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Citation: Aitken, Dominic, Wilson-Menzfeld, Gemma, Hodgson, Philip and Bailey, Catherine (2023) Recipient perspectives on the impact of home adaptations in later life in England. *Journal of Housing and the Built Environment*, 38 (1). pp. 629-649. ISSN 1566-4910

Published by: Springer

URL: <https://doi.org/10.1007/s10901-022-09959-9> <<https://doi.org/10.1007/s10901-022-09959-9>>

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Recipient perspectives on the impact of home adaptations in later life in England

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Received: 31 July 2020 / Accepted: 25 May 2022 / Published online: 19 July 2022
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Abstract

The ability for adults to make changes to their home environments as they age to better suit their needs is of increasing importance. It is crucial that the full gamut of impacts from adaptations is understood in order to facilitate comprehensive evaluations which can fully capture their utility. Most previous studies in the field have used a quantitative methodology. Drawing on qualitative interviews, with some informed by wearable camera data, we explore perspectives on the impact of home adaptations from recipients aged 65 and over ($n=30$). These are discussed around five themes: restorative outcomes; preventative outcomes; social outcomes; impacts on others; and home perceptions. The research emphasises several under-explored outcomes from adaptations including impacts related to social participation, care provision, relocation, perceptions of the home, service awareness and other household members. We argue that any future evaluation framework needs to comprehensively capture potential outcomes based on the lived experience of recipients in order to fully appreciate both negative and positive impacts from home adaptations.

Keywords Home adaptations · Home modifications · Older people · Housing · Ageing in place · Outcomes

1 Introduction

As the world population ages and the proportion of disabled people increases, creating accessible home environments to allow ageing in place is of increasing importance (WHO, 2018a). The United Nations Convention on the Rights of Persons with Disabilities includes an obligation for member states “to enable persons with disabilities to live independently and participate fully in all aspects of life”, identifying and eliminating obstacles and barriers to accessibility including in relation to housing (UN, 2006, p9). The World Health Organization (WHO) has recognised that while accessible housing standards for new

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development are important, only a small proportion of the future global housing stock will be newly developed (WHO, 2018b). The WHO's Age-Friendly Cities Guide identifies the ability to make adaptations to one's home environment as a key element in ensuring housing can contribute to comfortable and safe ageing and positively influence independence and quality of life (WHO, 2007).

England is an interesting case in point when considering home modifications (or adaptations as they are known in the UK), where the central government budget for funding such changes has more than doubled in recent years. Projections that the proportion of people aged 65 years and over in the UK will reach 24% by 2037 (ONS, 2018) have prompted increased political attention towards the role home environments play in health and well-being for people in later life (DCLG, 2008; CLG Committee, 2018). While some of this focus has been on new residential development (DCLG 2017; Neighbourhood Planning Act, 2017), recent years have also seen recognition on the role changes to existing home environments can play. This appears consistent with the fact that over 90% of those aged 65 or over in England and Wales live in accommodation other than residential care homes (ONS, 2014) and over 80% of UK homeowners in this age group wish to continue to live at home (Lloyd & Parry, 2015).

Responsibility for the delivery of home adaptations in England is placed with local authorities. The delivery of adaptations is based on an assessment of their necessity and appropriateness, with regard to the individual's needs, and their reasonableness and practicability in relation to the home environment (Wilson, 2018). Applications are not limited by an individual's age or housing tenure (DCLG 2006 cited in Wilson, 2018). While some minor adaptations can be provided without a financial assessment, such as grab rails and second handrails on staircases, major adaptations, such as stair lifts or property extensions, may require means-testing of the applicant such that they can receive a Disabled Facilities Grant (DFG) up to a maximum value of £30,000. If successful in their application, service-users can appoint their own contractor to complete adaptations or more commonly they can rely on the local authority to organise installation.

There is considerable variation in the performance of local authorities in the delivery of home adaptations. Adams et al. (2018) found that the average local authority in England took 23 weeks from application to installation for a typical adaptation but with some areas taking more than 18 months. They found that local authorities identified a variety of challenges to delivering adaptations, including difficulty finding sub-contractors to complete work, a shortage of occupational therapists to assess applications, problems persuading private landlords to receive adaptations, the nature of the means test and the upper limit on grants. Zhou et al. (2019) found that poor local authority delivery of home adaptation services can occur due to weak cooperation between different departments and external partners.

Much of the funding for home adaptations is provided to local authorities from central government, although local authorities can supplement this further (Wilson, 2018). In recent years, the budget for home adaptations provided by central government has increased from £220 million in 2015/16 to £505 million in 2019/20 (Raab, 2018; Wilson, 2018). Local authorities are required to complete an annual grant return for central government in relation to adaptations funding, which includes details on the size of approved grants and their distribution by age and tenure (Mackintosh & Leather, 2016).

However, 'there are no longer any national performance indicators for adaptations' (Home Adaptations Consortium, 2015, p76). Despite increases in funding, the monitoring of outcomes is left to local authorities to administer. The lack of a standardised approach arguably limits the ability to both compare performance by providers and facilitate

comprehensive analysis of the impact of adaptations. A government commissioned guide for local authorities suggests that improvements should be recorded in five outcome areas: the ability to enjoy and achieve; the ability to be healthy; improved safety and security; improved economic well-being; and the ability to make a positive contribution (Home Adaptations Consortium, 2015). Proposed survey items include questions on social interaction, physical and mental health, finances, access to services in the future, impact on other family members and overall improvements to quality of life (ibid.). However, the advice provided remains very broad and its origin and development are unclear.

There have been several extensive literature reviews completed on the outcomes of home adaptations in recent years. Stark et al. (2017) found that the 36 studies they reviewed presented strong evidence that adaptations could improve function and reduce the risk of falls, and some evidence that they could improve care provision and function for people living with dementia. Powell et al. (2017) reviewed 60 studies published between 2000 and 2016. The authors found strong evidence of preventing falls and injuries, improving performance of everyday activities and improving mental health as a result of minor home adaptations. It is notable that only 16 of the studies used a qualitative methodology and that major adaptations were found to be less extensively explored. Carnemolla and Bridge (2020) identified 21 potential outcomes from 77 studies published between 1990 and 2015 in 16 countries. The authors identified seven themes for the outcomes: falls-related evidence; improved function/self-care and independence; physical health and well-being; caregiving; economic effectiveness; ageing process; and social participation. Similarly, the evidence related to falls was the strongest and only a small minority of studies were completed qualitatively.

Given that most previous studies have used a quantitative methodology, outcome measures have generally been selected a priori by researchers, rather than based on the insights of recipients. In addition, the lack of a unified approach to measuring outcomes in England has long frustrated scholars (Heywood & Awang, 2011) and there has recently been renewed interest in the development of consistent evaluation methods within academia and practice (GENHOME2 List, 2018; Mackintosh, Iwarsson, et al., 2018). There is also potential for central government to publish new guidance on capturing outcomes following the recent review of adaptations in England (Mackintosh, Smith, et al., 2018). It is therefore crucial that any future guidance draws on all relevant research to ensure that outcomes from home adaptations are comprehensively captured. The present study used a qualitative methodology to explore the lived experiences of home adaptations among older people to improve understanding of their impacts in later life. The research presented here is taken from a wider study which also involved focus groups with home adaptation practitioners (see Bailey et al. 2018).

2 Methods

2.1 Recruitment

The research was conducted in two contiguous local authority areas in the North East of England: North Tyneside and Newcastle upon Tyne. To be eligible to participate, individuals needed to be aged at least 65 and have received a home adaptation in the previous 24 months. Participants were recruited in two ways, both involving gatekeepers. The first was via the local government bodies for the two areas, North Tyneside Council and

Newcastle City Council. The local authorities recruited individuals who had used their home adaptation services. The second recruitment method was via voluntary organisations and groups, such as Elders Council of Newcastle, Newcastle Society for Blind People, Deaflink and ethnic minority community groups, who recruited people who had funded adaptations outside of local authority services but lived in the two local authority areas. A sampling profile was created to capture the broadest range of perspectives and experiences of adaptations. Gatekeepers were asked to recruit a diverse sample in relation to: age; gender; ethnicity; dwelling type; housing tenure; household composition; and type of adaptation.

Prospective participants identified by the local authorities were contacted by those services in the first instance, aided by a script provided by the research team. This first contact asked individuals if they were interested in taking part in the study and were happy to have their contact details passed to the research team. Those identified through other organisations were asked to complete a short expression of interest form. Sixty-nine individuals expressed interest in participating, had their contact details passed to the researchers, and were then contacted to discuss participation in more detail, before receiving a copy of the participant information sheet in the post. Having been allowed to consider this for seven days, they were then contacted again to confirm their intention to take part and book an appointment.

Thirty of these sixty-nine individuals participated in the study (43%), with equal representation from each local authority area (Table 1). Half were aged between 75 and 84, with smaller proportions in the 65–74 and 85+ age categories. Owner occupiers and those living alone were in the majority. The sample was well balanced with regard to gender, the funding source for the adaptation and the scale of the work completed. Thirteen participants had received at least one minor adaptation, defined as costing under £1000. These included items such as grab rails, a second handrail on stairs, an extra step at the front of a property and lighting improvements. Seventeen participants received a major adaptation, defined as costing £1000 or more. These included items such as stair lifts, level access showers, and wet rooms (a waterproofed shower room where the floor and walls have been sealed). The sample was overwhelmingly white British, which is reflective of the limited ethnic diversity across both local authority areas. The two areas would both be considered largely urban environments. The sample did not seek representativeness of the two local authority areas.

2.2 Data collection

To capture experiences of the receipt and outcomes of home adaptations, the research took a phenomenological approach using a qualitative methodology to understand the taken-for-granted meanings people ascribe to lived experiences (Swanson-Kauffman & Schonwald, 1988; van Manen, 1997). Six of the thirty participants used a wearable camera for a one-day period within their home and associated outside space (see Wilson et al., 2019). The camera automatically captures at least one still image every 30 seconds. After the one-day period was complete, participants were provided with the images and had the opportunity to review them in private and delete any as they wished. The images were then reviewed together with one of the research team as a slideshow, facilitating the completion of a face-to-face semi-structured interview. The images acted as cues for discussion around the lived experiences of using adaptations and the impact they had on participants and other occupants. The images allowed participants

Table 1 Profile of participants

	Site one	Site two
<i>Age</i>		
65–74	5	2
75–84	7	8
85+	3	5
<i>Gender</i>		
Male	8	5
Female	7	10
<i>Ethnicity</i>		
White British	15	13
Other ethnicity	0	2
<i>House type</i>		
Bungalow	5	0
Semi-detached	6	7
Terrace	2	6
Flat	2	2
<i>Tenure</i>		
Social rent (local authority)	5	2
Social rent (housing association)	1	1
Owner occupier	7	10
Private rent	2	2
<i>Household composition</i>		
Lives alone	9	9
One other occupant	4	5
Two other occupants	2	1
<i>Funding source</i>		
DFG	2	2
Local authority (no DFG assessment)	3	7
Mixed	3	0
Self	7	4
<i>Adaptation received</i>		
Minor (under £1000)	9	4
Major (£1000+)	6	11

to discuss taken-for-granted behaviours within the home. The findings from this element of the study helped refine the interview topic guide for subsequent semi-structured interviews with the remaining 24 participants, who did not participate in the wearable camera element of the study. All interviews asked participants questions on their experiences before receiving the home adaptation, why they had sought it, their experiences of the service they received and its impacts. Interviews were carried out by three of the researchers individually in 2017, taking place in participants' homes to be both convenient for those involved and allow the environment itself to act as a prompt for discussion. Some participants were accompanied by family members who made occasional contributions to the discussions. All interviews were audio-recorded and later transcribed.

2.3 Data analysis

Interview transcripts were assigned to three members of the research team for analysis. This took place first using open coding where text was tagged based on an assessment of what participants were communicating. Axial coding followed by which codes were related to each other and built up into categories and themes. NVivo qualitative analysis software was used to complete this process. Following analysis by the project team, a member-checking process was completed with members of Elders Council of Newcastle to test and refine the emerging themes, reduce bias and add additional rigour to the process.

2.4 Ethics

Ethical approval for the project was received from Northumbria University Health and Life Sciences research ethics subcommittee. All participants were provided with participant information sheets at least one week in advance of being asked to confirm participation and completed consent forms before taking part. Participants engaging in the wearable camera element of the study were shown how to use the camera and provided with instructions on how to pause its operation at any time. Researchers ensured that these participants were aware they could remove or switch off the camera at any point in order to protect their privacy. Participants were instructed to do so when leaving the grounds of their home. They were also advised to inform visitors to the home of the camera and remove it if guests felt uncomfortable. All participants were anonymised to protect their privacy.

3 Findings

The perceived impacts of home adaptations identified were grouped into five groups: restorative outcomes; preventative outcomes; social outcomes; impacts on others; and home perceptions.

3.1 Restorative outcomes

Restorative outcomes were seen to reinstate activities or a status which had previously declined or been lost. Five such outcomes were identified: confidence; activities; independence; mental health; and physical health.

3.1.1 Confidence

Several participants discussed how adaptations had restored their confidence and provided them with reassurance within their dwelling, “knowing the grab rails are there, certainly gives [me] the confidence...A lot of it is in the mind” (Participant 28). The presence of adaptations reassured recipients that they could rely upon them if needed, even if they did not use them regularly.

I think it's good knowing that [the grab rail's] there. If you need to get a hold. Sometimes, when I'm washing my hair, I get a bit dizzy and I shut my eyes. So, I

know that that's there. I can grab that.
(Participant 21)

3.1.2 Activities

Driven in part by the increased confidence the adaptations provided, recipients reported a number of impacts related to their daily activities. Several participants identified improvements to their mobility around their home with their access to different parts of their dwelling no longer as limited.

Without the hand rails and without the stair lift and the trolley around, I would find it much more difficult getting about. Really, because it's now at a stage where one's muscles aren't strong enough. So they tire, so they ache and this sort of thing. So, you benefit in that sense.

(Participant 7)

Recipients of adaptations reported moving within and between floors more often and/or more easily, restoring previous capabilities, "You...feel normal because...you get the stair lift and you're just moving around as if you're just alright" (Participant 5). This allowed the avoidance of risky behaviours such as crawling upstairs and the use of unappealing aids such as commodes. In one instance, the installation of handrails was identified as a navigational aid to mobility, in addition to providing physical support.

Part of the reason why we have hand rails was that they can provide some sort of system for guiding you around the house. It's not perfect, but...it's there in addition to the pure function of supporting you physically. It helps cognitively, so that [my partner] can identify where she is.

(Participant 7)

A number of adaptation recipients also reported impacts on their travel outside their property. Again, these included improving the ease of exiting the property and/or its frequency. One individual reported how a ramp installed at the back of their dwelling made it easier for them to exit the property and access a nearby hairdresser with their walker. Another recipient who had grab rails installed at the front of the property stated that the increased ease of exiting at the front now allowed them to park their mobility scooter there rather than inside the garage. One participant who had installed an electric garage door and grab rails and used a three-wheeled mobility walker explained how they worked in unison to facilitate easier exit from the property.

And when I go to the shops, I have a three-wheeler. I wouldn't dare go without that... But I have a step - as you saw at the front door. Now, I have an automatic opening of the garage, and there's no step there. So, I go in and out. So, the grab rails [between the garage and house] lead me to the exit that's easiest for me. The garage one. Because there's no step there. And because the door just goes up so easily... Bob's your uncle.

(Participant 30)

In addition to mobility, many adaptation recipients identified improvements to the frequency and/or ease of completing tasks within their home, especially those who had made adaptations to their bathroom.

It would have been murder...I don't know how I would have managed to get in and

out of the shower. Using the toilet, I mean, I can always hang on to the radiator. But it's easier having a grab rail. And it's definitely a lot...easier having the grab rail in the shower.

(Participant 28)

Adaptations such as stair lifts which increased the ease of access to upstairs bathrooms were also reported to facilitate washing and dressing.

I can go upstairs and get a shower a lot more often than I did...I can go up and get changed a lot more...I used to say, "Oh, I'll just stay like this." Instead of trying to go up the stairs. Or "I'll get a shower later" instead of just going up.

(Participant 11)

Easier meal preparation was also identified as an impact of some home adaptations. One participant reported that lighting improvements in the kitchen had made it easier to cook, while another commented on easier access to food stored in the garage facilitated by grab rails at the door connecting it to the dwelling. Button stickers had reportedly allowed another participant with a visual impairment to use their microwave and oven more easily.

Other home-based activities facilitated through adaptations reported by participants included ironing supported through use of a perching stool, transporting laundry via a stair lift and disposing of recycling via a grab rail at the entrance to the dwelling.

When I had the washing and ironing, carrying the clothes up, I can't carry on this arm, because of the arthritis in that elbow. So, it was a chore, carrying things up and trying to hang on to a bannister...So, now it's just absolutely great. I have no problem. I can put the things on my knee and go upstairs and...it's such a difference.

(Participant 10)

Some uses of aids and adaptations were more unconventional in facilitating daily tasks. One participant reported using their new wet room as a space to dry clothes. Another explained how they used their walker to transport meals or as a surface from which to eat or upon which a bowl of water could be placed to facilitate washing.

Other participants explained how adaptations aimed at easing the completion of activities in the home had limited impact. One participant explained how the initial installation of grab rails in their bathroom and the provision of a bath board and swivel bath chair did aid washing somewhat. However, they commented that the grab rails were unable to have weight placed upon them due to the nature of the walls and that all of the adaptations did nothing to improve the fundamental difficulty of manoeuvring a wheelchair into a small bathroom, which was later solved with the installation of a wet room. Others commented on the fundamental limitations of some adaptations, with one participant explaining how, even though they had received a second rail on their stairs, "I still can't carry stuff up and down the stairs. Because I've got to hold onto them" (Participant 29). Another participant commented, "to be perfectly honest, the seat was never much of a success...because I like to lie in the bath" (Participant 04), demonstrating the potential importance of the consistency of home adaptations with recipients' preferred behaviours.

Some participants reported negative impacts of adaptations on their ability to complete activities. Seats installed in the bath or shower were reported by some participants as making it more difficult to access or use them due to reductions in the available

space. One participant missed using their bath more than expected and used their new wet room very infrequently. There were some reports of frustration at the apparently slow speed at which stair lifts travelled especially as this had the potential to reduce timely access to their toilet. Another adaptation recipient explained how they had to relocate to a different bedroom, temporarily disturbing their sleep.

[The shower is] in the back bedroom. I can't use it as a bedroom anymore... I used to sleep [there] for the quiet ...the central heating boiler and everything is in the front room. And it comes on through the night, just to keep it going...and it aggravates me...it doesn't bother me now I've got used to it. But when I first went in I couldn't sleep properly for it.

(Participant 06)

3.1.3 Independence

Recipients of home adaptations discussed how changes to their home environment had restored their independence, the loss of which had often acted as a trigger or contributed to the reaching of a tipping point for participants seeking adaptations. For example, one participant explained how they could now use the first floor of the property without waiting for their adult son to arrive home from work and assist them using the stairs. Other participants spoke of a restored sense of independence after changes to their bathroom:

I used to enjoy the bath. But I enjoy the shower better now. And I think it's knowing that I'm going in there and I've got my own independence...That's the big thing... I push myself to do what I can...To me my own independence is one of the main things.

(Participant 27)

That means I've got independence in...my shower. I can go in myself, and I can come out myself. I don't have to wait until somebody comes and gets a hold of my hands and takes me...

(Participant 26)

3.1.4 Mental health

Several recipients identified impacts related to mental health as a result of home adaptations. This included both reductions in depression, anxiety and frustration and/or improvements in happiness and self-esteem. One participant recalled how bathing had previously been "terrifying" (Participant 27) but that the installation of a wet room had improved her anxiety:

It's had a big impact. I haven't got the worry when I go in. I can just stand and have a nice shower...I mean, there are times when my ankle is swollen up - I just stand there and I hold the rail of my shower... I haven't got the worry...because even if I did get down in the bath, it was getting out. Because...you were down and putting the pressure on this foot and trying to get a hold...to push myself up. It was frightening...but now I'm over the moon with it...I haven't got the worry...that's the main thing.

(Participant 27)

When asked if the installation of adaptations in their home had resulted in changes to their mental health, one participant said:

It's stopped me from crying...I was getting really, really depressed. Especially when I couldn't come downstairs. And then, when I was stuck in that bedroom by myself all the time, because [my family are] at work...I'd been there six weeks, I think. And [my granddaughter] said, "Are you still going to be here at Christmas, nanna." She said, "Because we can put the Christmas tree in front of the telly and put my toys under there, you know." And I'm thinking, eh, I don't want to be here that long...It was driving me crazy.

(Participant 26)

Another participant who had received a wet room commented "it makes you a lot happier because you're clean" (Participant 10). Some participants explained how improvements to their anxiety and frustration was linked to their increased independence. Their mitigated or eliminated reliance on others, sometimes combined with reduced embarrassment, had provided them with a strong sense of fulfilment. One participant commented on how their lighting improvements had improved their "self-worth" (Participant 16) as they could now complete activities without needing to ask others. Railing had been installed alongside the outside steps of another participant, relieving their frustration, "I don't rely on [my family] now...I had to, but I didn't want to...and that's why I used to get frustrated" (Participant 25).

3.1.5 Physical health

Facilitating the restoration of physical health was identified as a potential outcome of some home adaptations. One recipient who had a second rail on their stairs installed after a stroke explained the impact on his physical health, connecting this with improved confidence:

First of all, it gave me confidence to walk up. But mostly coming downstairs. I didn't have to come down like...trying to walk properly...Very, very good confidence-wise...**it learned me to walk**...One time I was just a one step at a time...when you're coming down one stair and bringing your foot down...but this time I was walking properly. Yeah, it was great.

(Participant 25, emphasis added)

3.2 Preventative outcomes

Preventative outcomes were identified as impacts of adaptations which averted or had the potential to avert subjectively negative consequences. These include: falls and accidents; loss of independence; relocation; and service awareness.

3.2.1 Falls and accidents

Many participants reported that their home adaptations had reduced the likelihood of them experiencing a fall or accident in the future, "it was stepping in and out of the bath...I just couldn't trust myself. If I slipped, that was me snookered. So...I got the shower put in and I've never...regretted it." (Participant 15). Another participant commented, "[the wet room's] quick...and...reassuring. I know I'm not going to get stuck" (Participant 04).

Several participants reported experiencing fewer falls after changes had been made to their home. In relation to their new wet room, one participant stated:

...in terms of there being a problem and in terms of me falling as much, I don't fall so much now. It just gives away now and then, but...because I've got all sorts of grab rails [in the wet room] and things like that...I'm able to cope a lot better.

(Participant 19)

However, some participants reported how some home adaptations, rather than preventing falls and accidents, had actually increased their likelihood. This was often where the aids or adaptations were inappropriate for the dwelling or the individual's needs. One individual spoke of the danger of her husband using a bath board which had to be replaced with a swivel chair and eventually a wet room. Another participant viewed the tap turners he had received as creating a greater risk of injury:

I couldn't manage the taps with the way my hands are...they came with these things and they've got...like a half tennis ball with plastic handles, and you had to push them back and forwards. Well, they broke and I couldn't manage them. And when you were actually standing in the bath, you were catching the handles. So the hot water was [flowing]...if you caught the hot water one... and then when the adaption team came, I told him and I said, "They're useless."...I said, "They're actually more dangerous." So they did the whole lot.

(Participant 27)

3.2.2 Loss of independence

While independence has already been discussed in relation to its restoration, the prevention of the loss of independence was also identified as an impact of home adaptations by some participants.

You don't have to rely anybody to come in and help you. You can keep your modesty and everything...your independence. Which is a big thing. I would hate to have to wait for somebody to come in and help me into the shower or things like that.

(Participant 10)

3.2.3 Relocation

Two participants discussed how the home adaptations they had received were a positive alternative to relocating to a different property. One of these individuals rejected their local authority's suggestion of moving to nearby sheltered housing in favour of making changes to their dwelling.

...you've got no kitchenette...You've got nowhere for a washing machine or anything...I said, 'I'm not doing that. No way am I doing that.' So, I was very, very strict about it. I don't want to leave here. I've got lovely neighbours...And I'm so pleased that they've put these things in so I can stop here...I couldn't have coped on those stairs if [the stair lift] hadn't have been there.

(Participant 26)

3.2.4 Service awareness

Some participants whose home adaptations had been provided or facilitated by their local authority explained how this had increased their awareness of one or more services which could provide support or assistance in the future.

I feel more secure in the fact that I did get in touch with the social services and they came out and helped. So that I feel as though I could phone up again and say, look, I need this or...I need help.

(Participant 10)

Some participants now knew who to call for further adaptations, while others were able to acquire support and guidance in the future. One participant was actively considering the installation of another grab rail in their home and named the professional at the local authority who they intended to contact to ask their advice. Another recipient spoke of the usefulness of now having the contact details of a trader via the home improvement service. This increased awareness of the support available to participants potentially prevents the decline in the suitability of properties to the needs of occupants.

3.3 Social outcomes

Social interaction was reported to have been facilitated by home adaptations in several different ways. For most, this arose from the ease or frequency with which participants could now exit their property. One participant found it easier to exit her property via a ramp and “go to the hairdressers every Wednesday”, commenting that she “really appreciate[s] that because they’re...lovely girls” (Participant 22). Other impacts on social engagement were less direct. One couple who were not able to shower as frequently as desired commented on how they had previously felt “socially unacceptable” (Participant 21) due to their perceived odour and would use copious amounts of deodorant when meeting with friends at a local community centre. After receiving a home adaptation they reported, “getting involved with all sorts of stuff. They’re doing pantomimes...all sorts...I’ve got a lot more confidence”, commenting that their new wet room definitely has “something to do with it” (Participant 21).

Another participant made a link between social interaction and a home adaptation which did not involve her leaving her dwelling. She explained how she had asked a local trader to use a concrete slab to create an extra step at the front of her property to aid accessibility not for herself, but visitors.

I always go in and out [through the garage]. But when friends call, they find it a great help. Because a lot of my friends are my age...and... Modern doors, with that sealing bit - I think they’re tricky. You’ve got to step over it.

(Participant 30)

These comments demonstrate the potential for adaptations to facilitate social interaction by easing the ability of friends to enter one’s home as well as the resident’s ability to leave.

3.4 Impacts on others

Some participants identified indirect impacts on other individuals as a result of home adaptations. These included impacts on: formal care and support providers; informal care and support providers; and other occupants of, and visitors to, the dwelling.

3.4.1 Formal care and support providers

Some participants reported that the installation of home adaptations had resulted in care and support delivered by professional care workers being reduced or withdrawn entirely, with some suggestions that any assistance continuing to be provided also no longer needed to be as intensive.

... We had carers coming in every morning to wash you and get you out of bed and get dressed...And it took...two of them - to come together to do that. But then... the fact that those adaptations have been done to the shower meant that once you could get upstairs to the bathroom, you could wash yourself...It was possible to sit on a seat and soap yourself, and then rinse it off. So that you then only needed one carer to just supervise what you were doing and then help you out of the shower and dry your back. And then help you to get... dressed.

(Partner of Participant 9)

...that very day, the helpers didn't come...because I could get upstairs. The help stopped immediately. They must have reported that I now had a stair lift. But that was fine, because I could get upstairs then.

(Participant 30)

3.4.2 Informal care and support providers

Some family members of the recipients of home adaptations no longer needed to provide some forms of assistance, providing them with more free time and greater flexibility. For example, the daughter of a lady who had a ramp installed at the entrance to her property explained, 'I used to have to...take [my mother] to the hairdressers and wait for her to come back. Now...we can go home...I can...know that she's going to walk back' (Daughter of Participant 22). For others, the adaptation restored individuals' ability to contribute to tasks which others had been required to shoulder. One couple commented on the difference an electric garage door had made: '[my husband] being able to use the car again means that I can have help with the heavy shopping now' (Partner of Participant 9).

Some of these indirect impacts on informal carers had a positive impact on health and well-being. Prior to the installation of an adaptation, the wife of one participant explained how she had developed a heart problem from the lifting of her husband following his regular falls, due to limited mobility after experiencing a stroke. She commented that sometimes she was too unwell to lift her husband and had to ask other family members living outside the household to visit and assist. The couple even removed the lawn from the back garden as the carer now felt unable to cut the grass. She said that her health condition had stabilised as a result of the new wet room, commenting, 'I'm very, very pleased, because I'm not pulling muscles and all sorts of things trying to

keep you from falling on the ground' and that "It's made a real...difference to the stress and strain of coping with [my husband's] disability" (Partner of Participant 19).

3.4.3 Other occupants and visitors

Interviewees revealed how adaptations also impacted on other members of the household and visitors to their home outside the delivery of care and support. Several identified benefits for these groups:

I have got a couple of friends that are disabled. So, when they come round they can use the stair lift to get upstairs, if they...want to use the upstairs toilet. Because with [the] seat being higher in the bathroom, they prefer using that toilet.

(Participant 11)

One participant explained how her husband who had received two knee replacements had benefitted from a new wet room which had installed primarily for the participant's use. Others discussed how adaptations originally installed for partners who had passed away had become useful for them. Some participants also commented on how grandchildren enjoyed riding on new stair lifts.

Conversely, some adaptations caused other occupants of households inconveniences or more serious concerns. One participant commented, "I've got a toilet up-raiser—I've got to take it off, because [my partner] doesn't like it. You've got to take it off and put it back on again. Take it off, and put it back on" (Participant 26). The husband of one participant described experiencing a fall due to the original installation of a stair lift:

Initially, they made a mistake. They had it [so it] parked right on the last stair at the top. And on the bend at the bottom...It was dangerous... In fact, I slipped down...I didn't hurt myself, fortunately. And they came back and social [services] has had a look and they made them alter it.

(Husband of Participant 3)

The couple spoke of how, even after this had been corrected, the best place to 'park' the stair lift was in the middle of the stairs, making it difficult for the husband to ascend the stairs while carrying items, meaning he had to send it to the top each time he wished to do so.

3.5 Home perceptions

Some participants commented on how their adaptations had impacted upon their perception of their home. One participant, when referring to their new wet room, spoke of the hypothetical sale of their home and the future occupants of the property.

It's also...[an] additive. If I was selling the house, it would be wonderful for someone who was really keen on gardening to be able to walk out of that garden into here, and go and have a shower. Instead of walking through the house to do so. It's a bonus.

(Participant 8)

Many participants discussed their opinion on the aesthetics of the adaptations, which was mixed. For some, the changes appeared to be a source of pride. One participant commented, "Everybody that sees it says they've done a damn good job. If they're bold enough

to ask the price, I tell them. And they say, "Blimey that was good." (Participant 8). Other participants were less satisfied with the appearance of adaptations. Some made further changes to improve the consistency with other aspects of their home:

I carefully [got them]...to leave [the stair handrails] as they are, so I can varnish them so that they fit in with the idea of timber...So I've, as far as possible, got them to fit in to my own aesthetic. And I would varnish them myself, because that's not the way they do it. But, inevitably, they are...there, and you just live with it.

(Participant 7)

Some participants commented on the stigma associated with the presence of adaptations but that this was outweighed by the functional advantages.

You sort of think of two stair rails as a sign of old age. A sign of incapacity. Which is not something that you want to sort of shout about. But, again, you balance things out with what it's doing for you and the help it's given you. And that outweighs any inadequacies. You've just got to sort of think, well, it's helping me. I've got to accept this.

(Participant 16)

Another group of participants were less concerned around the appearance of the changes. One commented, "I don't care about their appearance. I don't care...I'm not a fussy person." (Participant 22) and another "I couldn't give a monkey's, as long as they do the job" (Participant 24).

4 Discussion

This study used a qualitative methodology to explore the lived experiences of older adults who had received home adaptations. As the proportion of populations with older and disabled people increase, understanding the potential outcomes which result from changes to home environments is of growing importance. There has been limited research into the impacts of adaptations to home environments using qualitative approaches. This study reports a number of perceived impacts of home adaptations based on recipient perspectives.

Several of the outcomes identified corroborate existing evidence on the potential impact of adaptations. A number of participants reported that home adaptations were preventing falls and accidents from taking place, which is consistent with previous randomised control trials (RCTs) (Campbell et al., 2005; Keall et al., 2015; Stark et al., 2017; Carnemolla and Bridge, 2020), although not universally (Stevens et al., 2001). Similarly, we found that participants generally claimed they had experienced increased independence and were completing daily activities more frequently or easily, which has also been widely reported elsewhere (Aplin et al., 2015; Tanner et al., 2008; Szanton et al., 2016; Petersson et al., 2008; Petersson et al., 2009; Brunnström et al., 2004; Whitehead & Golding-Day, 2019; Stark et al., 2017; Carnemolla and Bridge, 2020). Previous research is also consistent with our identification of positive impacts on physical and mental health (Szanton et al., 2016; Carnemolla and Bridge, 2020).

There are a number of findings which underline the potential importance of six previously under-explored outcomes. First, the study demonstrated how recipients of adaptations can influence social participation, by improving the ease by which individuals

can leave their home, improving perceived social acceptability and facilitating visitors' entrance to the property. Carnemolla and Bridge (2020) identified only a small number of studies which have previously investigated this outcome from adaptations (e.g. Pettersson et al., 2012), and none had used an RCT. Given the prospective pathway of improvements in mental health to take place via increases to social interaction, the current study highlights the need for social engagement to be considered as a potential outcome from home adaptations in future quantitative research.

Secondly, we found that in some circumstances, home adaptations had the potential to reduce or eliminate the need for care provision from either family members or social services for certain tasks. There is a dearth of high-quality evidence in this area (Carnemolla and Bridge, 2020). The few studies which have been completed tend to show mixed results, use data from the USA alone and investigate assistive technologies more broadly (Agree & Freedman, 2000; Agree et al., 2005; Anderson & Wiener, 2015; Hoenig et al, 2003). Very few studies have previously identified this outcome in relation to the provision of specifically formal care (Tanner et al., 2008; Whitehead & Golding-Day, 2019). In addition, our research contributes the largely overlooked potential indirect benefits of adaptations for informal care providers, who may experience stabilisation or improvements in their own health and well-being as a result of reductions in their caregiving role.

Thirdly, there is limited research which has considered the potential for home adaptations to prevent or delay relocation, an outcome highlighted by the present study. There is some cross-sectional evidence to suggest older people living in dwellings with adaptations are more likely to have lived in their homes for longer (Hwang et al., 2011). In addition, Newman et al. (1990) found that for older people receiving support from their spouse in the USA, living in homes without adaptations such as grab bars, ramps and raised toilets were more likely to relocate to a nursing home compared to those in dwellings with such features. Our study draws attention to the need to consider the prevention of relocation more broadly, including to sheltered accommodation in addition to care and nursing homes. The findings also highlight the emotional and psychological gains which may result from individuals remaining in their preferred environment.

Fourthly, the study also demonstrates the potential impact of adaptations to other individuals in the household, which has previously gone largely unexplored. Aplin et al. (2015) found positive impacts on other family members from adaptations. While the present study corroborates this finding, it also highlights the potential for adaptations to create tension within households and even increase the risk of injury for those who do not use them. Without consideration of the wider impacts, there is a danger not only that adaptations are undervalued but also that negative health and well-being outcomes for others are ignored.

Fifthly, participants discussed the impacts on their perception of their home. While the aesthetic dimension of the impact of adaptations has been discussed previously (Tanner et al., 2008), the perceived impact of home adaptations on the value or saleability of the home as a potential outcome remains largely unexplored (Aplin et al., 2015). While this is often not the primary aim of installing adaptations, we argue that the finding is still significant. If we are to achieve the utmost benefit of home adaptations for individuals, then uptake needs to be maximised. A considerable proportion of eligible people may be reluctant to accept adaptations, potentially dissuaded by clinical appearances and a social stigma surrounding ageing and disability (Gosselin et al., 1994). Focussing on the potential for enhancements to improve one's physical assets may encourage reluctant individuals to implement changes. Further research is required which explores not only perceptions of improvements to assets as a result of home adaptations but the actual impact of such changes on saleability and value.

Finally, previous studies have not generally identified or considered increased knowledge of, and a positive disposition toward, home adaptation teams and wider social services as an outcome. This is despite its potential to facilitate ongoing support. Indeed, there is some evidence that those who have completed adaptations in the past are significantly more likely to intend to implement adaptations again (Yuen & Carter, 2006) and that this may result in increased control during subsequent experiences of the process, reducing the need for professional advice (Pettersson et al., 2012). Our findings draw attention to the service received, over and above the impact of the adaptation itself. Developing important contacts with relevant officials and tradespeople whom service-users trust and feel comfortable contacting again may hold great potential in indirectly contributing to achieving some of the other outcomes previously explored (Aitken et al., 2017). This is again especially valuable when it is known that individuals can delay acquiring adaptations (Powell et al., 2017).

5 Limitations

While the study makes several contributions, there are nevertheless some limitations to the research. First, the study was focused on just two local authority areas within England with a relatively small sample size. Second, the research used a qualitative methodology and therefore did not seek to recruit a representative sample of the local authority areas in which they took place. Third, the sample was not very ethnically diverse and with limited representation from individuals who rent privately and from housing associations. Experiences particular to non-white groups and renters are therefore likely to be under-represented in the dataset. These three limitations mean that the findings cannot be generalised to the wider population, only demonstrating potential outcomes from home adaptations for some individuals. Furthermore, as a qualitative study, the research did not explore correlation between different variables, such as the potential relationship between particular adaptations and outcomes, and the influence of confounding factors such as the dwelling type, tenure, urban context, and presence of local amenities. Future quantitative studies would be better placed to explore such prospective relationships statistically.

Finally, the study used a cross-sectional research design. Given that the focus of the research concerns changes in the circumstances and experiences of adaptation recipients, a longitudinal research design might offer advantages in capturing nuanced outcomes.

6 Conclusion

This study demonstrates the wide variety of outcomes which can arise from home adaptations for people in later life, several of which have previously been under-explored. There are two key conclusions to be drawn. First, the findings demonstrate the value of qualitative research in this field. In-depth interviews with individuals who have received adaptations, in addition to family carers and practitioners, can reveal a greater diversity of potential impacts through an understanding of their lived experience. The majority of evidence on the effects of home adaptations has been gathered using quantitative methodologies (Carnemolla and Bridge, 2020; Powell et al., 2017). This is understandable, given the potential advantages of this approach when investigating whether a statistical association exists

between two variables. However, a reliance on quantitative research which does not draw on the full range of potential effects of adaptations identified through qualitative work runs the risk of limiting the potential outcomes explored to those which happen to be hypothesised by the researcher. This may unnecessarily narrow the evidence base and ultimately restrict welfare-enhancing policy developments.

Secondly, we conclude that the potential outcomes from home adaptations are varied and therefore recommend that any widely adopted evaluation framework must be comprehensive in order to successfully capture all the potential benefits of home adaptations. In England, significantly increased funding towards the DFG from central government may lead to increased expectations from policymakers on evidencing its impact. In addition, there is increasing recognition within academia that consistent measures for home adaptation outcomes is required (Mackintosh et al., 2018). This would allow service providers to understand the impacts of delivery and to ensure the implementation of the most efficient and successful approaches. More comprehensive research into the outcomes from home adaptations may not only assist policymakers in understanding the value of public investment in this area but may be influential in persuading some people in later life to pursue adaptations which could have a significant positive impact on their quality of life which may otherwise be delayed or ignored.

Acknowledgements We would like to thank all participants for giving their time to take part in this project. We would also like to thank the Chair and members of our steering group (representing Elders Council of Newcastle, Newcastle City Council, North Tyneside Council and Newcastle University) and the Centre for Ageing Better who funded this project.

Funding The research was funded by the Centre for Ageing Better.

Availability of data and material Due to ethical considerations, anonymised versions of transcript excerpts can be provided upon request to the corresponding author.

Declarations

Conflict of interest In January 2021, the lead author began employment with the Department for Work and Pensions. The study and original manuscript was completed before employment commenced, with minor revisions to the manuscript based on reviewer feedback taking place afterwards. The views expressed are those of the authors.

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