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Activities of Daily Life Still Cause Problems for Many Older and Physically Impaired People

Sims, R.E¹, Gyi, D.E¹, Marshall, R.¹ and Case, K.²

¹ Loughborough Design School, Loughborough University, Loughborough, UK, LE11 3TU

² Wolfson School of Mechanical & Manufacturing Engineering, Loughborough University, Loughborough, UK, LE11 3TU

Abstract

Activities of Daily Life (ADL) are those activities that are fundamental to maintaining independence. Without being able to do them, people can become dependent on others or simply not live their lives in the way that they would wish to. A survey of 50 older and disabled people found that surprising numbers were unable to fulfil the level of independence in ADL that they wished to. For all the advances in the recent age in technology and equipment design, these basic activities are still proving too difficult for a sizeable percentage of the older/disabled population. As the population ages, pressure will come to bear on designers to consider the needs of older/disabled people more fully, to meet the needs of the shifting market trends.

1. Introduction

McGlone (1992)

estimated from survey results (conducted by the Office of Population Censuses and Surveys) that there were 6.2 million disabled adults in Great Britain, with more than two-thirds of them aged 60 years and over. Vanderheiden (1990) states that over 30 million people in the USA have disabilities or functional limitations, either from birth, accident and illness, or through old age. The population is also ageing: in the United Kingdom in 2006 11 million people were over retirement age (60 years old and over for men, 65 years and over for women. Office for National Statistics, 2005), and it is estimated that, worldwide, by 2050 the number of people aged 60 years and over will be 2 billion (World Health Organisation, 2008). Many of those people currently aged 50-75 will have access to disposable income (Walker & Maltby, 1997), a view which Ward (2001) concurs. The “new old”, those who grew up in the 1950s and 1960s, have a disposable income, coupled with high expectations of the quality and effectiveness of the products they buy and use.

Katz *et al* (1963) first created the Index of Activities of Daily Life to provide a guide to chronic illness, for studying the ageing process, and to assist with rehabilitation. Since this first index was created, the study of ADL has increased to cover all activities that are essential for independence, and its assessment can be used to reflect the ability of the individual to live in their own home with or without assistance. ADL can include using the toilet, eating, walking, dressing, bathing, and grooming, although these can vary between studies. Instrumental ADL (IADL, Clark, Czaja & Weber, 1990) include activities such as cooking, shopping, using transport, taking medication, using the telephone, housekeeping, doing laundry, and managing money. ADL are those activities that are essential for independent living, whereas

IADL are more involved and imply capacity to make decisions as well as greater interaction with the environment (WHO, 2001).

A number of studies have investigated the types and prevalence of ADL that people have problems with, and the use of assistive devices (Dawson, Hendershot and Fulton, 1987; Clark, Czaja and Weber, 1990; Sonn & Grimby, 1994; Millán-Calenti *et al*, 2000). In their study, Millán-Calenti *et al* (2000) found that 19.1 % of men and 16.1 % of women were unable to prepare meals, 9.4 % of men and 18.1 % of women were unable to shop, 37.5 % of men and 23.4 % of women were unable to do their laundry, 6.3 % of men and 12 % of women were unable to dress themselves, 9 % of men and 19.9 % of women were unable to bathe unaided, and 2.7 % of men and 9.4 % of women were unable to transfer.

The aim of the survey conducted was to discover the problems that older and disabled people have with products, environments, and the activities of daily life that they would most like to be able to do (within the realms of any impairments they had). The data collected were used to inform the design of a data-collection protocol, to provide the basis for the development of a computer-based design tool, HADRIAN (Porter *et al*, 2004).

2. Methods

50 people took part (30 women, 20 men), and face-to-face interviews were conducted during which they were asked a mix of open-ended questions and those with more discrete responses. The questionnaire was divided into seven sections: general personal details, kitchen, bathroom, general in the house, away from home, work, and leisure. Each question was given a scale for the interviewer to mark, according to the person's response (numerical, from 1 to 5, with 1 indicating that

a task was accomplished easily and with no problems, and 5 indicating that a task was impossible). This scale is almost identical to that proposed by Lenker and Paquet (2001) in a discussion of sampling methods, and the scale was marked by the interviewer depending on the response. Additional comments were noted, and at the end of each group of questions from the seven sections, participants were also asked if there was any one thing (at a practical level) that they would like to be able to do but could not achieve.

3. Results

56 % of the participants were of working age (18-65 years of age), but of these only nine actually worked. The other 44 % reported either being retired early or unable to work due to their disability.

Age range (years of age)	Number of men	Number of women
18-62 (with disability)	13	15
63 + (with disability)	2	8
63 + (without disability)	5	7
TOTAL	20	30

Table 1: Ages and genders of older and disabled participants (n=50)

30 % of participants reported not being reliant on other people on a daily basis at all, remaining very independent. 60 % reported needing assistance in some tasks only, usually involving activities such as cooking, cleaning, gardening, bathing, and shopping. It was, however, of concern that 10 % of the participants reported being 'very reliant on

other people' at home on a daily basis, requiring almost continual assistance in daily activities.

In kitchen tasks, 32 % of participants found it impossible to reach a high shelf. Many participants mentioned methods of coping with ADL problems:

- Long-lever taps were used by the 28 % of participants
- 20 % of participants would only lift very light items into the oven (for example, a tray of chips was mentioned by one person)
- 14 % of participants would slide rather than lift a pan onto the hob
- 12 % of participants could put washing in and out of the washing machine without assistance but were reliant on another person to hang it to dry
- 10 % of participants had 'considerable problems' with washing up, and so had a dishwasher
- Kettle tippers were used by the 6 % requiring 'some help' to lift a kettle
- 'Grabbers' were used by the 6 % requiring 'some help' to reach high items

When asked about bathroom activities, it was discovered that five participants did not own a bath, four did not own a shower, and three participants were catheterised so did not use the toilet. Only 4 % of participants were able to get in/out of the bath 'easily', as opposed to 18 % who reported being able to use the shower 'easily'. Strategies for coping with difficulties with bathroom activities included:

- 40 % (4 out of the 10 participants who reported having 'some problems' using the toilet) had rail(s) nearby to grab onto

- 20 % of participants reported having a seat in the shower
- 20 % of participants needed 'some help' to use the toilet, and had a raised toilet seat and/or a frame around the toilet to hold onto
- 14 % of participants needed 'some help' using the bath, and had rails fitted and/or a seat
- 14 % of participants required 'considerable help' using the bath, and had a hoist or lift to get them in and out
- 12 % of participants had level-floor showers that could be walked or wheeled into
- 6 % of participants needed 'considerable help' to use the toilet, and had a hoist to lift them

Participants took part in a wide range of leisure activities, with only five people saying that they did not really do anything, due to physical constraints. Sporting activities were enjoyed, with 22 % of responses being activities such as walking, cycling, dancing, bowls, swimming, paragliding, and wheelchair racing.

Participants were asked what they would really like to be able to do, given their abilities, on a practical daily level. The responses to these questions (it was asked after each main section of the questionnaire) reflect those things that people most wanted to be able to do, in order to maintain independence and live their lives in the way that they wanted to. The total number of responses was 68, with most participants giving more than one response (38 of the 50 participants responded). Responses varied widely, but different participants mentioned several of the same items:

- 32 % (12 out of 38) of participants wished to use the oven more fully, possibly with a midlevel oven, for activities such as baking

- 18 % (7 out of 38) of participants wanted to be able to use their baths themselves or have equipment to make bathing easier
- 16 % (6 out of 38) of participants wanted the ability to take holidays, to have access to, and receive care when away from home
- 10 % (4 out of 38) of participants expressed a wish for each of:
 - Access to the cinema
 - Access to swimming
 - Access to public transport
 - To have a walk-in, level-access shower
- 8 % (3 out of 38) of participants expressed a wish for each of:
 - To have lower work surfaces to make cooking and food preparation easier
 - To have lower or no kerbs
 - 'Access to all areas'
 - Access to smaller shops
- 5 % (2 out of 38) of participants expressed a wish for each of:
 - To be able to reach high cupboards
 - Being able to wash own hair
 - Being able to do the ironing
 - Being able to change light-bulbs
 - Being able to hang clothes on the washing line
 - Being able to reach shop shelves

4. Discussion

It must be noted that the sample of 50 participants were nearly all from the East Midlands region of the UK, and as such may not be representative of the needs, wishes and problems experienced by older and disabled people countrywide. However, there was a consensus between many of the problems and wishes mentioned by participants,

and so it is felt that it is likely that the results broadly reflect the problems, concerns and desires of the wider population.

Problems with such activities of daily life such as shopping, cooking, laundry, and using transport all featured highly in this study, as they do in previous research. As an example, Millán-Calenti *et al* (2000) found that 37.5 % of men/23.4 % of women of their 598 older (but not necessarily disabled) participants reported problems with doing the laundry, 9 % of men/19.9 % of women reported problems with bathing unaided, 9.4 % of men/18 % of women reported being unable to shop, and 19.1 % of men/16.1 % of women had problems with meal preparation. These findings can be compared to the results of this research, in which (total) 36 % reported problems with, or found it impossible to use a washing machine, 52 % reported problems with bathing, 48 % reported difficulties when shopping, and 64 % had problems or found it impossible to use an oven. Dawson, Hendershot and Fulton (1987) also found the highest reported percentage of problems were with shopping, bathing and preparing meals. Cooking was the most frequently requested activity that the participants in this research really wanted to be able to do. Millán-Calenti *et al* (2000) and Clark, Czaja & Weber (1990) classified cooking as an instrumental ADL, rather than a fundamental one, whereas in this study it appears that cooking was considered fundamental to independence, given that when asked what they would most like to be able to do, more people mentioned cooking.

The use of assistive devices in the bathroom (20 % had a seat in the shower, 26 % had rails and/or raised seat and/or frame on the toilet) reflected the findings of Sonn and Grimby (1994), which found that the most prevalent assistive devices were ones to aid bathing and toileting. The need for raised toilet seats also indicates that the work

of people such as McClelland and Ward (1976, 1982) into recommendations for toilet seat heights is needed, as this is still an issue.

Reaching high items in the kitchen (and no doubt, in other rooms or in the supermarket) was impossible for 32 % of participants, and a further 34 % had problems with this activity. These results reflect the findings of Kirvesöya, Väyrynen and Häikiö (2000), who found that two-thirds of their 55 participants reported problems using the top shelf (1840mm) of their experimental kitchen.

Coping mechanisms such as sliding rather than lifting items (reported by 14 % of participants), and use of assistive devices (such as hoists and kettle tippers) featured often in participants' responses, indicating, as Powell Lawton (1990) suggested, that such behaviours and assistive devices need to be considered when assessing ADL. In addition to assistive devices in the bathroom, others used included dishwashers, kettle tippers, grabbers, and long lever taps. Coping strategies were such things as sitting to do tasks, sliding items rather than lifting, and asking for assistance when needed, and reflect the coping strategies found by the Government Consumer Safety Research (2000). 24 % of participants reported that having all electrical plug sockets at mid-level would be beneficial, and six participants had level-access showers to allow them to continue to enjoy showers. Those participants who were working expressed their ability to adapt and cope with problems such as cluttered work areas when moving in a wheelchair and slippery floor surfaces when walking with a stick. Changes to existing designs and 'standard practise' of room layout and design, may be beneficial to all users, and may become more prevalent as people pay for the changes themselves, and demand higher usability standards from those designing and building homes and offices. The very fact that 56 % of

the participants were of working age but only 18 % were actually in full-time work suggests that improved design and accessibility are needed in order to increase this number.

5. Conclusions

Many older and disabled people still have problems achieving ADL such as cooking, bathing, using transport, shopping, and using public amenities. Good design should be able to improve the situation for many older and disabled people. Examples where design changes have assisted people are level-access showers, mid-level ovens and mid-level electrical sockets. Older and disabled participants most wanted to be able to achieve the simple activities of daily life that so many of us take for granted, for example use their cooker more fully, and felt that design changes may assist them in achieving this.

It may be that older people do not always have the disposable income that would encourage designers to consider them as part of the 'market forces' or to force change (as predicted by Walker and Maltby, 1997; Clarkson *et al*, 2000; Rogers *et al*, 1997; Jordan, 2000; Vanderheiden and Tobias, 2000). These researchers predicted that market forces *would* result in change, and consideration of older and disabled people, but this would occur over time. As the older population grows, and the numbers of older people with larger disposable incomes grows, so the market will change. As anyone working in this area knows, this process is still ongoing, and market forces are yet to change dramatically, but it is still expected that it will happen and so consideration of the needs of older people will be key to successful product and service design and provision.

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