included in treatment and care planning	Profession specific assessments and service provider care planning documentation
Leaders or nominated staff	Engage in direct consultation with staff, residents and family carers about: ▪ The quality of leadership, relational care and outdoor use policy and practices[65], ▪ The way care and activity provision is structured ▪ The quality of the indoor environment and outdoor space(s) and how this helps/hinders outdoor access/use	Care planning meetings/reviews Supervision Meetings – resident, relatives, staff Audit, evaluation and action planning proformas Dementia Care Mapping[220] or other practice development approaches
	Recruit volunteers, family carers, external providers	Publicise request for volunteers in the care home and in the community (GP surgeries, shops, further education, job centres)
Leaders, activity coordinators and care team	Identify a range of indoor and outdoor specific activities that can be tailored according to time requirements and resident abilities	Living well through activities in care homes toolkit (College of Occupational Therapists [COT])[134] Dementia Greencare Handbook[105] Guidance to Activity in Dementia Care (from the INDEPENDENT project 2003-2006)[282] Life Story Network - training and resources
	Develop an outdoor activity and history profile using information from residents, family carers and significant others?	Adapt PAL Activity Profile and Individual Action Plan[208]
	Complete risk enabling assessments in relation to residents outdoor use – consider equipment and materials needed for safe outdoor mobility and activity engagement	Top Ten Tips for Positive Risk Taking (Dementia Adventure -see website for training available, varying costs)[283] 'Nothing Ventured Nothing Gained': Risk guidance for people with dementia (Department of Health)[284] Dementia Greencare Handbook[105]

Table 74: Meso-level recommendations

Which stakeholders?	Meso-level strategies	Resources, materials and tools
Health & social care commissioners/ service managers	Consider commissioning/providing care home specific services that focus on the whole care home environment	See Chapter 1 for sources that support this recommendation
Leaders or nominated staff	Conduct audit of existing culture of activity to identify areas for improvement and support action planning	Activity Provision, Benchmarking Good Practice in Care Homes (COT)[242]
	Become involved in delivering activities and supporting outdoor use to demonstrate presence on 'shop floor' and team work[124, 244]	Living well through activity in care homes toolkit – owners managers (advice on using a business case to shape culture via activity) (COT)[134]
	Identify outdoor use advocates, locksmiths or champions in the care team[281, 285, 286]	Supervision, staff or quality improvement meetings
	Explore relevant resources, training programmes and academic literature about effective leadership for meaningful occupational engagement and outdoor use	My Home Life practice development/ leadership training[287] University of Bradford, DCM[220] Person-centred care for older people in care homes: leadership for personalisation – SCIE website resources and on-line training[288] Dementia Greencare Handbook[252]
	Explore volunteer opportunities and funding via community social capital - schools, intergenerational networks, religious organisations, local businesses, other care homes, charities, local action groups, joining a Time Bank or Time Bank with other care homes in area?	Local authority website Volunteer support organisations Directory of Accredited Social Enterprises[289] Time Bank UK[290]
	Complete quality of life-related environmental assessments or audits	Enhancing the Healing Environment (EHE) assessment tool (The King's Fund)[291] Therapeutic Environment Screening Survey (TESS)[292]
	Review door locking policy/practices	

Leaders, activity coordinators and care team	Team audit of staff interests, skills, knowledge, experience and confidence in relation to meaningful activity provision and outdoor use?	Activity Provision, Benchmarking Good Practice in Care Homes (COT)[242]
	Consider reorganising key working or developing an outdoor buddy scheme – matching staff and residents with similar or contrasting activity interests or history?	
	Explore different perspectives and models of care, practice and activity provision	Household model of care - Action Pact culture change company[293] Eden Alternative[294] Butterfly Model[295] (draws on Household Model) The Senses Framework[296] Enriched Model of Dementia Care[53] The Client-centred Practice Framework[65] Occupational justice frameworks[60, 64, 297]
	Consider role swapping between activity coordinators and care staff?	
	Explore cross training of staff - dual care/activity provider roles[258, 298]	
	Conduct fund-raising activities for activity resources and outdoor space improvement	Alzheimer's Society[299] (for ideas) easyfundraising.org.uk[300] (for ideas)
	Engage in reflection and practice development focusing on perceptions, attitudes and values about a range of issues. For example: leadership, staffing levels, basic care routines and time, colleagues and caring values, residents and family carers, relational care, health and safety, weather, the function of the outdoor space, activity and occupational engagement	Staff team – all roles Quality improvement leads (corporate providers) Health and social care practitioners Third sector organisations
	Explore practical solutions to enhance outdoor views and access to outdoor areas, e.g., remove materials/objects obscuring most of view, turn some chairs away from televisions to face windows / patio doors	Seniors Outdoor Survey[193] The Alzheimer's Garden Audit Tool (AGAT)[194] Dementia Greencare Handbook[105]
	Explore ways to bring the outdoor inside e.g., indoor conservatory, animals, birds, nature noises, projected images of natural environment	
	Explore options for weather and cold protection in outdoor spaces, e.g., gazebo, awning, heat lamps	

Table 75: Macro-level recommendations

Which stakeholders?	Macro-level strategies	Resources, materials and tools
Leaders, activity coordinators and the staff team	Lobby commissioners and regulators[60, 64, 65, 301] for whole system support from local health and social care statutory services (including occupational therapy input[30]) - raise awareness about the impact of the prevailing social conditions on care home staff, residents and relatives	Care home stakeholders (including residents and family carers) Local lobbying / campaigning groups Local authority and NHS Trust websites Care Quality Commission website[302] NHS Clinical Commissioners - Lay Members Network[303] Local Members of Parliament (MP) Local dementia action groups Memory cafes
	Lobby for dementia friendly outdoor spaces to be a legal requirement for care home buildings	
	Campaign for residents to have the same rights to outdoor access as other groups	
	Request to be a placement provider for occupational therapy and other allied health students[304]	Universities offering allied health degrees/masters
	Offer to participate in occupationally-focused, participatory/action research which could support the process of change[14, 60]	Join Enabling Research in Care Homes (ENRICH) register[305] Contact ENRICH regional network coordinator[306] Local Universities
	Connect with other care homes to create a knowledge and ideas exchange[307] – activity coordinator exchange programme?	Care Quality Commission website[302] Local authority brochures
	Develop a community of practice with other care home leaders[307]	Local Care home forums My Home Life website[307]
	Connect with other UK organisations and/or care homes who have explored or contributed to developing outdoor culture in care homes ?	Abbeyfield (Care Homes / Research Foundation)[308] University of Worcester, Housing Design Research Consortium (HDRC)[309] Dementia Adventure[310] (business) Chalfont Design[311] (business) Step Change[312] (business)
	Explore opportunities for coalition advocacy and political action regarding outdoor use – campaigning, publishing, social media?	Care home stakeholders (including residents and family carers) My Home Life movement[313]

		Alzheimer's Society campaigns[314] Local lobbying and campaigning groups NHS Clinical Commissioners - Lay Members Network[303] Articles and books about care homes, dementia, citizenship and social justice
	Explore using social capital to support environmental adaptations e.g., design students looking for placements	Universities/colleges - architecture, health environment design, town planning, landscape design, social and horticultural therapy
	Contact local trades and businesses for time, expertise and equipment donations, e.g., path and greenhouse construction, plants, trees, sensory items	Internet/telephone directory

6.5 Strengths and limitations

Given the apparent paucity of research literature in relation to outdoor activities and mobility, a systematic mapping review was conducted and provided a useful broad overview of the evidence in the field (Chapter 2).

The review highlighted manifold gaps in the evidence base and facilitated the identification of a research question and aims and objectives which were appropriate to the PhD programme of research. However, this was not updated and was limited in scope, particularly in relation to the descriptive studies. A critical, narrative synthesis of the key findings might have provided a more comprehensive background to the thesis topic and perhaps also strengthened the case for the focus on care home outdoor access and engagement.

To investigate the complexity inherent in the research question, multiple methods using strategies from realist methodology were selected. This encouraged investigation beyond the surface-level, contextual barriers of outdoor use, which tend to be treated as unproblematic in care home research.

As demonstrated, the realist methodology guidance was adhered to wherever possible. Nevertheless, this was the authors' first experience of using this approach and there were some challenges,

not least, trying to ascertain whether realist methodology, as conceived by Pawson and Tilley[109], was appropriate for investigating prevailing conditions, processes and outcomes. The copy of the RAMESES forum email in Appendix 5 demonstrates that the issues about methodological suitability and applicability were being grappled with right up to applying for ethical approval.

Fortunately, using Pawson and Tilley's context-mechanism-outcome (CMO) explanatory triad, combined with an occupational perspective, proved to be a largely successful strategy for identifying, refining and articulating theories regarding existing outdoor use and practice conditions and processes.

Over time, Pawson has cautioned against prescriptive and rigid interpretation of the guidance and endorses using a range of strategies to obtain explanatory completeness, provided that realist principles are adhered to[109-111]. This was a useful aide memoir for a novice realist researcher because identifying mechanisms in relation to care home residents was not likely to be a straight forward endeavour, given that achieving the teacher-learner function in the realist interview[138, 200] was anticipated to be unlikely in many cases.

Discounting the interview method for use with residents did serve to introduce a fair degree of novelty into the PhD, in terms of using observational data of resident and care staff interactions and also,

Dementia Care Mapping (DCM)[220] as strategies to identify potential resident mechanisms. To some extent, this appeared to be successful, but the question remains whether these findings can be described as rigorous if participants were unable to confirm, refute or amend the hypotheses.

Given that mood and engagement (ME) values are construed as mood and emotional states, such as, pleasure, enjoyment, relaxation, focus, distress and being absorbed or engrossed, and that these phenomena may all impact on the volition and reasoning of programme participants, ME values and the accompanying qualitative observations may well be a useful strategy for understanding programme participation from the perspectives of people with dementia. Thus far, ME values have been used to evaluate programme outcomes[214, 218], but as far as the author is aware, not to explore resident mechanisms. Pawson clearly advocates that evaluation should incorporate the perspectives of programme recipients[109]. Perhaps a debate about the inclusiveness of realist evaluation and the challenges of understanding a range of stakeholder perspectives is required.

Whilst observational methods were largely successful for obtaining outdoor use data, it was not always possible to see the garden and patio exits, depending on where observations were taking place. Therefore, there was a possibility that some outdoor use was not captured. Using another researcher might have mitigated this

problem, as in Grant and Wineman's study[164], however, the PhD was stipend-funded and there were additional no funds for this.

Also, it would have perhaps been more rigorous to incorporate more than one observation period in each care home to capture the seasonal nature of outdoor in each site, as per Rappe and Topo's study[79]. It is also acknowledged that the observation periods could have been longer to facilitate greater theoretical generalisability. However, there was sufficient data to clarify the important context characteristics and identify potential mechanisms and the focus group data facilitated a fair degree of triangulation.

As emphasised in 4.3.5.3, there were indications from the observations in each care home that the presence of an observer and staff knowledge of what the research was about did impact on the language and behaviour of care home residents and staff, as per the 'Hawthorne effect'[197]. Questions relating to observer impact were included in the interview schedules but were positioned at the end and in each group, there was not sufficient time to explore this thoroughly.

The time management problem was partly due to the inexperience of AK, in terms of conducting focus groups from a realist perspective. As mentioned in Chapter 5, explicit methodological guidance would be welcome. It is also acknowledged that the

findings might have differed if groups had been conducted by role description. It is possible that the views of activity coordinators were overshadowed by those of care staff.

From an occupational justice perspective, the study could be criticised for not taking a more collaborative approach with residents, family carers and care home staff. As highlighted earlier, participatory and co-production research approaches are recommended by social and occupational justice advocates, although the results of such studies might lack wider relevance. Also, imposing an 'outdoor use' research agenda is unlikely to be in spirit with the principles of these approaches.

In terms of overall PhD management, placing limits on the amount of data to be collected and the time in the field were pragmatic and sensible strategies. However, this ran counter to the iterative and retroductive process of realist theory development and was a limitation for theory consolidation, as described by Manzano[138]. In the first instance, there was not adequate time to formally code and analyse the data between the staff focus groups. In hindsight, additional lines of enquiry introduced by the first two groups could have been pursued more comprehensively than they were. Also, it was not possible to return to the field to conduct more interviews or focus groups. It would have been extremely useful and interesting to present the initial middle-range theory to staff

participants and managers. However, there is an intention to investigate this theory in a future study.

Overall, the study is likely to contribute some useful learning about the outdoor use of UK care home residents, particularly in respect of the UK evidence base. Some academic interest may be stimulated by the use of DCM or similar tools to explore mechanisms in relation to people living with dementia.

6.6 Research implications

Due to the overall paucity of research regarding the occupational engagement of care home residents in outdoor environments, there is a broad canvass for interested researchers to choose from.

In the first instance, there is a lack of evidence describing UK care home outdoor spaces and how these are used. This would have been useful to guide the ROAM study research design and also to interpret some of the findings. The larger scale survey data included in the systematic mapping review[152, 157, 168] provided useful information about the design of outdoor spaces, frequency and duration of use, preferred features, safety issues, outdoor activities and the barriers to outdoor use. The collation of some robust, population-level evidence might serve to identify how and where to focus further research and practice development.

Whilst there is some literature and guidance focused on the thermal comfort of people with dementia living in care homes, this is focused on the indoor environment. Research exploring how indoor temperatures might impact on residents' outdoor thermal comfort or comparisons of the indoor and outdoor thermal comfort levels of residents would be extremely useful, given the apparent impact of seasonal temperature changes on year-round outdoor use. There is scant literature describing the views and experiences of residents and care home staff in relation to weather and environmental

temperatures. Further understanding could be instrumental for identifying pragmatic ways to support year-round outdoor use.

Whilst more research on the barriers to outdoor use in UK settings would be useful, including those in care homes with nursing, design-focused recommendations, such as those offered in the outdoor literature are perhaps limited in their effectiveness[67]. There is an abundance of best practice design guidance, but literature focused on supporting care homes to implement this to achieve long-term, sustainable outdoor use is scant. As demonstrated by the ROAM recommendations, outdoor use is relevant to a range of stakeholders, not least occupational therapist clinicians and researchers, who thus far, have made little contribution to the discourse or the evidence base.

Occupationally-focused research might begin by exploring and contrasting the perspectives, attitudes and values of differing care home stakeholders. Understanding what is important and meaningful to residents not only helps to reveal what motivates their occupational engagement[45, 46], but also might provide a useful starting point for identifying and addressing occupational injustices. For those unable to participate in interviews, DCM and ME values may offer one strategy for understanding resident mechanisms for activity engagement. Further research exploring alternative methods for understanding resident motivation would be useful.

Interviews and/or focus groups according to staff role description might reveal additional causal or countervailing team mechanisms for outdoor use practices. Analysis of the connection between these practices and caring values, as indicated by the ROAM study, could usefully guide the development of outdoor interventions.

There is a particular dearth of literature exploring the views, practices and learning development needs of activity providers and also, about differing models of activity provision in UK care homes. Occupational research investigating activities in relation to dementia progression appears to be unequivocal about the need for provision to be individualised[42, 44, 255, 315-317]. Large group sessions may have become entrenched in structured activity timetabling due to organisational constraints, but the value of this model for diverse groups is questionable. It could be useful to explore the views of care home stakeholders about this and how alternative models of activity provision might be implemented. For instance, those that employ an integrated team approach, as recommended previously.

If there is a role for 'outside specialists' to collaborate with care homes to support outdoor use culture change[312], then surely occupational therapists are well-positioned for this. But clearly, any learning from this process needs to be accessible to stakeholders and freely disseminated. Researchers might consider using participatory and emancipatory research approaches with

residents, family carers and care home staff, as recommended by occupational justice pioneers[60]. Such research holds potential for challenging the inequities in the wider social structures which contribute to outdoor occupational deprivation in care homes.

Alternatively, occupational therapist researchers or those from other disciplines might wish to employ methods endorsed in the evidence-based practice hierarchy. Clearly, there have been no robustly conducted randomised controlled trials (RCT) evaluating the impact of outdoor use in care homes and it is quite feasible that trial evidence is crucial for influencing commissioners, funders, organisational leads and corporate care home owners.

However, the methodological challenges of conducting RCTs in the indoor environment of care homes are well-documented - these are only likely to intensify in the outdoor spaces. As concluded by the authors of the UK study exploring mood in relation to time spent outside: "It should be recognised that both this patient group and nature as an intervention pose considerable challenges for a methodologically robust intervention study"[70](p.5). These authors suggest that their findings might provide some impetus for further research focused on establishing causality and the underlying mechanisms of benefit.

For those who might be willing, a large-scale comparison of indoor and outdoor nature-based activities with a usual care control might

serve to eradicate confounding variables associated with care-related social interaction[318]. DCM might provide a useful outcome measure to evaluate quality of life and well-being. There were no particular issues using this outdoors in the ROAM study, although it was necessary to highlight which time frames occurred outdoors.

Given that stress recovery is reported to be one of the main benefits of spending time in restorative outdoor spaces, measures might also include a behavioural disturbance scale, such as the Cohen Mansfield Agitation Index (CMAI)[201]. This was the most frequently used measure in the outdoor intervention studies reviewed in Chapter 2 and again, outdoor application did not seem to pose any issues.

In Rodiek's evaluation of the impact of an outdoor garden on mood and stress[318], 17 residents participated in the same activities in an indoor classroom or an outdoor horticultural garden. Salivary cortisol was used as a measure of stress and was significantly lower for the outdoor garden group. Whilst the results must be interpreted with caution due to the sample size, Rodiek did control for social interaction. Using salivary cortisol might be one effective and non-invasive measure for testing Ulrich's supportive garden theory[80], although the use of this as a biomarker for stress is contested. The relationship between the psycho-biological mechanisms which trigger a stress response and cortisol is not linear and changes in cortisol may be reducible to other biological

and psychological variables[319]. Nevertheless, this may be an option to explore in future pilot or feasibility studies.

Accompanied outdoor walking might also be a useful intervention to investigate, based on the recommendations by Takeuchi, Hatano and Yamasaki[254]. Indoor walking featured in the majority of care home physical rehabilitation interventions included in a Cochrane review conducted in 2013 by Crocker et al.[41]. Variations in trials meant that the authors could not make specific recommendations, but some individual studies were able to demonstrate physical health benefits. Future large-scale evaluations were considered to be justified. As yet, the efficacy and effectiveness of outdoor mobility interventions in care homes is unknown. These might provide an opportunity to raise the profile of allied health input in care homes, such as, occupational therapy and physiotherapy.

An alternative to experimental evaluation is of course, provided by realist methodology, which is increasingly being used in care home research to develop and support quality improvement initiatives[128, 230, 320-324]. A research implication specific to the realist aim of the ROAM study is to test the initial middle-range theory of outdoor occupational deprivation and begin the process of cumulation, as endorsed by Pawson[109, 111]. The contributions of other researchers to this endeavour would be most welcome.

6.7 Conclusion

The programme of research reported in this thesis was underpinned by a core assumption that for most residents with dementia, accessing and participating in outdoor activities and mobility is a positive and potentially life enhancing experience. Furthermore, and perhaps more crucially, that residents are entitled to receive person-centred care and participate in meaningful activities in an environment suited to their needs, including outdoor spaces.

Whilst it is clear from the literature, that further evidence of outdoor-related health and well-being benefits for those in the care home population is desirable, it is also evident that any such benefits will be unattainable if residents lack regular opportunities to access and engage in outdoor spaces.

In anticipation that residents outdoor use might be less than optimal, in terms of opportunity and resident satisfaction, the focus for the ROAM study was to explore residents access to and engagement in care home outdoor spaces.

Although residents of care homes share similar characteristics, care home environments vary significantly in terms of ownership, size, physical environment, quality of outdoor space, leadership, staffing levels, team characteristics, culture, model of activity provision and

so on. It was anticipated that outdoor use patterns and practices would differ between care homes based on these varying characteristics. To manage the ensuing complexity and diversity, a theory-driven approach was employed, which facilitated a consideration of the circumstances under which residents used the care outdoor spaces, how, why and to what extent.

The starting point for the study involved hypothesising about the context characteristics and mechanisms most likely to enable or constrain residents' outdoor use. Using multiple methods, this initial explanatory framework was then tested and refined in three care homes with varying characteristics. A refined theory of outdoor use was provided and then underpinned by a middle-range explanation for the outdoor occupational deprivation of care home residents. Recommendations for increasing residents' outdoor occupational engagement at micro, meso and macro levels of influence are presented.

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8 Appendices

Appendix 1: Systematic mapping review study summary

Table 76: Systematic mapping review study summary

Citation	No.	Methodology
Pre-post studies: N=20		
Alessi, C. A., Martin, J. L., Webber, A. P., Kim, E. C., Harker, J. O. and Josephson, K. R. Randomized, controlled trial of a nonpharmacological intervention to improve abnormal sleep/wake patterns in nursing home residents. Journal of the American Geriatrics Society, 2005. 53(5): p. 803-810[68]	1	Pre-post (RCT)
Martin, J. L., Marler, M. R., Harker, J. O., Josephson, K. R. and Alessi, C. A. A multicomponent nonpharmacological intervention improves activity rhythms among nursing home residents with disrupted sleep/wake patterns. Journals of Gerontology Series A: Biological Sciences & Medical Sciences, 2007. 62A(1): p. 67-72.[325]		Sub-analysis investigating activity rhythms
Connell, B. R., Sanford, J. A and Lewis, D. Therapeutic Effects of an Outdoor Activity Program on Nursing Home Residents with Dementia. Journal of Housing for the Elderly, 2007. 21(3-4): p. 195-210.[174]	2	Pre-post (RCT)
Jarrott, S.E. and Gigliotti, C.M. Comparing Responses to Horticultural-Based and Traditional Activities in Dementia Care Programs. American Journal of Alzheimer's Disease and Other Dementias, 2010. 25(8): p. 657-665.[249]	3	Pre-post (RCT)
Luk, K.Y., Lai, K.Y.C., Li, C.C., Chueng, W.H., Lam, S.M.R., Li, H.Y., Ng. K.P., Shiu, W.H., So, C.Y. and Wan, S.F. The effect of horticultural activities on agitation in nursing home residents with dementia. International Journal of Geriatric Psychiatry, 2011(26): p. 435-440.[326]	4	Pre-post (RCT)
Mozley, C. G., Schneider, J., Cordingley, L., Molineux, M., Duggan, S., Hart, C., Stoker, B., Williamson, R., Lovegrove, R. and Cruickshank, A. The Care Home Activity Project: Does introducing an occupational therapy programme reduce depression in care homes? Aging & Mental Health, 2007. 11(1): p. 99-107.[36]	5	Pre-post (RCT)
Peri, K., Kerse, N., Robinson, E., Parsons, M., Parsons, J, and Latham, N. Does functionally based activity make a difference to health status and mobility? A randomised controlled trial in residential care facilities (The Promoting Independent Living Study, PILS). Age and Ageing, 2008. 37(1): p. 57-63.[327]	6	Pre-post (RCT)

Rodiek, S. Influence of an Outdoor Garden on Mood and Stress in Older Persons. Journal of Therapeutic Horticulture, 2002. 13: p. 13-21.[318]	7	Pre-post (RCT)
Sambrook, P. N., Cameron, I. D., Chen, J. S., Cumming, R. G., Durvasula, S., Herrmann, M., Kok, C., Lord, S.R., Macara, M., March, L. M., Mason, R. S., Seibel, M. J., Wilson, N. and Simpson, J. M. Does increased sunlight exposure work as a strategy to improve vitamin D status in the elderly: a cluster randomised controlled trial. Osteoporosis International, 2012. 23(2): p. 615-624.[69]	8	Pre-post (RCT)
Takeuchi, R., Hatano, Y. and Yamasaki, M. The influence of different exercise intervention programs on changes in quality of life and activity of daily living levels among geriatric nursing home residents. Journal of Physical Therapy Science, 2011. 23(1): p. 133-6.[254]	9	Pre-post (RCT)
Calkins, M., Szmerekovsky, J.G. and Biddle, S. Effect of Increased Time Spent Outdoors on Individuals with Dementia Residing in Nursing Homes. Journal of Housing for the Elderly, 2007. 21(3-4): p. 211-228.[176]	10	Pre-post (quasi-experimental)
Cohen-Mansfield, J. and Werner, P. Visits to an outdoor garden: impact on behaviour and mood of nursing home residents who pace. Research and Practice in Alzheimer's Disease. Edited by Vellas, B., Fitten, J. and Frisoni, G., Paris, France, Serdi, 1998: p. 419-436. [267]	11	Pre-post (quasi-experimental)
Cohen-Mansfield, J., Marx, S., Dakheel-Ali, M. and Thein, K. The use and utility of specific nonpharmacological interventions for behavioral symptoms in dementia: an exploratory study. American Journal of Geriatric Psychiatry, 2015. 23(2): p. 160-170.[315]	12	Pre-post (quasi-experimental)
Cox, H., Burns, I. and Savage, S. Multisensory environments for leisure. Promoting well-being in nursing: home residents with dementia. Journal of Gerontological Nursing, 2004. 30(2): p. 37-45.[162]	13	Pre-post (quasi-experimental)
Ottosson, J. and Grahn, P. Measures of restoration in geriatric care residences: the influence of nature on elderly people's power of concentration, blood pressure and pulse rate. Journal of Housing for the Elderly, 2005. 19(3/4): p. 227-256.[76]	14	Pre-post (quasi-experimental)
Thelander, V. B., Wahlin, T. R., Olofsson, L., Heikkilä, K. and Sonde, L. Gardening activities for nursing home residents with dementia. Advances in Physiotherapy, 2008. 10(1): p. 53-56.[328]	15	Pre-post (quasi-experimental)

Detweiler, M. B., Murphy, P. F., Myers, L. C. and Kim, K. Y. Does a wander garden influence inappropriate behaviors in dementia residents? American Journal of Alzheimer's Disease & Other Dementias, 2008. 23(1): p. 31-45.[166]	16	Pre-post (quasi-experimental)
Detweiler, M. B., Murphy, P. F., Kim, K. Y., Myers, L. C. and Ashai, A. Scheduled medications and falls in dementia patients utilizing a wander garden. American Journal of Alzheimer's Disease & Other Dementias, 2009. 24(4): p. 322-332.[259]		Sub-analysis
Edwards, C. A., McDonnell, C. and Merl, H. An evaluation of a therapeutic garden's influence on the quality of life of aged care residents with dementia. Dementia, 2012. 12(4): p. 494-510[161]	17	Pre-post (quasi-experimental)
Mather, J. A., Nemecek, D. and Oliver, K. The effect of a walled garden on behavior of individuals with Alzheimer's. American Journal of Alzheimer's Disease and Other Dementias, 1997. 12(6): p. 252-257.[169]	18	Pre-post (quasi-experimental)
Namazi, K.H. and Johnson, B. Pertinent autonomy for residents with dementias: Modification of the physical environment to enhance independence. American Journal of Alzheimer's Disease and Other Dementias, 1992. 7(1): p. 16-21.[177]	19	Pre-post (quasi-experimental)
Mooney, P. and Nicell, L. The importance of exterior environment for Alzheimer residents: Effective care and risk management. in Healthcare management forum. 1992. Elsevier.[167]	20	Pre-post (quasi-experimental)
Descriptive studies: N=19		
Chao, T. W., Chai, C. W. and Juan, Y. K. Landscape design for outdoor leisure spaces at nursing homes: A case study of Taiwan Suang-Lien elderly centre. Journal of Food, Agriculture and Environment, 2014. 12(2): p. 1036-1044.[158]	21	Mixed method - observation (environment), semi-structured interview, questionnaire
Cutler, L. J. and Kane, R. A. As great as all outdoors: a study of outdoor spaces as a neglected resource for nursing home residents. Journal of Housing for the Elderly, 2005. 19(3/4): p. 29-48.[152]	22	Mixed method - observation (environment), structured interview
Grant, C.F. and Wineman, J.D. The Garden-Use Model: An Environmental Tool for Increasing the Use of Outdoor Space by Residents with Dementia in Long-Term Care Facilities. Journal of Housing for the Elderly, 2007. 21(1-2): p. 89-115.[164]	23	Mixed method - observation (behaviour), questionnaire

Lu, Z. Investigating walking environments in and around assisted living facilities: a facility visit study. Herd, 2010. 3(4): p. 58-74.[329]	24	Mixed method - observation (environment), unstructured interview, structured interview
Rappe, E. and Topo, P. Contact with Outdoor Greenery Can Support Competence Among People with Dementia. Journal of Housing for the Elderly, 2007. 21(3-4): p. 229-248.[79]	25	Mixed method - observation (behaviour), survey
Bengtsson, A. and Carlsson, G. Outdoor Environments at Three Nursing Homes: Focus Group Interviews with Staff. Journal of Housing for the Elderly, 2005. 19(3-4): p. 49-69.[165]	26	Qualitative methods – focus group
Bengtsson, A. and Carlsson, G. Outdoor Environments at Three Nursing Homes: Focus Group Interviews with Staff. Journal of Housing for the Elderly, 2005. 19(3-4): p. 49-69.[154]	27	Qualitative methods – semi-structured interview
Gibson, G., Chalfont, G. E., Clarke, P. D., Torrington, J. M. and Sixsmith, A. J. Housing and connection to nature for people with dementia: findings from the INDEPENDENT project. Journal of Housing for the Elderly, 2007. 21(1-2): p. 55-72.[105]	28	Qualitative methods - semi-structured interview, focus group, observation
Mapes, N. Have you been down to the woods today? Working with Older People, 2012. 16(1): p. 7-16.[106]	29	Qualitative methods – participatory appraisal
Ory Hernandez, R. Effects of therapeutic gardens in special care units for people with dementia: two case studies. Journal of Housing for the Elderly, 2007. 21(1-2): p. 117-152.[160]	30	Qualitative methods - semi-structured interview, observation (behaviour)
Raske, M. Nursing home quality of life: study of an enabling garden. Journal of Gerontological Social Work, 2010. 53(4): p. 336-51.[159]	31	Qualitative methods - semi-structured interview
Rowles, G.D., Concotelli, J.A. and High, D.M. Community integration of a rural nursing home. Journal of Applied Gerontology, 1996. 15(2): p. 188-201.[330]	32	Qualitative methods - ethnography
Cohen-Mansfield, J. and Werner, P. Outdoor wandering parks for persons with dementia: a survey of characteristics and use. Alzheimer Disease & Associated Disorders, 1999. 13(2): p. 109-17.[157]	33	Survey

Gonzalez, M. T. and Kirkevold, M. Clinical use of sensory gardens and outdoor environments in norwegian nursing homes: a cross-sectional e-mail survey. Issues in Mental Health Nursing, 2015. 36(1): p. 35-43.[168]	34	Survey
Joseph, A., Zimring, C., Harris-Kojetin, L. and Kiefer, K. Presence and visibility of outdoor and indoor physical activity features and participation in physical activity among older adults in retirement communities. Journal of Housing for the Elderly, 2006. 19(3-4): p. 141-165.[171]	35	Survey
Kearney, A. and Winterbottom, D. Nearby Nature and Long-Term Care Facility Residents. Journal of Housing For the Elderly, 2006. 19(3-4): p.7-28.[153]	36	Structured interview
Rappe, E. and Kivela, S-L. Effects of garden visits on long-term care residents as related to depression. HortTechnology, 2005. 15(2): p. 298-303.[155]	37	Structured interview
Rappe, E., Kivela, S-L. and Hannu, R. Visiting outdoor green environments positively impacts self-rated health among older people in long-term care. Horttechnology, 2006. 16(1): p. 55-59.[156]	38	Structured interview
Heath, Y. and Gifford, R. Post-occupancy evaluation of therapeutic gardens in a multi-level care facility for the aged. Activities, Adaptation & Aging, 2001. 25(2): p. 21-43.[331]	39	Questionnaire/structured interview

Appendix 2: Pre-post study characteristics

Table 77: Pre-post study characteristics

Intervention with outdoor component	Intervention arm	Control	Outcome measures (see glossary of abbreviations: Appendix 3)	Attrition (N) and reasons	Follow up	Findings
Alessi et al 2005: RCT to evaluate impact of multi-component intervention on staying awake during day and sleeping at night. Outdoor bright light exposure included - 30 minutes daily x 5 days[68]	N=62	N=56 Usual care	Wrist actigraphs, participation in activities, participation in social conversation, agitation, level of assistance eating/drinking	N=10 mortality, illness, measurement burden	None	No effects on percentage of night time sleep or number of night time awakenings. Modest decrease in mean duration of night time awakenings. Significant decrease in day time sleep in intervention group who also increased participation in social and physical activities and conversations
Martin et al 2007: Sub-analysis investigating activity rhythms using wrist actigraph data[325]	N=54 (subset of N=62)	N=46 Usual care (subset of N=46)	Wrist actigraphs		None	Increase in duration of 'active' portion of the rhythm indicating improvement in the robustness of rest/activity rhythms
Calkins et al: 2007 Within subjects pre/post-test intervention study to explore impact of increased time outdoors on sleep and agitation. Outdoor exposure for 30 minutes daily x 14 days (with individual and/or group activities as inducement (not described)[176]	N=18	Intervention group served as own controls	CAR	N=1 Refusal to wear equipment	None	Results not reported for all subjects. Authors reported that increased time outdoors resulted in a modest improvement in sleep and a mixed or immeasurable impact on agitation.
Cohen-Mansfield, J. and Werner, P. 1998: Single group, pre/post-test intervention to investigate	N=12	None	Pacing/agitation observation, PAM2, CMAI, Lawton's Modified Behaviour	None reported	None	Significant reduction in 1 component of pacing (trespassing). Significant effects for some components of mood (pleasure, anxiety) but not across

utility of visits to outdoor garden area for residents with dementia who pace or wander. 30 minutes twice daily x 20 days[175]			Stream, location and body position, The Confusion Inventory			whole measure. No effects on physical activity or agitation
Cohen-Mansfield et al 2015: Sub analysis from previous RCT (not included in review). Single group pre/post-test comparison of 24 non-pharmacological interventions including 'going outside'. Offered within a 4 hour period daily x 14 days[315]	Total subjects in intervention group: N=93. 'going outside' offered to N=29 in treatment phase and N=13 in trial phase	None	Frequency of intervention choice and perceived efficacy in behaviour change and interest	N=4 mortality	None	In trial (pre-RCT) phase, 'going outside' was amongst the most highly utilised interventions. In trial and treatment phases, going outside was amongst the interventions which had the highest impact on behavioural symptoms and interest. It was amongst the least utilized intervention in the trial phase
Connell et al 2007: RCT comparison of indoor and outdoor activity programme and impact on sleep and behaviour. Activities in both groups described as equivalent – horticultural plus 'singing and telling jokes'. Offered up to 1-hour daily x 10 days (Monday to Friday)[174]	N=10 Outdoor programme (measures obtained at baseline and follow up) Total participants N=24	N=10 Indoor programme (measures obtained at baseline and follow up)	Wrist actigraphs, CMAI	N=4	None	Statistical significance set at P = <0.01. Outdoor group showed significant improvement in maximum sleep epoch and significant reduction in verbal agitation scores. No significant effects for frequency of wakes or aggression and physical agitation. Both groups showed significant improvement in total sleep minutes
Cox et al 2004: Within subjects, crossover pre/post-test comparison of 2 multi-sensory environments (Snoezelen and garden) with normal living environment (living room) and impact on affect. 3 x 16 minute sessions in each environment = 9 sessions for each subject[162]	N=24	Intervention group served as own controls	ARS	Not reported	None	No significant reduction in negative affect in any environment (few negative components of affect were observed). Significant increases on components of ARS (pleasure and contentment) across all three environments. Greatest influence on wellbeing was 1:1 time with staff in the 'before' to 'during' phase of intervention. No significant differences in affect between environments

Detweiler et al 2008: Within subjects, pre/post-test observation study to evaluate impact of controlled access to a newly built wander garden on behaviour and PRN medication – monitored x 1 year[166]	N=34	Intervention group served as own controls	CMAI, PRN medication, incident reports	N=5 Mortality	1 year of observations prior to garden opening and for a year after	Significant reduction in CMAI scores and PRN medication.
Detweiler et al 2009: Sub-analysis to evaluate impact of garden use on scheduled medications and falls (number & severity)[259]	N=28 (subset of N=34)		Scheduled medication, Institutional Falls Committee rating			Participants split into high garden use (HUG) and low use (LUG). 30% decrease in raw number of falls overall. Significant reduction in high dose antipsychotics for the HUG group
Edwards et al 2012: Single group pre/post-test observation study to evaluate impact of access to new therapeutic garden on quality of life, depression and behaviour. Monitored x 12 days[161]	N=12	No	DEMQOL, CMAI, CSDD	N=2 transferred elsewhere	3 months of observations prior to garden opening and three months after	Significant effects on quality of life, depression and agitation scores
Jarrott, S. and Gigliotti, C.M. 2010: RCT - comparison of horticultural activity programme (some outdoor use – not specified) with traditional activities programme to evaluate impact on adaptive behaviour and affect. 2 x 50 minutes (mean dosage) daily x 6 weeks[249]	N=75 N=129 -resident and day centre participants N=105 – resident participants only	N=54 Traditional activities programme	ARS, MPES	None reported	None	No significant effects on adaptive behaviour but for treatment group, significant increases in some elements of adaptive behaviour (active/passive). Control group showed significant increase in 'self' engagement (SE)
Luk et al 2011: RCT - comparison of outdoor horticultural activity programme with sensory	N=7	N=7 Sensory stimulation and social	Chinese CMAI	N=1 reason not reported	None	No significant reduction in agitated behaviour. Intervention group showed trend for decreased physically non-aggressive behaviour

stimulation and social interaction activities to evaluate impact on agitation. 30 minutes, twice weekly x 6 weeks[326]		interaction activities group				
Mather et al 1997: Single group pre/post-test observation study to evaluate impact of access to new walled garden on disruptive behaviours. Monitored over 6 summer months plus comparison of summer/winter indoor behaviour[169]	N=10	None	Dementia Behaviour Disturbance Scale	Not clear	Outdoor observations: May to September 1994. Indoor observations: August and September 1994 and January and February 1995	Significant increase in aggression over summer-garden did not reduce this. Those who used garden more displayed less disrupted behaviours and sleep. Participants only spent 14% of observation time in garden
Mooney, P. and Nicell, L.:1992: Prospective cohort study comparing behaviour across 5 sites for 1 year (2 with gardens, 3 without) using incident reports. On site observations used in the 2 garden sites for 2 months to compare uniformity of populations and explore efficacy of the 2 gardens.	Not reported	None	PAMIE	Not reported	Incident reports compared for 1989 and 1990. On site observations (garden sites only) completed at baseline and for 2 months in 1990	Rate of violence decreased 19% in garden sites and was 7 times higher in non-garden sites. Total rate of incidents decreased by 3.5% in gardens and were 3 times higher in non-garden sites.
Mozley et al: 2007 Feasibility cluster RCT to evaluate impact of individualised occupational therapy programme on depression, dependency and quality of life. Programme duration – one year. Included visits outside of care home. No	N=78 (measures obtained at baseline and follow up) Total participants N=259	N=65 Usual care (measures obtained at baseline and follow up)	GMS-DS, MANQOL-R, Cantril's Ladder, SCES, Barthel Index	N=116 withdrawal, mortality, transferred elsewhere, illness	None	No significant effect on depression, dependency or quality of life

dosage information for individual components - varied[36]						
Namazi, K. and Johnson, B.1992: Single group pre/post-test observation study comparing locked and unlocked doors (giving access to walkway, gardens and secure park). Each condition monitored x 50 hours[332]	N=22	None	CMAI, Dementia Behaviour Disturbance Scale	None reported	Each condition monitored 50 hours	Number of negative behaviours in 5 categories decreased under unlocked door condition (unclear if decreases were significant – significance levels not reported)
Ottosson, J. and Grahn, P. 2005: Within subjects, cross over pre/post-test study to evaluate impact of x 1 hour of rest in garden x 1 hour of rest indoors on concentration, blood pressure and heart rate[76]	N=17 N=7 had first series of tests outdoors N=8 had first series of tests indoors	Intervention group served as own controls	NCPC, DSF, DSB, SDMT, blood pressure, heart rate	N=2 unable to complete all tests participated at only 1 measurement	None	1 hour of rest in garden had a significant effect on concentration compared with indoors. No effects for blood pressure and heart rate
Peri et al 2008: Cluster RCT to evaluate impact of individualised repetitive activities of daily programme on health status, life satisfaction and mobility. Programme offered twice daily x 6 months. Included visits outside of care home. No dosage information for individual components - varied[327]	N=73	N=76 Usual care	EMS, TUG, LSI-Z, SF-36	N=25 Mortality or transferred elsewhere	3/6 months	Significant effect on 'physical component' score of SF- 36 at 3 months, not sustained at 6 months
Rodiek, S.2002: RCT - comparison of outdoor horticultural activities group with 2 indoor groups to	N=7 Outdoor horticultural activities	N=10 Indoor horticultural activities	Philadelphia Geriatric Center Positive and Negative Affect	N=1 illness		Significant effect on cortisol (stress reduction) for outdoor group (only 8/10 of indoor group tested for cortisol). No effects on mood anxiety

evaluate impact on stress (cortisol), mood and anxiety. 2.5 hours x 1 session[318]			Rating Scale, STAI, salivary cortisol			
Sambrook et al 2012: Cluster RCT to evaluate impact of sunlight exposure (and calcium supplements) on number of falls and vitamin D levels. 30-40 minutes daily, 5 days per week x 12 months[69]	N= 190 UV group (sunlight) N=207 UV+ group (sunlight plus calcium)	N=205 Usual care	serum 250HD, number of falls, static balance, walking speed, grip strength, GDS	N=144 mortality, transferred elsewhere, lost to follow-up,	None	No significant reduction in Vitamin D deficiency or number of falls, but for those (N=66) who attended more than 130 out of 260 sessions (5 per week), the number of falls was significantly reduced
Takeuchi et al 2011: RCT - comparison of Individualised physical therapy and outdoor walking group with individualised physical therapy to evaluate impact on activities of daily living, quality of life and physical function. 20 minutes, twice weekly x 4 months. For individualised exercise/outdoor walking group, 1 session of individualised exercise and 1 session of outdoor walking group per week[254]	N=14 Individualised exercise with outdoor walking group	N=14 Individualised exercise	Barthel Index, gait velocity, standing on one leg, LSIA, PGC	N=2 withdrawal	None	Significant effect on quality of life for the individualised exercise/walk group. No significant effect on activities of daily living or physical function
Thelander et al 2008: Single group, pre/post outdoor gardening activities intervention to evaluate impact on independence with intervention activities. 40-70 minutes, 3 times per week x 6 weeks[328]	N=8	None	Study-specific independence scale	None reported	None	Pre/post - independence scores not provided - only a mean of the scores for each individual. Authors reported that Independence remained constant

Appendix 3: Glossary of Outcome Measures

ARS: Philadelphia Geriatric Center Affect Rating Scale
BI: Barthel Activities of Daily Living Index
CAR: Change Assessment Rating scale
CMAI: Cohen Mansfield Agitation Index
CSDD: Cornell Scale for Depression in Dementia
DBD: Dementia Behaviour Disturbance Scale
DEMQOL: a health-related quality of life tool for people with dementia
DSF: Digit Span Forward
DSB: Digit Span Backward
EMS: Elderly Mobility Scale
GDS: Geriatric Depression Scale
GMSS: Geriatric Mental State scale
LSI-A: Life Satisfaction Index A
LMBS: Lawton's Modified Behaviour Stream
LSI-Z: Late Life Satisfaction Index
MANQOL-R: Manchester Quality of Life Profile
MPES: The Menorah Park Engagement Scale
NCPC: Necker Cube Pattern Control
PAM2: Personal Activity Monitor 2
PAMIE: The Physical and Mental Impairment-of-Function Evaluation
PGC: Philadelphia Geriatric Center Morale Scale
PSQI: Pittsburgh Sleep Quality Index
SCES: Sheltered Care Environment Scale
SDMT: Symbol Digit Modalities Test
SF-36: 36 Item Short Form Survey
STAI: State-Trait Anxiety Inventory
TUG: Timed Up and G

Appendix 4: Descriptive study characteristics

Table 78: Descriptive study characteristics and reported health, wellbeing and quality of life findings

Joseph et al, 2006: **Association between presence and visibility of outdoor and indoor physical activity resources and participation in physical activity - community care retirement villages (mixed methods)[171]**
Health benefits data not collected. Campuses with more outdoor features tended to have more residents at all 3 levels of care participating in different types of physical activities. Design implications/recommendations
Bengtsson, A and Carlsson, G. 2005: **Use and experience of outdoor environments and implications for design - nursing homes (qualitative study)[165]**
Staff reported that the outdoors kept residents healthy and made them happy. The sea, the garden and the fountain were perceived as sources of calm. Trips away from the care home and sensory stimulation in nature promoted enjoyment and a sense of freedom. Gardens promoted social intercourse and made it easier and provided opportunities for reminiscing. Design implications/recommendations
Cohen-Mansfield, J. and Werner, P. 1998: **Features of outdoor areas and the relationship between design features, utilisation and satisfaction - dementia units (survey)[157]**
84.6% of facilities rated outdoor area as having 'positive impact' (not defined) on cognitively intact residents, 72.1% on cognitively impaired residents and 77% on wanderers. Design implications/recommendations
Rowles et al, 1996 **In-depth anthropological study - nursing home (ethnography)[330]**
Health benefits data not collected. The ethos and practice at Mountain View reflected historical, social, psychological and economic integration with the community
Raske, M. 2010: **In-depth evaluation of the impact of the construction and use of an enabling garden on quality of life - nursing home (qualitative study)[159]**
Interview data suggested that the garden promoted resident relationships, functional competence, quality of life and physical health, reduced agitation, increased enjoyment, improved mood, dignity and autonomy and offered privacy, opportunities for communication, individuality and spiritual wellbeing
Gibson et al, 2007: **Importance of nature to people with dementia - overall project focus on wellbeing and quality of life for people in different types of housing (qualitative study)[105]**

Health benefits data not collected. Study focus on participation in nature-related activities and enablers/barriers. Design implications/recommendations
Grant, C. and Wineman, J. 2007: **Interrelationships amongst the factors influencing use of outdoor space - dementia units (mixed methods)[164]**
Questionnaire on staff attitudes was used to collect data on benefits of garden use, including effect on residents' moods but questionnaire results not reported as part of case study. Authors reported that staff generally took a positive view of the available outdoor space for residents, but this was not always corroborated by observations. Design implications/recommendations
Rappe, E, and Topo, P. 2007: **Study 1) Role of plants in relation to wellbeing (2) Association of wellbeing and experiences of green environments - dementia units (mixed methods)[79]**
Majority of staff in survey (75-98%) agreed with statements that plants are positive for evoking memories, stimulating communication between staff and residents and between residents, maintaining functional ability, orientation and awareness of changing seasons, feeling needed and promoting enjoyment. In observation study, outdoor contact promoted communication, social interaction, pleasure, relaxation, reminiscing, expressing feelings, competence
Gonzalez, M. and Kirkevold, M. 2015: **Clinical use of sensory gardens and outdoor environments from the perspective of leaders and healthcare staff - nursing homes (survey)[168]**
62% of facilities had sensory gardens. Leaders and staff reported that use of sensory gardens improved wellbeing and contentment (97% of leaders, 91% of staff), agitation, restlessness and pacing (89% of leaders, 80% of staff), balance and mobility (81% of leaders, 74% of staff) and sleep/sleep patterns (66% of leaders and 58% of staff).
Heath, Y. and Gifford, R. 2001: **Post occupancy evaluation of therapeutic gardens - multi-level care facility (mixed methods)[331]**
Over 80% of participants rated garden as excellent or good for providing a place for reflection, relaxation and socialisation. Design implications/recommendations
Ory Hernandez, R. 2007: **Post occupancy evaluation of outdoor spaces- dementia units (mixed methods)[160]**
Interviews and observations indicated that the garden improved mood, sleep, appetite and increased pleasure/enjoyment. It also provided relief from stress, agitation and boredom and opportunities for physical activity, psychological reminiscence, mental wellbeing, socialisation and normalisation. Design implications/recommendations
Bengtsson, A. and Carlsson, G. 2013 **Experiences of outdoor environments - what factors are important and why - nursing homes (qualitative study)[154]**

Residents and relatives reported that getting out of the care home enabled getting fresh air and a sense of freedom. Views, greenery, sensory stimulation in nature and having impressions of life outside of the care home (gardens and neighbourhood) promoted enjoyment/happiness. The gardens promoted social opportunities with other residents and people outside of the care home and opportunities for reminiscing and being independently mobile. Design implications/recommendations
Cutler, L. and Kane, R. 2005: **Availability of outdoor amenities and residents' perception of space use - nursing homes (mixed methods)[152]**
Health benefits data not collected. The Outdoor Amenities Index used by researchers was designed with potential to expand socialisation and stimulation outdoor opportunities. Data collected on access to features in Index. Design implications/recommendations
Rappe et al, 2006: **Association between the reported frequency of visits to an outdoor green environment and self-rated health - nursing homes (structured interviews)[156]**
Prevalence of self-rated depression 46%. Between 50% and 84.6% of residents agreed with statements that visiting garden improved sleep, feeling more balanced concentration ability, feeling cheerful and alert, feelings of recovery. Affective effects more pronounced amongst depressed and there was an association between depressed residents and those experiencing hindrances visiting garden.
Chao et al, 2014: **Influence of outdoor spaces and preferred outdoor leisure activities/features – nursing homes (mixed methods)[158]**
More than 90% of residents agreed with statements that they went outdoors to relax and regulate mood and to exercise and improve physical health. Design implications/recommendations
Lu, Z., 2010: **Walking behaviours and preferred walking locations – assisted living facilities (mixed methods)[329]**
Health benefits data not collected. 3/39 facilities offered walking programmes to promote exercise - 2 of these were outdoors. Administrators reported residents walking independently for exercise. Design implications/recommendations
Mapes, N. 2011: **Benefits of outdoor activity in nature - care homes (qualitative study)[106]**
Self-ratings for importance of exercise increased by 41% after woodland visit (figure includes non-resident participants. Participants reported that visit had potential to improve sleep, dietary intake and memory and provided opportunities for activity/exercise, increased verbal expression and multi-sensory engagement associated with joy. Emotional benefits were reported as mood enhancement, spiritual uplift, sense of self, more control, and social benefits were sense of belonging, friendship and kinship, community presence and 'ad hoc' positive social encounters
Rappe, E., and Kivela, S-L. 2005:

Perceived effects and meanings related to garden visits and associations between experiences of garden visits and self-rated depression – nursing homes (structured interviews)[155]
Frequency of outdoor visits positively associated with self-rated energy level, sleep, pain, emotional reactions, social isolation, physical mobility
Kearney, A. and Winterbottom, D. 2006: **Relationship between nearby nature and psychological wellbeing/quality of life – nursing homes (structured interviews)[153]**
Residents reported benefits as fresh air, enjoyment/happiness, physical health, invigoration/stimulation, healing effect, change of scenery, meeting people, tanning/sun exposure, feeling of belonging, change in outlook/attitude, getting away from facility. Design implications/recommendations

Appendix 5: RAMESES Email Advice 1

-----Original Message-----

Subject: Theorising about existing practice, not programmes
From: Amanda King
Sender: "Realist and Meta-Narrative Evidence Synthesis: Evolving Standards" on behalf of Amanda King
Date: Thu, 21 Apr 2016 20:38:53

Hello all,
I am a PhD student at the University of Nottingham and from day one, I have been planning to use the realist approach as I was aiming to develop an outdoor activity and mobility complex intervention. However, this has changed somewhat, and I am not sure if I am trying to hang onto the approach when it no longer fits the aim of my project. My query feels a bit daft, given that the approach is about understanding how and why programmes work (or not), but I am very stuck, so here goes.

My project aim is to "identify practices and resources that increase outdoor activities and mobility in care homes". Whilst there are some health outcome evaluation studies, I do not believe that there are any published interventions that look at working with care staff teams to increase garden access and use for residents with dementia. At this stage, I am interested in access and participation rather than health outcomes.

I am on the brink of conducting a realist study to look at "which residents in dementia settings participate in outdoor activities and mobility in care home gardens, under what circumstances, to what extent and why?".
My intention was to look at who does and does not get outside and work backwards to identify institutional/staffing/resident characteristics and responses to existing resources. I will be doing observations in care homes using Dementia Care Mapping, plus focus groups with staff to refine and test my theories.

My dilemma is that I have realised that I want to look at what is actually happening/current practice rather than responses to resources offered by a programme or potential programme - I am wondering if it is legitimate within the realist approach to talk about existing resources, rather than those provided by an intervention. And whether the term mechanism still applies if we are talking about responses to existing resources?

Intuitively the approach seems right and eventually I may well develop a programme, but right now, is this a suitable approach for unpicking current practice?
I hope this makes sense.
Kind regards,
Amanda

Subject:	**Re: Theorising about existing practice, not programmes**
From:	Gillian Westhorp
Reply-To:	Realist and Meta-Narrative Evidence Synthesis: Evolving Standards"
Date:	Thu, 21 Apr 2016 21:37:46

Hi Amanda

There's no problem at all using a realist approach to investigate current practices. For realists, mechanisms exist at all levels (material, biological, social) all the time – program mechanisms are just a particular variant of mechanisms. You could probably talk in terms of realist research rather than evaluation (given there's no program to evaluate) - but that's fine. Good luck with your study.

Gill

Appendix 6: Summary of literature scoping studies

Table 79: Summary of literature scoping studies

Citation	Article no.	Methodology
Pre-post studies: N=11		
Connell, B. R., Sanford, J. A and Lewis, D.[174]	1	Pre-post (RCT)
Sambrook, P. N., Cameron, I. D., Chen, J. S., Cumming, R. G., Durvasula, S., et al[69]	2	Pre-post (RCT)
Calkins, M., Szmerekovsky, J.G. and Biddle, S. [176]	3	Pre-post (quasi-experimental)
Cohen-Mansfield, J. and Werner, P.[267]	4	Pre-post (quasi-experimental)
Cox, H., Burns, I. and Savage, S.[162]	5	Pre-post (quasi-experimental)
Ottosson, J. and Grahn, P. [76]	6	Pre-post (quasi-experimental)
Detweiler, M. B., Murphy, P. F., Myers, L. C. and Kim, K. Y.[166]	7	Pre-post (quasi-experimental)
Edwards, C. A., McDonnell, C. and Merl, H.[161]	8	Pre-post (quasi-experimental)
Mather, J. A., Nemecek, D. and Oliver, K.[169]	9	Pre-post (quasi-experimental)
Namazi, K.H. and Johnson, B.[177]	10	Pre-post (quasi-experimental)
Mooney, P. and Nicell, L.[167]	11	Pre-post (quasi-experimental)
Descriptive studies: N=17		
Chao, T. W., Chai, C. W. and Juan, Y. K.[158]	12	Mixed method
Cutler, L. J. and Kane, R. A.[152]	13	Mixed method
Grant, C.F. and Wineman, J.D.[164]	14	Mixed method
Lu, Z.[329]	15	Mixed method
Rappe, E. and Topo, P.[79]	16	Mixed method
Bengtsson, A. and Carlsson, G.[165]	17	Qualitative methods
Bengtsson, A. and Carlsson, G.[154]	18	Qualitative methods
Gibson, G., Chalfont, G. E., Clarke, P. D., Torrington, J. M. and Sixsmith, A. J.[105]	19	Qualitative methods
Ory Hernandez, R.[160]	20	Qualitative methods

Raske, M.[159]	21	Qualitative methods
Cohen-Mansfield, J. and Werner, P.[157]	22	Survey
Gonzalez, M. T. and Kirkevold, M.[168]	23	Survey
Joseph, A., Zimring, C., Harris-Kojetin, L. and Kiefer, K.[171]	24	Survey
Kearney, A. and Winterbottom, D.[153]	25	Structured interview
Rappe, E. and Kivela, S-L.[155]	26	Structured interview
Rappe, E., Kivela, S-L. and Hannu, R. [156]	27	Structured interview
Heath, Y. and Gifford, R.[331]	28	Questionnaire/structured interview

Appendix 7: Literature scoping - potential mechanisms

Table 80: Literature scoping - potential staff mechanisms

Potential staff mechanisms related to supporting outdoor use
Attitudes and perceptions about the function of gardens/outdoor spaces:
Stimulus for communication and interaction
Stimulus for activity engagement
Enables a range of experiences
Enables a change of scenery
Stimulus for reminiscence
Stimulus for fellowship between residents
Facilitates stress recovery and relaxation / reduces agitation and confusion
Enables a sense of purpose and ownership
Facilitates spiritual wellbeing and peace
Enables privacy and solitude
Supports individuality
Enables choice, autonomy
Enables freedom from feeling confined
Increases frequency of outdoor use
Maintains functional abilities and competence
Supports physical therapy
Facilitates continuity and connection with past
Enables contact with community
Enables contact with relatives
Stimulus for staff empathy
Enables one-to-one support more than indoor environment
Strengthens staff resident relationships via one-to-one time
Reconnects staff with caring values
Enables time orientation via season
Benefits to resident wellbeing
Improves health
Improves mood
Improves quality of life
Maintenance of functional abilities and competence
Reduces agitation, distress and confusion
Improves communication abilities
Maintenance of identity
Maintenance of mobility
Caring values
Knowledge and understanding of resident, e.g., likes, dislikes and history
Resident enjoyment and pleasure
Valuing relationships with residents - using humour
Responsiveness to resident requests
Empathy for residents - valuing pre-admission history, roles and skills

Individual differences of residents
Belief that outdoor space is beneficial to residents
Appreciation of the visual appeal and function of outdoor space
Barriers, concerns and fears
Lack of time or opportunity to support residents outdoors
Lack of outdoor activity programming
Weather - hot sun, rain, wind, snow and ice
Health and safety regulations (building and fire codes)
Resident health and safety, e.g. falls, getting lost, confusion, getting cold/wet
Proximity to outdoor space - distances to exits
Door locking practices
Uneven ground or no suitable paths outside
Lack of transition zone and outdoor seating
Lack of shelter / protection from weather
Institutionalised environments
Lack of staff interest
Lack of staff training / education about outdoor spaces

Table 81: Literature scoping – potential resident mechanisms

Potential resident mechanisms (resident reported)
Experiencing the weather
Sunshine warm weather
Hot or warm temperatures
Fresh air
Summer rain
Any weather
Organisational and environmental support
Perception, experience and availability of staff assistance
Visual appeal via windows
Perception, experience and availability of access
Walking aid / wheelchair availability
Reasoning/motivation/impulse related to outdoor activities (intrinsic) **Examples of outdoor activities (context)**
Drinking tea/coffee
Sitting and observing surroundings
Sensory engagement, including: experience of warmth of sunshine and fresh air; watching and listening to birds and animals; smelling and touching flowers and greenery; eating produce and berries; watching, touching and listening to water and viewing scenery and trees
Gardening
Reading
Parties and special events
People watching
Sleeping
Walking
Reasons or stimulus for outdoor use
Feelings and experiences associated with preferred activities (see above)
Connection to the past (via continuity, previous activities, familiar outdoor features)
Contact with surrounding day-to-day life via windows or entrance zones
Seasonal variation
Freedom from feeling confined
Needing to get away from other residents
Familiarity of environment
Alleviation of monotony
Alleviation of isolation
Need for privacy or to get away from indoors
Social interaction and connection with others
Back pain relief (via walking)
Fatigue relief
Spending time with family and visitors
Motivational outdoor features, including:
Choice of activity areas
Ease of access
Even ground

Entrance zones and seats
Flowers, greenery and vegetation
Memory boxes
Safety features, hand rails
Seating
Shelter and protection from elements
Walking paths and routes
Water features
Well maintained
Shelter and protection
Barriers and problems
Weather – rain, wind, colder temperatures
Lack of staff assistance
Lack of visual access from indoors
Lack of familiarity with outdoor space
Lack of activities
Heavy or locked doors
Indoor thresholds and gradient changes
Outdoors: lack of handrails, seating, way finding. Gradient changes, uneven ground, untidy and overgrown lawn
Fear of falling on slippery walks due to snow and ice
Fear of unknown (lack of familiarity)
Built up surroundings

Appendix 8 : Research Ethics Committee approval

NHS
Health Research Authority

North West - Greater Manchester South Research Ethics Committee
3rd Floor, Barlow House
4 Minshull Street
Manchester
M1 3DZ

Telephone: 02071048128

Please note: This is the favourable opinion of the REC only and does not allow you to start your study at NHS sites in England until you receive HRA Approval

14 June 2016

Professor Pip Logan
Room B108a B Floor, Division of Rehabilitation and Ageing,
School of Medicine, University of Nottingham,
Queens Medical Centre Campus, Nottingham
NG7 2UH

Dear Professor Logan

Study title:	**Rehabilitation for Outdoor Activities and Mobility in Care Homes: The ROAM Study**
REC reference:	**16/NW/0387**
Protocol number:	**16039**
IRAS project ID:	**168742**

Thank you for your letter of 2 June 2016, responding to the Committee's request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Vice-Chair.

We plan to publish your research summary wording for the above study on the HRA website, together with your contact details. Publication will be no earlier than three months from the date of this opinion letter. Should you wish to provide a substitute contact point, require further information, or wish to make a request to postpone publication, please contact the REC Manager, Mrs Kieran Hall, nrescommittee.northwest-gmsouth@nhs.net.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Mental Capacity Act 2005

I confirm that the committee has approved this research project for the purposes of the Mental Capacity Act 2005. The committee is satisfied that the requirements of section 31 of the Act will be met in relation to research carried out as part of this project on, or in relation to, a person who lacks capacity to consent to taking part in the project.

Conditions of the favourable opinion

The REC favourable opinion is subject to the following conditions being met prior to the start of the study.

1. The IRAS form is correctly uploaded after being changed.

You should notify the REC once all conditions have been met (except for site approvals from host organisations) and provide copies of any revised documentation with updated version numbers. Revised documents should be submitted to the REC electronically from IRAS. The REC will acknowledge receipt and provide a final list of the approved documentation for the study, which you can make available to host organisations to facilitate their permission for the study. Failure to provide the final versions to the REC may cause delay in obtaining permissions.

Management permission must be obtained from each host organisation prior to the start of the study at the site concerned.

Management permission should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements. Each NHS organisation must confirm through the signing of agreements and/or other documents that it has given permission for the research to proceed (except where explicitly specified otherwise). Guidance on applying for NHS permission for research is available in the Integrated Research Application System, www.hra.nhs.uk or at http://www.rdforum.nhs.uk.

Where a NHS organisation's role in the study is limited to identifying and referring potential participants to research sites ("participant identification centre"), guidance should be sought from the R&D office on the information it requires to give permission for this activity.

For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.

Sponsors are not required to notify the Committee of management permissions from host organisations

Registration of Clinical Trials

All clinical trials (defined as the first four categories on the IRAS filter page) must be registered on a publically accessible database within 6 weeks of recruitment of the first participant (for medical device studies, within the timeline determined by the current registration and publication trees).

There is no requirement to separately notify the REC but you should do so at the earliest opportunity e.g. when submitting an amendment. We will audit the registration details as part of the annual progress reporting process.

To ensure transparency in research, we strongly recommend that all research is registered but for non-clinical trials this is not currently mandatory.

If a sponsor wishes to contest the need for registration they should contact Catherine Blewett (catherineblewett@nhs.net), the HRA does not, however, expect exceptions to be made. Guidance on where to register is provided within IRAS.

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

Ethical review of research sites

NHS sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

Non-NHS sites

The Committee has not yet completed any site-specific assessment (SSA) for the non-NHS research site(s) taking part in this study. The favourable opinion does not therefore apply to any non-NHS site at present. We will write to you again as soon as an SSA application(s) has been reviewed. In the meantime no study procedures should be initiated at non-NHS sites.

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document	Version	Date
Copies of advertisement materials for research participants [Study Leaflet ROAM Study]	1.0	14 April 2016
Copies of advertisement materials for research participants [Information Poster ROAM Study]	1.0	02 June 2016
Covering letter on headed paper [IRAS Covering letter ROAM Study]		14 April 2016
Covering letter on headed paper [IRAS Covering letter ROAM Study]		02 June 2016
Evidence of Sponsor insurance or indemnity (non NHS Sponsors only) [University evidence of insurance]		21 July 2015
IRAS Application Form [IRAS_Form_25042016]		25 April 2016
IRAS Checklist XML [Checklist_02062016]		02 June 2016
Letter from sponsor [Sponsor letter]		14 April 2016
Letters of invitation to participant [Care Home Owner or Manager Invitation letter ROAM Study]	1.0	25 April 2016
Letters of invitation to participant [Care Home Owner or Manager Invitation letter ROAM Study]	2.0	02 June 2016
Non-validated questionnaire [Questionnaire Resident Characteristics ROAM Study]	1.0	14 April 2016
Non-validated questionnaire [Questionnaire Care Home Characteristics ROAM Study]	1.0	14 April 2016
Document	Version	Date
Other [Declaration Academic Supervisor]		27 April 2016
Other [Declaration CI]		27 April 2016
Other [Declaration Sponsor Rep]		27 April 2016

Participant consent form [CONSENT FORM Resident ROAM Study]	1.0	14 April 2016
Participant consent form [CONSULTEE ADVICE FORM ROAM Study]	1.0	14 April 2016
Participant consent form [CONSENT FORM Care home worker Focus Group ROAM Study]	1.0	14 April 2016
Participant consent form [CONSENT FORM Care home worker observations and questionnaire ROAM Study]	1.0	14 April 2016
Participant information sheet (PIS) [PIS Resident ROAM Study]	1.0	14 April 2016
Participant information sheet (PIS) [PIS Consultee ROAM Study]	1.0	14 April 2016
Participant information sheet (PIS) [PIS Care home worker Focus Group ROAM Study]	1.0	14 April 2016
Participant information sheet (PIS) [PIS Care home worker observations and questionnaire ROAM Study]	1.0	14 April 2016
Participant information sheet (PIS) [PIS Resident ROAM Study]	2.0	02 June 2016
Participant information sheet (PIS) [PIS Consultee ROAM Study]	2.0	02 June 2016
Participant information sheet (PIS) [Consultee Covering Letter ROAM Study]	2.0	02 June 2016
Participant information sheet (PIS) [PIS Care home worker Focus Group ROAM Study]	2.0	02 June 2016
Participant information sheet (PIS) [PIS Care home worker observations and questionnaire ROAM Study]	2.0	02 June 2016
Research protocol or project proposal [PROTOCOL ROAM Study]	1.0	14 April 2016
Sample diary card/patient card [Visit Card ROAM Study]	1.0	14 April 2016
Sample diary card/patient card [Visit Card ROAM Study]	2.0	02 June 2016
Summary CV for Chief Investigator (CI) [Research CV Philippa A Logan]	1.0	14 April 2016
Summary CV for student [Research CV Amanda King]	1.0	14 April 2016
Summary CV for supervisor (student research) [Research CV Philippa A Logan]	1.0	14 April 2016
Validated questionnaire [Seniors' Outdoor Survey (SOS) ROAM Study]	1.0	14 April 2016

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Reporting requirements

The attached document "After ethical review – guidance for researchers" gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

3 Notifying substantial amendments
4 Adding new sites and investigators
5 Notification of serious breaches of the protocol
6 Progress and safety reports
7 Notifying the end of the study

The HRA website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

User Feedback

The Health Research Authority is continually striving to provide a high quality service to all applicants and sponsors. You are invited to give your view of the service you have received and the application procedure. If you wish to make your views known please use the feedback form available on the HRA website: http://www.hra.nhs.uk/about

HRA Training

We are pleased to welcome researchers and R&D staff at our training days – see details at http://www.hra.nhs.uk/hra-training/

16/NW/0387	**Please quote this number on all correspondence**

With the Committee's best wishes for the success of this project.

Yours sincerely



On behalf of Mrs Richard Hovey Chair

Email:	nrescommittee.northwest-gmsouth@nhs.net
Enclosures:	"After ethical review – guidance for researchers"
Copy to:	Ms Angela Shone
	Ms Shirley Mitchell, Nottinghamshire Healthcare Foundation NHS Trust

Appendix 9: Research Ethics Committee Site Specific Assessment waiver

Health Research Authority

North West - Greater Manchester South Research Ethics Committee
3rd Floor, Barlow House
4 Minshull Street
Manchester
M1 3DZ

Telephone: 02071048128

15 August 2016

Ms Amanda King
Research Occupational Therapist
Division of Rehabilitation and Ageing
School of Medicine
University of Nottingham
Room B114, B floor
Medical School
Queens Medical Centre
Nottingham
NG7 2UH

Dear Ms King

Study title:	**Rehabilitation for Outdoor Activities and Mobility in Care Homes: The ROAM Study**
REC reference:	**16/NW/0387**
Protocol number:	**16039**
IRAS project ID:	**168742**

Thank you for your letter of 09 August 2016, requesting exemption from the requirement for site-specific assessment for non-NHS sites in the above study.

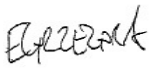
Request to exempt all non-NHS sites in a non-clinical study involving adults lacking capacity

The Committee agrees that all non-NHS sites in this study should be exempt from sitespecific assessment (SSA). There is no need to submit the Site-Specific Information Form to any Research Ethics Committee.

The favourable opinion for the study applies to all sites involved in the research on condition that management permission is obtained from the host organisation at each site.

16/NW/0387	Please quote this number on all correspondence

Yours sincerely



Miss Ewa Grzegorska
REC Assistant

Email: nrescommittee.northwest-gmsouth@nhs.net

Copy to: Professor Pip Logan

A Research Ethics Committee established by the Health Research Authority

Ms Angela Shone

Ms Shirley Mitchell,
Nottinghamshire Healthcare Foundation NHS Trust

Appendix 10: Field note template

Observation Field Notes					
Care Home	Date	Location	Observation duration AM/PM	Care staff on duty	Weather at outset
				AM: CW x PM: CW x AM/PM: TL x	

Field notes key:
Description = [ ]
Rough theory ideas = *italics red text*
Theory questions = Q: blue text
Observer impact on behaviour and practice = green text
Personal Reactions = ( )
Recall of Forgotten Material = RFM
Abbreviations:
Care Worker = CW
Activity Coordinator = AC
Participating residents: Initials

Setting description on arrival

Time observations commenced:

Appendix 11: RAMESES Email Advice 2

-----Original Message-----

Subject: Observation
From: Freda Browne
Sender: Realist and Meta-Narrative Evidence Synthesis: Evolving Standards" on behalf of Freda Browne
Date: Wed, 12 Apr 2017 16:16:55

Hi all,

I am about to start my conjectured CMO configuration testing. I will be conducting observations and preforming interviews. The purpose of both observation and interviews is recognising the realist principle that reality is stratified. I have engaged with the realist interview from the first phase of my study. Now, my focus is on designing a realist observation (if there is such a thing?). Most studies that I have read do not provide methodological details on their observation. Can anyone advise if there any realist methodological factors which I have missed that I need to take into consideration prior to observation?

Thanks,

Freda

Subject: **Re: Observation**

From: Gill Westhorp

Reply-To: Realist and Meta-Narrative Evidence Synthesis: Evolving Standards"

Date: Thu, 13 Apr 2017 13:23:36

Hi Freda

Very good question. One quick point - only some parts of a CMO will be observable. By definition, mechanisms are not directly observable (or at least, not at the same level of the system at which the intervention activities are conducted or the outcomes are observed). Observations will, I suspect, tell you most about implementation and context, both of which are relevant to whether or not mechanisms might fire - but not evidence that they do. If you are able to LINK interviews to observations in a very 'real-time' kind of way, you might be able to ask people about their 'reasoning' at the time, which might help with evidencing the mechanisms.

Cheers Gill

Appendix 12: Dementia Care Mapping certificate & research approval

UNIVERSITY of BRADFORD

Certificate of Attendance

It is hereby certified that

Ms Amanda King

has completed the following programme of learning:

Dementia Care Mapping™ for Realising Person-centred Care

Dementia Care Mapping™ 8th Edition

12 – 15 January 2016

with assessments, and thereby is qualified as a

Basic User of the Dementia Care Mapping™ Method

Date 28.01.2016

Murna Downs

Professor Murna Downs
Head, Bradford Dementia Group

Pamela J. Bagley

Dr Pam Bagley
Dean, School of Health Studies

King Amanda
Reply |
Fri 22/01/2016, 11:06
m.downs@bradford.ac.uk
Hello Murna,
I am a 2nd year PhD student at the University of Nottingham and a NHS Occupational Therapist in care homes. My principle supervisor is Professor Pip Logan and Sarah Goldberg (trained mapper) is a mentor.

I have just completed the last DCM course run at Bradford (12th-15th January 2016) and I would like to use the tool for part of my PhD observation study in care homes. Sharon Jones advised me to contact you as I will need permission from the Bradford Group to proceed.

The overall aim is to develop a programme or resources to improve residents' engagement in outdoor activities and mobility in care home gardens/outdoor areas. I am currently working on the finer detail of my Protocol for ethical submission. Using a realist approach, I am planning to conduct observations in three of the care homes (without nursing) that I work in for Nottinghamshire Healthcare Foundation Trust, subject to IRAS and Trust R&D approvals.

Please could you let me know the process for permission to use the Tool in my research - I would love to return to Bradford to discuss my study, so if a face-to-face meeting would be better, that is no problem. I am currently arranging to complete my 'new mapper' IRR testing with Kate Fisher in her organisation in Derby (Methodist Homes). I am also hoping she will provide some testing at one of my study sites, before I conduct my mapping for research.
I look forward to hearing from you.
Kind regards,
Amanda

Murna Downs <m.downs@bradford.ac.uk>
Reply |
Mon 01/02/2016, 14:59
King Amanda;
Inbox
Hello Amanda

Apologies for my delayed reply. Please do go ahead with your interesting work. If we can help in any way please let me know.

With best wishes for now

Murna

Appendix 13: Resident mobility status

Figures 15 and 16 show the indoor and outdoor mobility status of residents in care home A.

Figure 15: Care home A - Indoor mobility status

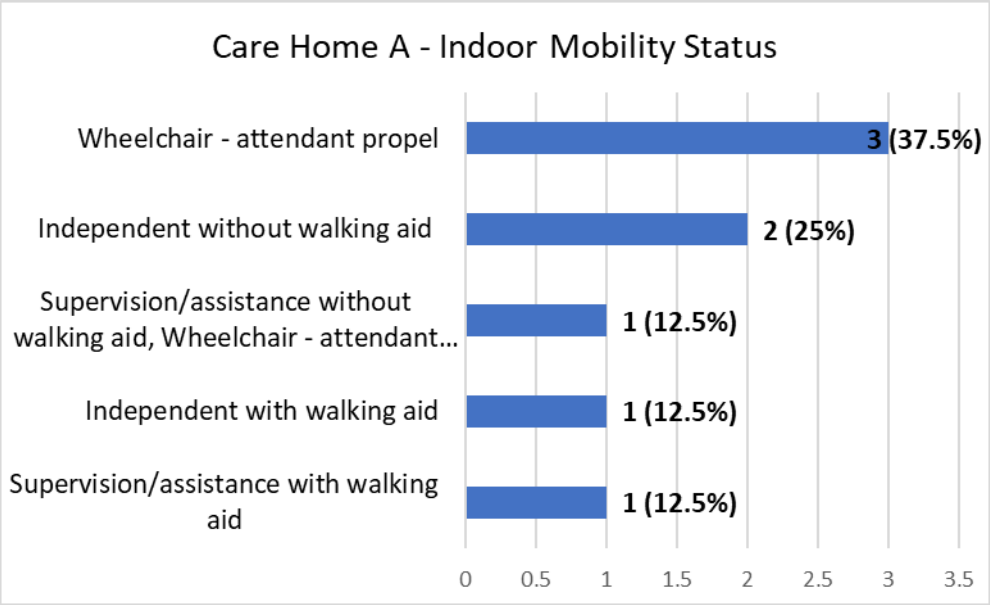
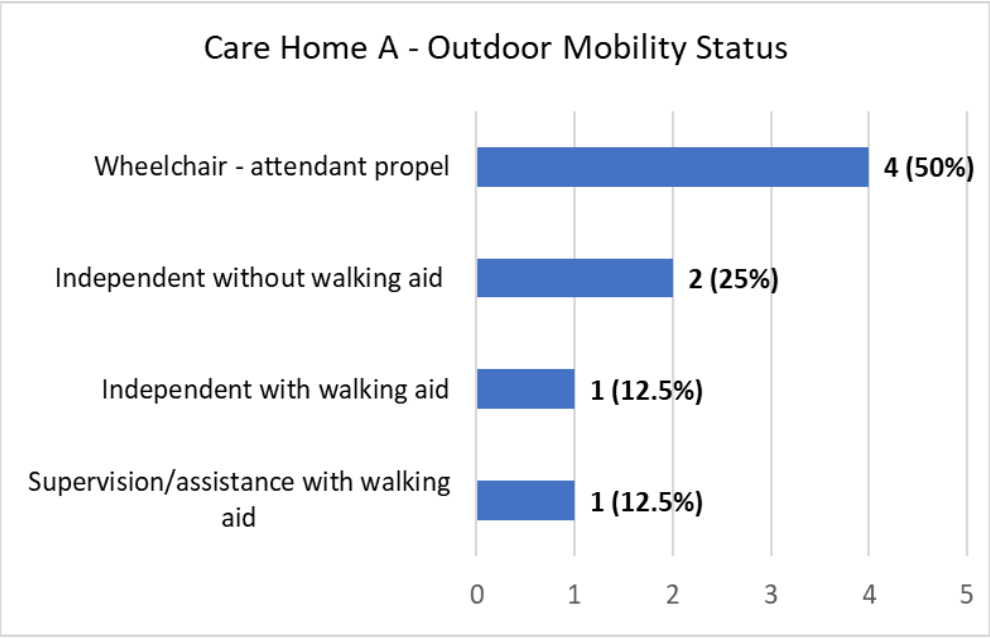


Figure 16: Care Home A - Outdoor mobility status



Figures 17 and 18 show the indoor and outdoor mobility status of residents in care home B.

Figure 17: Care home B - Indoor mobility status

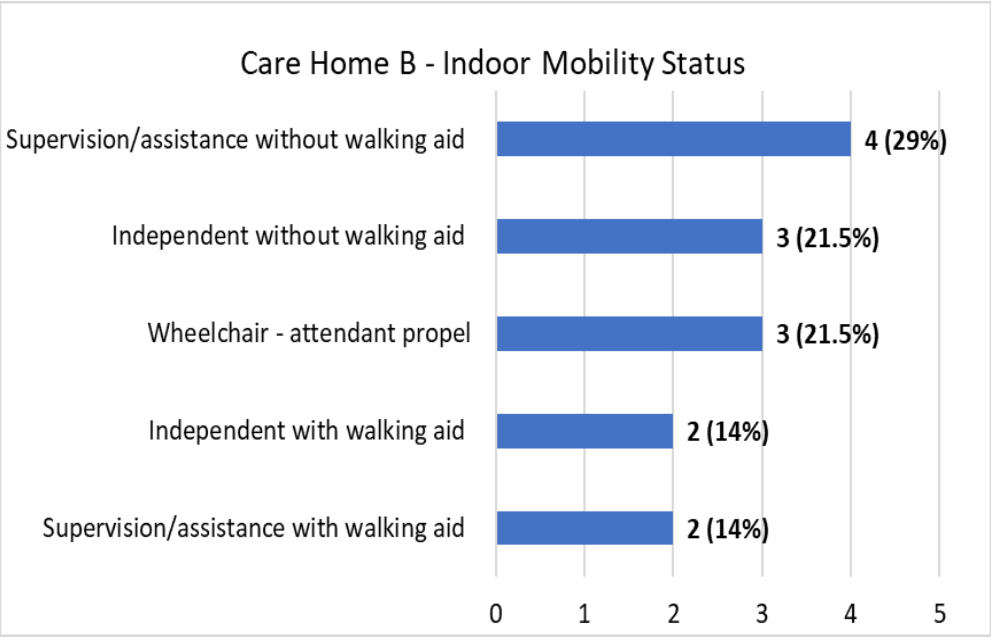
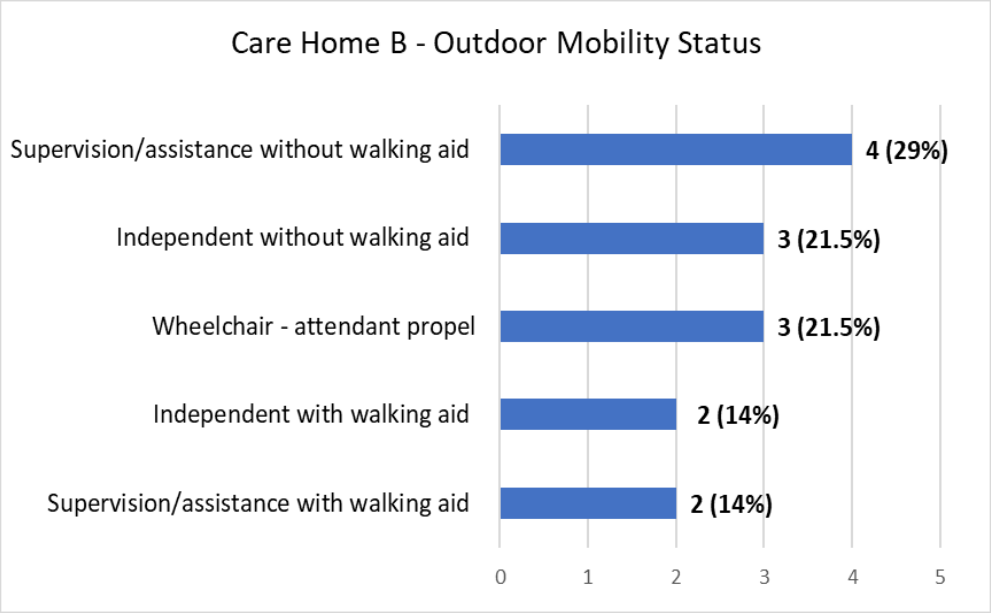


Figure 18: Care home B - Outdoor mobility status



Figures 19 and 20 show the indoor and outdoor mobility status of residents in care home C.

Figure 19: Care home C - Indoor mobility status

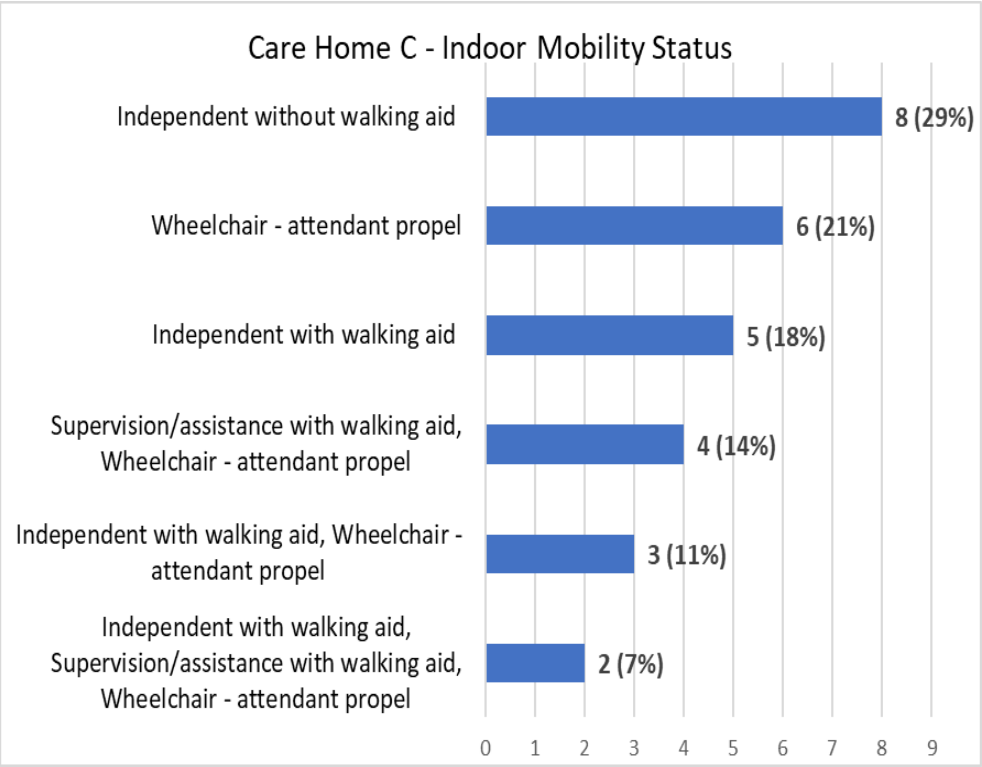
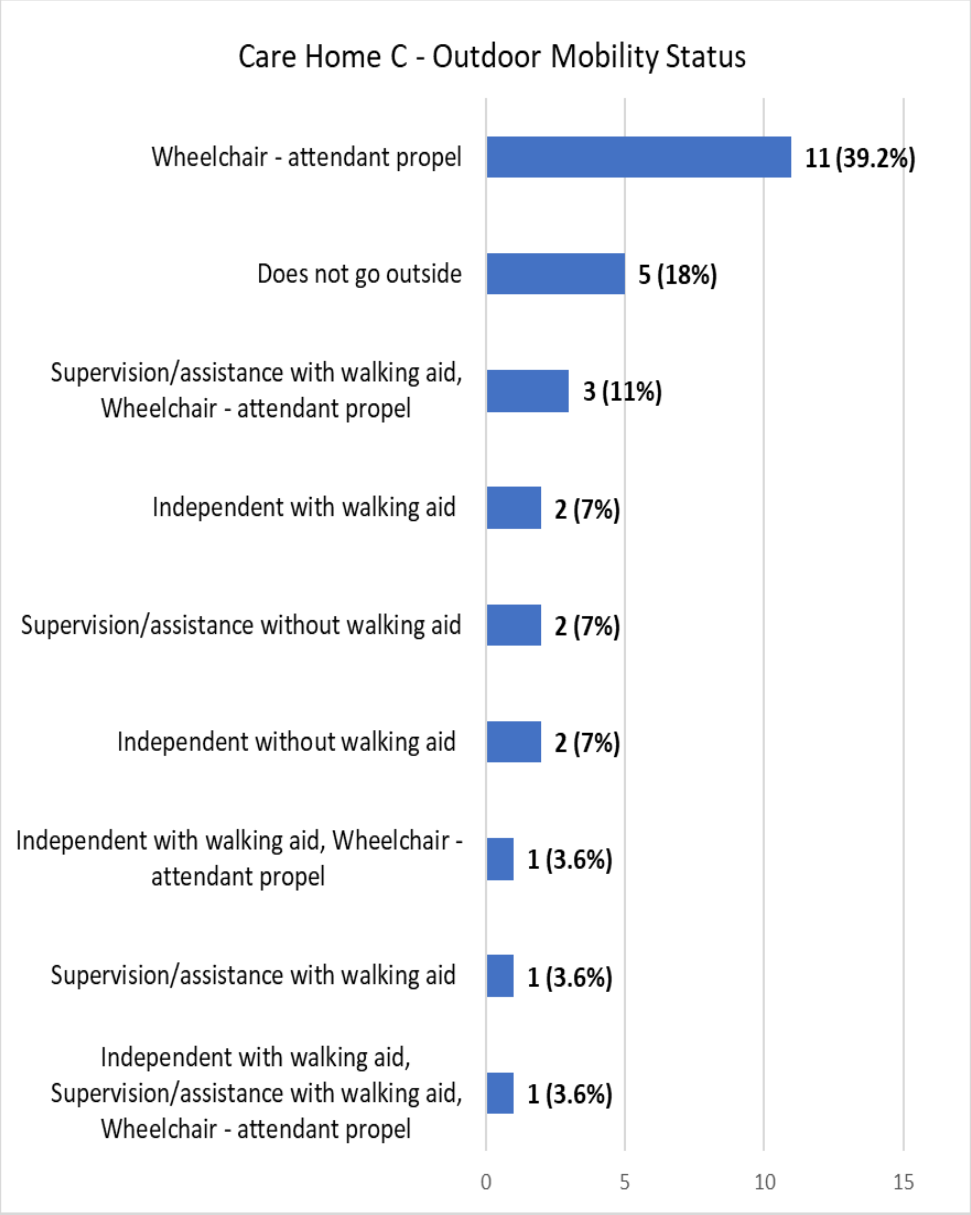


Figure 20: Care home C - Outdoor mobility status



Figures 21 and 22 show the combined results for residents' indoor and outdoor mobility.

Figure 21: Care homes' A, B, C – Indoor mobility status

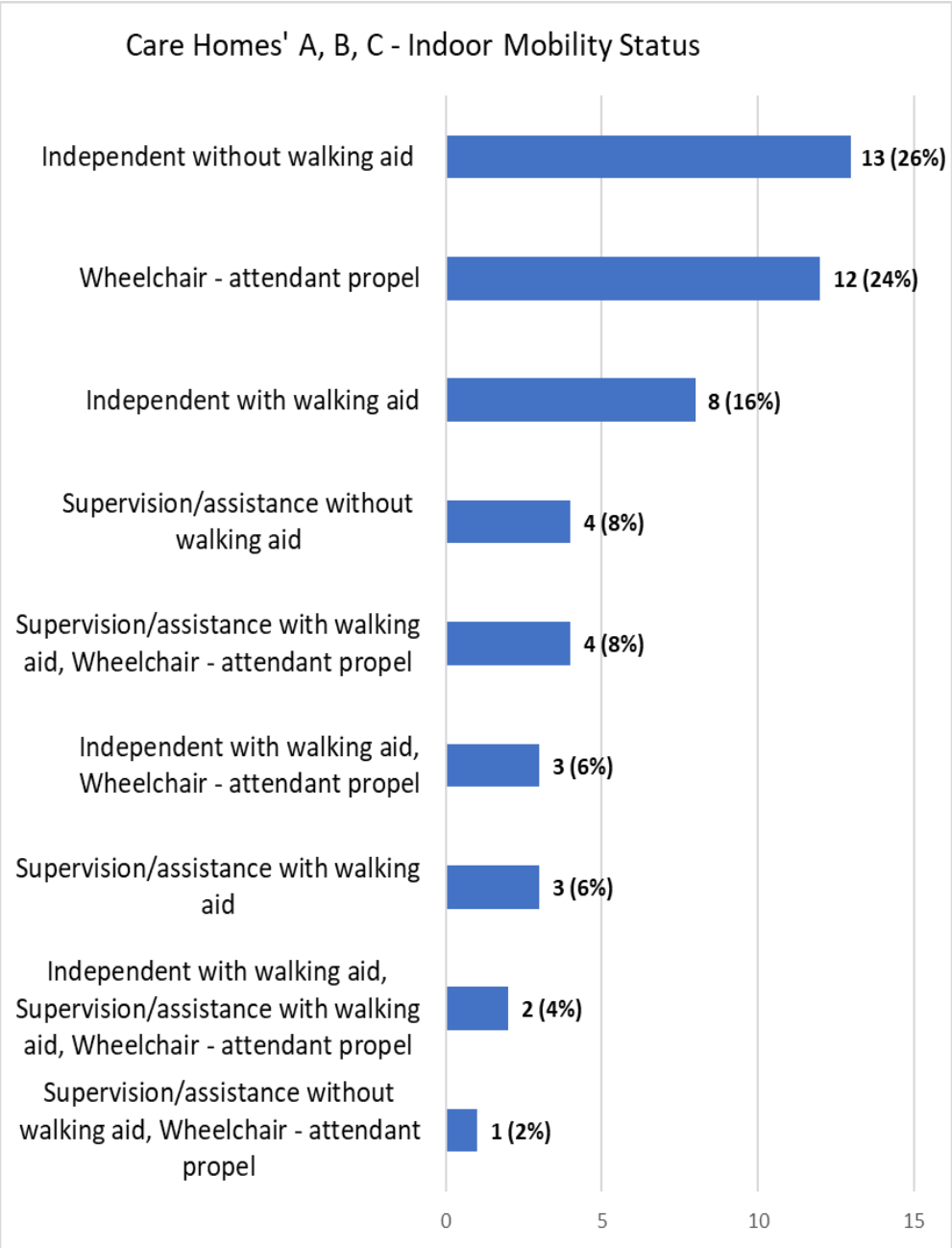
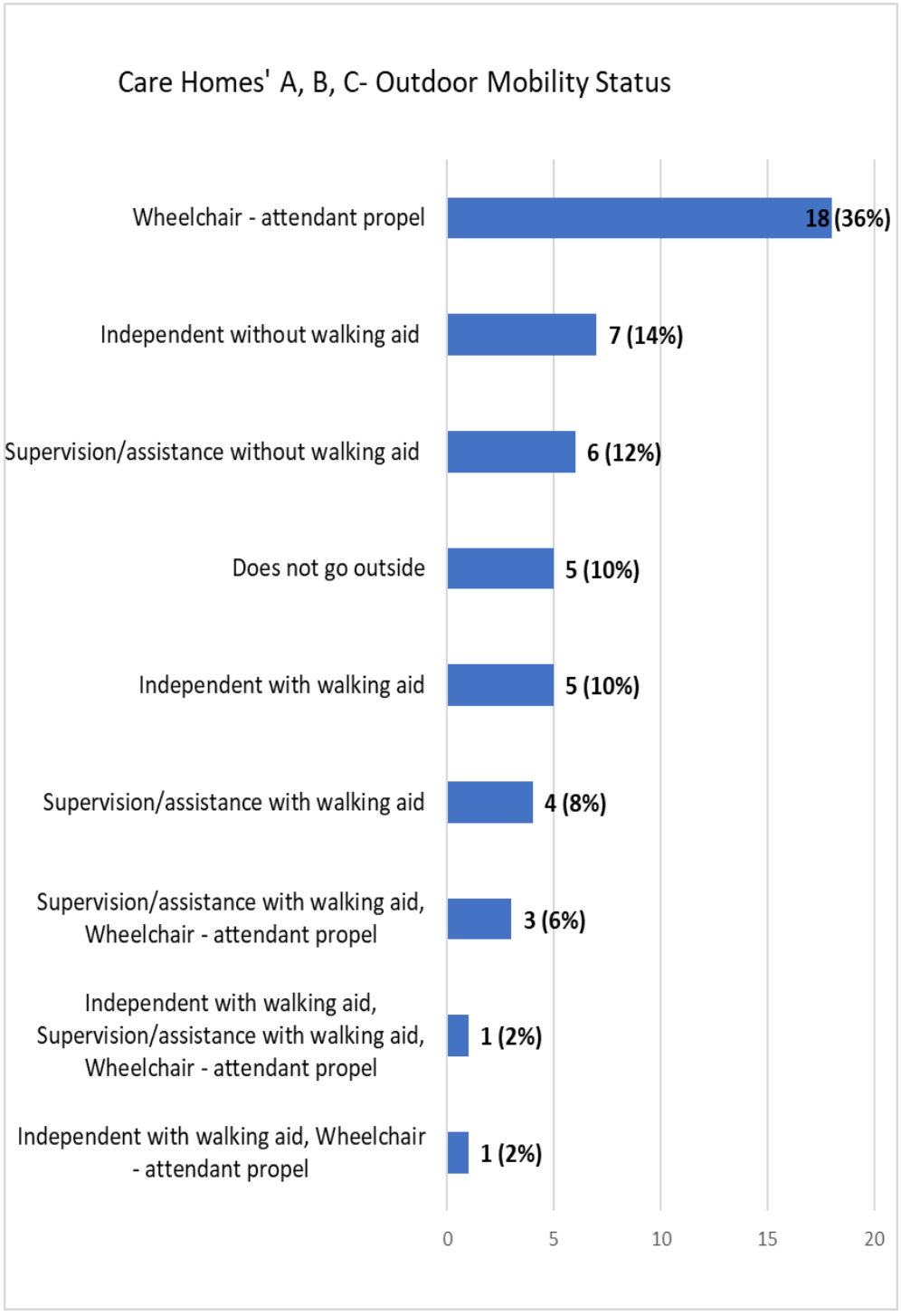


Figure 22: Care homes' A, B, C – Outdoor mobility status



Appendix 14: Research Ethics Committee Substantial Amendment Approval

NHS
Health Research Authority

North West - Greater Manchester South Research Ethics Committee
3rd Floor, Barlow House
4 Minshull Street
Manchester
M1 3DZ

Tel: 0207 104 8002

20 December 2016

Ms Amanda King
Research Occupational Therapist
Division of Rehabilitation and Ageing
School of Medicine
University of Nottingham
Room B114, B floor
Medical School
Queens Medical Centre
Nottingham
NG7 2UH

Dear Ms King

Study title:	**Rehabilitation for Outdoor Activities and Mobility in Care Homes: The ROAM Study**
REC reference:	**16/NW/0387**
Protocol number:	**16039**
Amendment number:	**Substantial Amendment 1**
Amendment date:	**01 December 2016**
IRAS project ID:	**168742**

The above amendment was reviewed by the Sub-Committee in correspondence.

Ethical opinion

Approval was sought for a request to introduce an incentive payment for the focus groups

The members of the Committee taking part in the review gave a favourable ethical opinion of the amendment on the basis described in the notice of amendment form and supporting documentation.

Approved documents

The documents reviewed and approved at the meeting were:

Document	*Version*	*Date*
Covering letter on headed paper		02 December 2016
Notice of Substantial Amendment (non-CTIMP)	Substantial Amendment 1	01 December 2016
Research protocol or project proposal	2.0	01 December 2016

Membership of the Committee

The members of the Committee who took part in the review are listed on the attached sheet.

Working with NHS Care Organisations

Sponsors should ensure that they notify the R&D office for the relevant NHS care organisation of this amendment in line with the terms detailed in the categorisation email issued by the lead nation for the study.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

We are pleased to welcome researchers and R & D staff at our Research Ethics Committee members' training days – see details at http://www.hra.nhs.uk/hra-training/

16/NW/0387:	**Please quote this number on all correspondence**

Yours sincerely

On behalf of
Professor Sobhan Vinjamuri
Chair

E-mail: nrescommittee.northwest-gmsouth@nhs.net

Enclosures: List of names and professions of members who took part in the review

Copy to: Ms Shirley Mitchell,
Nottinghamshire Healthcare Foundation NHS Trust
Ms Angela Shone
Professor Pip Logan

North West - Greater Manchester South Research Ethics Committee

Attendance at Sub-Committee of the REC meeting

Committee Members:

Name	*Profession*	*Present*	*Notes*
Mr Richard Hovey	Business Analyst	Yes	
Professor Sobhan Vinjamuri **Chair**	Consultant in Nuclear Medicine	Yes	

Also in attendance:

Name	*Position (or reason for attending)*
Miss Ewa Grzegorska	REC Assistant