Defining Activities of Daily Living for the Design of Dementia Care Environments

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Abstract. Activities of daily living (ADLs) are an important part of dementia care due to their impact on quality of life. This study looked at perceptions of ADLs in the context of designing dementia care environments through an online questionnaire targeted at design professionals and healthcare workers. Participants suggested that certain activities such as physical activity and social interaction, which go beyond the traditional definition of ADLs, are also highly important considerations in the design of dementia care homes. The results suggest that current definitions of ADLs may be too restrictive. This has implications for care practice and care home design.

Keywords. Dementia, Human Factors, ADLs, care home.

1. Introduction

Dementia is a neurodegenerative disorder which is characterized by symptoms such as confusion, memory loss, and functional and perceptual impairments. It is highly prevalent across the world; in 2010 there were an estimated 35.6 million people with dementia (PWDem) globally (Prince et al., 2013). The symptoms of dementia mean that PWDem are often unable to live independently, and that they are therefore likely to have to move into a care home rather than stay in their own homes.

The design of care homes for PWDem is highly important; while good design has the potential to improve quality of life and promote independence (Cioffi, Fleming, Wilkes, Sinfield, & Le Miere, 2007; Day, Carreon, & Stump, 2000; Fleming & Purandare, 2010), poor design can exacerbate existing impairments and in turn cause more difficulties for PWDem and their carers (Day et al., 2000).

Activities of daily living (ADLs) are activities that are considered to be essential to everyday life. This term generally covers activities such as eating, bathing and toileting (Galasko et al., 1997; Katz, Down, Cash, & Grotz, 1970). Other activities which are commonly part of everyday life, such as cooking and grocery shopping (Cromwell, Eagar, & Poulos, 2003; Lawton & Brody, 1969), may be classed as instrumental activities of daily living (IADLs). IADLs are non-essential activities which can improve quality of life.

Enabling PWDem to engage in ADLs and IADLs is important due to their potential impact on wellbeing and independence (Brooker & Duce, 2000; Wallhagen et al., 2001). This can in part be achieved through the design of care homes. However, it is unclear how far the activities which are commonly thought to form these categories are relevant to PWDem.

For this reason, the aims of this study were to examine perceptions of ADLs in relation

to PWDem and to examine design priorities in the context of dementia care environments, from the perspective of design professionals, healthcare professionals, and those working in dementia training.

2. Methods

2.1 Materials
An online questionnaire was used for the study to explore lists of ADLs and IADLs (Galasko et al., 1997; Katz et al., 1970; Lawton & Brody, 1969; Nouri & Lincoln, 1987; Patterson et al., 1992; Schuling, de Haan, Limburg, & Groenier, 1993; Wade & Collin, 1988) and to determine which activities generally came under these two categories. ADL and IADL activities were presented alongside additional activities or behaviours such as sundowning, which are also thought to be relevant to PWDem. Activities were presented in a random order to avoid potential response biases. Draft versions of the questionnaire were reviewed iteratively by an architect and an occupational therapist to assess their relevance to the topic and the target population. Feedback was used to improve the questionnaire and the final version was distributed to participants.

2.2 Participants
Participants were recruited through a wide range of social media websites and via email. The targeted populations included design professionals with experience of designing for care homes (predominantly architects and interior designers), care managers, care delivery workers, and those working in dementia training. These groups were chosen in order to obtain responses from people with different experiences and perspectives. Potential participants were not eligible for the study if they did not work in a field related to care home design or dementia care.

2.3 Procedure
Participants were asked to complete a short online questionnaire on designing for dementia care environments.

2.4 Ethics
The study was granted ethical approval by Loughborough University. Participants were given a brief explanation of the aims of the study to enable them to provide informed consent. Consent was implied if after reading the aims of the study, they decided to complete the questionnaire. Participants were also reminded of their right to withdraw from the survey at any point.

3. Results

Data were collected from 129 participants with 113 valid responses. Data were analysed using SPSS 22.0 and NVivo10.

3.2 Design considerations
Fifty percent of the 106 participants confirmed that they had previously been involved in the design of a dementia care home. A range of activities and task behaviours considered in the design of a dementia care home were reported (Figure 1). The top 3 activities or task behaviours (Table 1), and most important design considerations (Table 2), were found to be different for care delivery workers, care managers and designers.

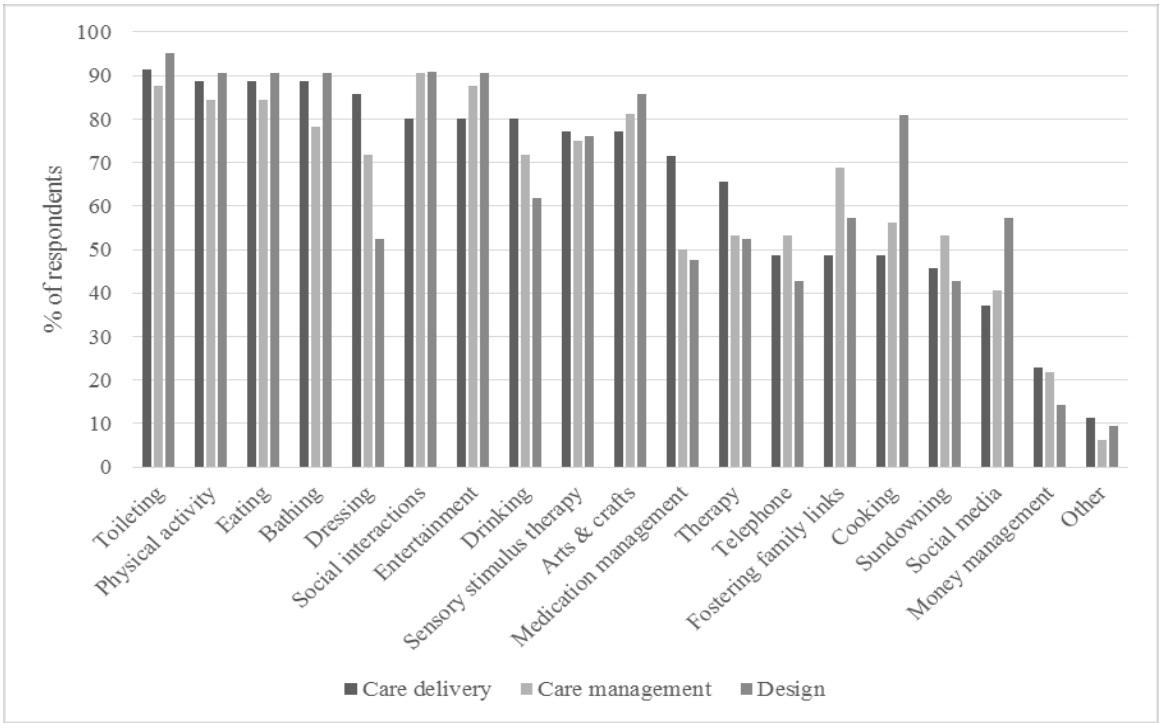

Figure 1: Activities and task behaviours previously considered in dementia care home design

3.1 Occupational background and experience of dementia

Forty-one and 38 participants worked in care management and care delivery respectively. Twenty-six participants worked in design, and 3 worked in dementia training. Five participants worked in other fields relating to dementia. Participants had experience of Alzheimer's disease (n=110), vascular dementia (n=108), dementia with Lewy Bodies (n=99), and fronto-temporal dementia (n=97).

Table 1: Top 3 activities or task behaviours in the design of a dementia care home

Activity	Care delivery (%)	Activity	Care management (%)	Activity	Design (%)
Eating	58.82	Social interactions	61.29	Social interactions	66.67
Social interactions	41.18	Physical activity	54.84	Physical activity	52.38
Physical activity	41.18	Eating	38.71	Toileting	42.86

Table 2: Most important design considerations

Design consideration	Care delivery (%)	Design consideration	Care management (%)	Design consideration	Design (%)
Safety	29.41	Safety	28.13	Safety	25.00
Choice	26.47	Choice	18.75	Lighting	25.00
Lighting	11.76	Lighting	15.63	Dignity	20.00
Dignity	11.76	Dignity	12.50	Choice	10.00
Privacy	5.88	Spatial relationships	9.38	Spatial relationships	10.00

Colour	5.88	Signage	6.25	Signage	5.00
Flooring	2.94	Privacy	3.13	Windows	5.00
Tactile materials	2.94	Colour	3.13	Privacy	0.00

3.3 Activities of daily living

Participants were asked to give a personal definition of the term ADL. Responses were analysed to determine which activities were mentioned, and whether or not these activities would typically be classified as ADLs. The numbers of "traditional ADLs" (activities such as eating, dressing and bathing) and "additional ADLs" (activities such as social interaction and leisure activities) included in the definitions were roughly equal for care delivery workers and designers, and differed slightly amongst care managers (Table 3).

Table 3: Number of mentions of traditional ADLs and additional ADLs

	Care delivery (n)	Care management (n)	Design (n)
Traditional ADLs	17	14	10
Additional ADLs	18	22	12

3.3 Design solutions

The design solutions proposed by participants covered several different areas. One of the most popular was physical activity, with solutions including the use of wandering loops, landmarks, wayfinding cues and activity spaces. Another popular activity was eating, and design solutions included the use of small, homely dining areas, providing space for staff to eat with residents, and using contrasting tableware. For sundowning, it was suggested that skylights, adjustable lighting, and having more space to wander could help. For toileting, solutions included using clear signage at an appropriate height, contrasting colours, and good lighting. Accessible day centres, small social spaces, and grouped seating were suggested as ways to promote social interaction. Other (less common) areas for design solutions included social media, bathing, and dressing, with suggestions for Wi-Fi provision, spa bathrooms, and small wardrobes to limit clothing options.

4. Discussion and Conclusions

4.1 Design considerations

The results indicate that while there are similarities between groups, there are also some differences between designers and care staff in terms of which activities and task behaviours are considered in the design of a dementia care home, for example cooking. Also, there were differences in the prioritisation of activities, for example toileting and eating. There were differences between all three groups in design considerations, in particular with choice and spatial relationships. These differences may reflect variation in their experience and knowledge.

4.2 Activities of daily living and design solutions

The results for ADL definitions suggest that participants from all three of the main groups (care delivery, care management, and design) considered both traditional ADLs and additional ADLs. This poses a question about the application of ADL classifications in dementia care and dementia design as there are many other important activities which may also need to be considered. Similarly, while many of the proposed design solutions

matched suggestions in the literature or in dementia design guidelines, they also went further with suggestions such as Wi-Fi provision.

4.3 Conclusions

While there are some similarities between the groups in their design priorities, there are also important differences which need to be considered. This highlights the need for good communication and effective knowledge transfer between different professionals. There is more agreement than disagreement between these groups on their definitions of ADLs, however the commonly used definitions of ADLs may need to be updated to ensure relevance to PWDem. The proposed design solutions also expanded on design suggestions from literature and design guidelines, suggesting that further research and work in this field may be needed to explore the additional ideas.

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