

Environmental Design for People living with dementia in Extra Care Housing

Literature Review for the Extra Care Charitable Trust

February 2018

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Background

A scoping literature review strategy was used to search for evidence adopting the Arskey and O'Malley (2005) review methodology. This type of scoping review can be used to map a research area, determine main sources or types of evidence available and identify knowledge gaps (Parke et al, 2017). The following operational definitions were used:

Dementia

Dementia is a syndrome – usually of a chronic or progressive nature – in which there is deterioration in cognitive function (i.e. the ability to process thought) beyond what might be expected from normal ageing. It affects memory, thinking, orientation, comprehension, calculation, learning capacity, language, and judgement.

Consciousness is not affected. The impairment in cognitive function is commonly accompanied, and occasionally preceded, by deterioration in emotional control, social behaviour, or motivation. (WHO, 2017)

Extra Care Housing

Extra care housing comes under the umbrella of housing with care. There are many terms for this type of housing but the use of the term extra care housing is becoming more embedded in the language used to promote a range of housing options for older people. Broadly, extra care housing offers purpose-built, accessible building design that promotes independent living and supports people to age in place; fully self-contained properties where occupants have their own front doors, and tenancies or leases which give them security of tenure and the right to control who enters their home; access to care and support services 24 hours a day; community alarms and other assistive technologies; safety and security often built into the design with fob or person-controlled entry; office for use by staff serving the scheme and sometimes the wider community; communal spaces and facilities which may include gym, well-being centre, library, hairdressers, shop, laundry, café, restaurant and activity spaces (adapted from Riseborough et al, 2015). Extra care has the “aim of meeting the housing, care and support needs of older people while helping them maintain independence in their own private accommodation” (Netten et al, 2011, p. 4).

Dementia Friendly Environment

An adapted physical environment which can have a therapeutic effect on people with dementia, helping them to improve and preserve their well-being, behaviour, independence and functionality (Parke et al, 2017)

Overview

There is:

Good evidence to demonstrate that extra care housing is a beneficial environment for older people.

Good evidence for designing environments for people living with dementia in a range of settings including accommodation settings (extra care housing, residential care, nursing homes, own home) and acute settings (in-patient wards).

Evidence to show that assessment of environments is important (Waller, Masterson & Evans, 2016).

Evidence from a range of other good practice guidelines to support people living with dementia.

Scoping review search strategies

The scoping review was performed using a Google search, Google Scholar and also the University of Worcester online library search which included a search of journals, books, ebooks and other library resources. The Worcester search engine covers a range of databases including CINAHL Plus, Medline, Academic Search Complete, PsychINFO and Science Direct.

Search terms included, but were not restricted to:

Dementia; environment; cognitive impairment; housing with care; extra care housing; social interaction; design; dementia friendly.

The Extra Care environment

Living in an extra care setting can have significant benefits. A three-year study by Aston University in collaboration with the Extra Care Charitable Trust demonstrated significant benefits on resident health and well-being whilst living in extra care. Benefits included a reduction in depressive symptoms, significant costs savings both at lower level and higher level social care, improvements in memory, reduction in NHS costs and concluded, overall, that this is an environment where age matters less (Holland et al, 2015). Reduction in social isolation and loneliness is also a key government objective for older adults and is at the centre of the development of age-friendly cities and dementia friendly communities. Putting People First (2007), recognised that citizens live independently but are not independent; they are interdependent on family members, work colleagues, friends and social networks. These social networks can be fostered and built in the extra care environment though increased opportunities for social interaction and strong community links (Evans and Vallely, 2007).

Reduction in costs are of particular interest from a fiscal perspective in such austere times and there is a move to creating environments which encourage and facilitate people to live at home for longer as they age:

'By 2020, we would like to see an increased number of people with dementia being able to live longer in their own homes when it is in their interests to do so, with a greater focus on independent living.' (Department of Health, 2010)

Adaptations to the home environment can make a significant difference to quality of life for older adults in general as well as people living with dementia. Powell et al (2017) advocate that 'adapting the home can increase the usability of the home environment and enable the majority of people to maintain their independence for as long as possible' (p.4) but add that the majority of older people live in mainstream housing with features such as steep stairs and inaccessible bathing facilities which become unsuitable as they age. With older people wanting to "live well at home by remaining independent and in control of how and where they live their lives" (Counsel & Care, 2011, p. 7), extra care schemes have become an attractive housing offer, particularly as more recent developments are focusing on design features to ameliorate physical, cognitive and psychological difficulties.

Evidence for designing environments for people living with dementia

Supporting people to live well with dementia has become a national and global priority (Department of Health, 2009; Department of Health, 2010; 2015; WHO, 2012). Globally numbers of people living with dementia are estimated to be in the region of 36 million with this figure doubling by 2030 and projected to be more than tripled by 2050 (WHO, 2012). In the United Kingdom, there are currently 850,000 living with dementia with the figure projected to be over 1 million by 2025 (Alzheimer's Society, 2014)

There are an estimated two thirds of people living with dementia in their own homes. Of this population, one third live alone and one third live in housing with care (Alzheimer's Society, 2014). Recent figures from the Extra Care Charitable Trust Dementia Report (June 2017) estimate dementia prevalence in villages to be 11.4% and 18.9% in schemes.

Extra care housing has the potential to support people with dementia to live independently, particularly at different stages in the disease (Evans & Means, 2006; Evans et al, 2007). Extra care housing can promote a good quality of life for people with dementia, with those at middle to late stage dementia experiencing same or better quality of life in assisted living environments compared to long-term care centres (Means et al, 2006; Reimer et al., 2004). A study of 23 extra care schemes found significant associations between several aspects of building design and quality of life (Orrell et al., 2013). Torrington (2006) had previously highlighted the role of architecture in promoting quality of life in care homes and extra care housing settings, suggesting that a more creative approach to the management of buildings would enhance the well-being of residents

People with dementia experience a range of physical, cognitive and psychological symptoms, in addition to experiencing loneliness and social isolation (Alzheimer's Society, 2013). The built environment can introduce challenges for people with dementia and also negatively impact upon their condition (Jackson & Kochtitsky, 2001; Ebersole, Hess & Schmidt-Luggen, 2004; van Hoof & Kort, 2009). Poorly designed, inaccessible community living environments can impact on confidence, further isolating individuals as captives in their own homes; 'an impairment becomes a disability only when the built environment does not compensate for impairments' (Utton, 2009, p. 380). Hadjri et al, (2012) note that due to a loss of cognitive ability, a suitably designed physical environment is recognized as important in overcoming behavioural issues, providing comfort, assisting with wayfinding and promoting independence.

There is now a substantial body of evidence to demonstrate that adaptations to the environment can have significant benefits to individuals living with dementia.

Systematic reviews

There is good evidence from recent systematic reviews that adaptations to the home setting/care setting can be beneficial to people living with dementia. Even where evidence comes from settings such as clinical and acute environments, the learning is beneficial for the overarching understanding of how people use the environment and how this can inhibit or facilitate their well-being.

Soilemezi et al (2017) highlighted the need for a systematic review exploring environmental features and strategies that were helpful to people living with dementia in the **home environment**. Their review of 40 qualitative studies identified that accessible and adaptable design reduces emotional and physical demands for the carer whilst encouraging comfort and independence for the person with dementia (p 25). Included amongst the strategies they identify as helpful were:

Transformative strategies	Adjusting the home space and objects Creating wider doorways Adjusting the lighting
Subtractive strategies	De-cluttering Reducing distractions Hiding and disguising objects and spaces Avoiding exposure to irrelevant or multiple stimuli
Additive strategies	Auditory, tactile and visual cues as reminders Introduction of colour Labelling Handrails and grab rails

Table 1: Useful Strategies for people living with dementia at home (Soilemezi, 2017)

Marquardt et al (2014) conducted a review of the impact of the design of the built environment on people with dementia in **long-term care settings**. The 169 studies included in the review were summarized into four main categories; basic design decision; environmental attributes, ambience and environmental information. The review identified features which were beneficial such as small scale environments, building layout and lighting, reduced noise level, use of colour & contrast, non-institutional character and the introduction of visual cues and visual barriers. Marquardt et al (2014) conclude that design features in long term care environments are effective on behaviour, function, well-being, social abilities and orientation and care outcomes in people living with dementia.

Parke et al (2017) report on the findings of a knowledge synthesis research project which explored dementia friendly design in **acute settings**. They acknowledge that ‘physical design influences the usability and activity undertaken in a health care space and ultimate affects patient outcomes’ citing 28 primary studies plus expert review narratives. Their outcomes look at environments which will foster positive aspects of well-being, reduce harm and facilitate connectivity:

Foster:	Confidence Autonomy Independence in activities of daily living Problem solving
Promote harm reduction by:	Facilitating safe mobility Reducing stress and anxiety Supporting cognitive ability Enabling restful sleep
Facilitate:	Family contact and care giving

Table 2: Adapted from Parke et al, 2017

The work of Harris et al (2002) identified three dimensions of the physical environment: architectural features, interior design features and ambient features:-

Architectural features	Spatial layout, room size, window placement
Interior design	Furnishings, colours, artwork
Ambient features	Light, noise levels, odours, temperature

Table 3: Adapted from Harris et al, 2002

Environments to support social engagement

Social interaction can be problematic for people living with dementia. As the ability to communicate diminishes on a verbal level, the ability to interact with others becomes limited. This is exacerbated by environments where there is a high level of stimulation mediated through different senses (auditory, visual, olfactory, etc) which can create cognitive overload. This is challenging and exhausting for people with cognitive impairments who can no longer filter out extraneous information. Creating environments where there are quiet spaces, resting points and serendipitous opportunities for social engagement gives those with dementia an opportunity to remove themselves from overwhelming environments.

Facilitating social interaction should not be thought of in restrictive terms and emphasis should be placed on supporting informal social interaction as well as that which occurs through engagement in planned activities. It is well known that people with dementia like to walk so creating an environment which facilitates interaction along walking paths and corridors maximises opportunities for social inaction. Corridors should be well lit with appropriate way-finding cues but also the addition of alcoves can create opportunities for people to rest and to meet others (Passini et al, 1998). Well-defined social spaces incorporating smaller semi-private and larger semi-public spaces, offers residents a choice of areas for social engagement (Hauge & Heggen, 2008; Marsden, 2005; Rule et al, 1992). Mealtimes, dining rooms, restaurants and cafes all offer the opportunity for social

interaction with opportunities maximised through the use of small scale seating and table arrangements (Day et al, 2000; Diaz Moore, 1999).

Outdoor spaces can also provide opportunity for social interaction and are better utilised if they are an integral part of the everyday environment (Davis et al, 2009; Chalfont & Rodiek, 2005). A scoping literature review commissioned by Natural England (Clarke et al., 2013) found that social interaction and access to outdoor spaces are important factors for improving the quality of life for people with dementia (Barrett, 2018). Ensuring garden paths are easy to walk and way find, providing sheltered seating areas with a variety of accessible seating and providing points of interest, all offer opportunities for activity, privacy or social interaction (Marsden et al, 2001; Pollock, 2001, Perez et al, 2001). Gardening activities such as planting can easily be facilitated through the use of raised beds, window or patio planters and moveable potting tables. These again offer the opportunity for spontaneous social engagement as well as planned activities.

Environmental Assessment

The progressive decline of cognitive abilities and the changing nature of the illness means that the needs of people with dementia alter throughout their journey (Habell, 2013; Marquardt, 2014). This therefore creates a need for a responsive model of environmental adaptation which can provide optimal interventions against a backdrop of common design features. It also dictates that environments should not only draw on best practice but should also be regularly assessed and revisited to ensure they are still meeting the needs of the people using those spaces.

Waller et al (2016) reported on the development of the Kings Fund Environmental Assessment Tools which includes a suite of resources for assessing hospitals, care homes, health centres and housing as well as peoples' own homes. These tools have been shown to be effective in demonstrating the need for improvements which have a positive effect on patient outcomes and staff morale. The assessment tools can be downloaded free of charge from: <https://www.worcester.ac.uk/discover/kings-fund-environmental-assessment-tools.html>. Each assessment tool offers the user the opportunity to walk around an environment and score sections on a 1 to 5 scale, with 1 being 'barely met' and 5 being 'totally met'. The sections cover areas such as:

- Meaningful activity and purposeful engagement
- Well-being
- Eating & drinking

- Mobility
- Continence and hygiene
- Orientation
- Calm, safe and secure environment.

The assessment has been designed to enable it to be completed by people living with dementia. It is recommended that the assessment be completed by at least two people to gain differing perspectives. A summary sheet is provided at the end of the assessment tool to identify areas for improvement.

Best Practice Guidelines

In addition to the literature cited above, there are best practice guidelines associated with designing environments for people living with dementia:

The Housing Charter (Alzheimer's Society, 2017) was produced to make the housing sector aware of the challenges of living with dementia so that home environments could be improved. Organisations who sign up to the Charter through the Alzheimer's Society are demonstrating their support and action for a number of commitment statements which will be a catalyst for positive change within the sector. These statements are divided up into 3 areas; people, places and processes.

Making your home dementia friendly (Alzheimer's Society, 2017) this booklet, produced by the Alzheimer's Society in 2015, is freely available. It offers practical advice on different aspects of the home environment and explains why these adaptations are important for people living with dementia. There is a useful checklist and list of useful organisations with contact details.

The Health Building Note on Dementia Friendly Health & Social Care Environments (Department of Health, 2016) demonstrates the elements of the built environment which make a difference to the quality of care and takes examples from both NHS and social care environments. This is available to download from:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/416780/HBN_08-02.pdf

The Alzheimer's Association (2009) produced a Dementia Care Practice guide with recommendations for professionals working in a home setting. Many of the well described best practice elements refer to environmental adjustments and adaptations which can be effective in supporting people with dementia to enjoy a greater sense of well-being.

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