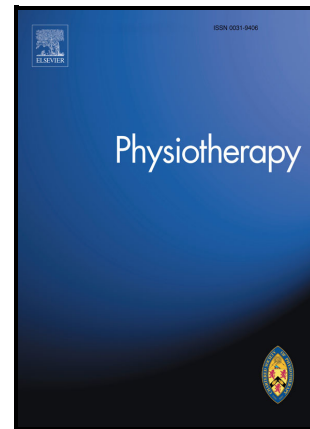# Journal Pre-proof

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The Evaluation of Daily Activity Questionnaire for Stroke Survivors: Cross-Cultural Adaptation, Content Validity and Digitisation

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Abstract

Objective: The study's objective was to culturally adapt and digitise the Evaluation of Daily Activity Questionnaire (EDAQ), originally designed for rheumatoid arthritis and various other musculoskeletal conditions, creating a version for stroke survivors (EDAQ-SS). This adaptation also aimed to develop a comprehensive electronic Patient Reported Outcome Measure (ePROM) intended to refine stroke survivors' self-assessment of their daily activity limitations. **Materials and Methods**: Cross-cultural adaptation of the EDAQ was completed by a review of expert panel, which included healthcare professionals to increase the clarity and relevancy of the items, followed by cognitive debriefing interviews with British stroke survivors to rate their understanding of the questionnaire items. After developing the paper version of the questionnaire, this was digitised (eEDAQ-SS) and disseminated online via the Stroke Survivors Hub (SSHUB). Content validity of the EDAQ-SS was evaluated using the International Classification of Functioning (ICF) Core Set for Stroke. **Results**: The expert panel meeting (n:11) and cognitive debriefing interviews with stroke survivors (n:10) resulted in an EDAQ-SS with 160 items across 15 domains, which was understandable and relevant to stroke survivors. The SSHUB was deemed to be a user-friendly platform, providing easy access to eEDAQ-SS and aid self-assessment of daily activities of stroke survivors. Mapping the EDAQ-SS items to the ICF Core Set for Stroke demonstrated good content validity with 44/55 matching categories. **Conclusion**: The EDAQ-SS offers a comprehensive measure for self-assessment, which may serve to guide stroke survivors' self-management by overcoming limitations of existing PROMs. Further psychometric testing of the EDAQ-SS and wider testing of the digital version is recommended.

Contribution of the paper

- The Evaluation of daily activity questionnaire for stroke survivors (EDAQ-SS) is a culturally adapted, comprehensive PROM for British stroke survivors, enhancing self-assessment of daily activities.

- Methodically developed using guidelines, expert feedback, and stroke survivor interviews, the EDAQ-SS ensures relevance and clarity.

- The EDAQ-SS demonstrates good content validity against the International Classification of Functioning Core Set for Stroke, with potential to improve clinical practice by providing a detailed, sensitive measure to help stroke survivors and healthcare professionals identify and manage daily activity limitations more effectively.

Keywords: Stroke Survivors, Patient-Reported Outcome Measures, daily activities, ADL, Cross-cultural adaptation, ICF linking.

Background

Globally, every three seconds someone has a stroke (1), resulting in impairments that impact the person's ability to successfully engage with activities of daily living (ADL) (2,3). Helping stroke survivors to self-assess their ADL limitations may help them self-manage their condition and increase their quality of life (QoL) (4). Use of patient-reported outcome measures (PROMs) have been shown to help in this process (5), as PROMs can assist stroke survivors to increase their awareness of limitations that they live with (6,7).

Stroke survivors need to easily access PROMs for ADL limitations that cover a wide range of ADL to detect which step of the activity is limited. However, most standardised, commonly

used PROMs for stroke survivors to assess ADL limitations lack comprehensiveness (8). The Rivermead Mobility Index, assesses disability in mobility, consisting 14 self-reported questions and one direct observation (9,10) and the Stroke Specific QoL (SSQoL) Scale, covering 49 items in 12 domains can be given as examples to these PROMs. However, SSQoL had inconsistent results for responsiveness and there is limited evidence on its psychometric properties (11,12). The use of incomprehensive PROMs may lead to overestimation of disability, as the improvement of performance with aids and assistance is not taken into consideration.

The modern digital age offers improved access to complete PROMs electronically, allowing individuals to fill them out at their convenience. Electronic PROMs (ePROMs) increase accessibility of self-assessments, empowering individuals to better self-manage their ongoing ADL challenges. Electronic PROMs are always available as and when needed, portable and can be completed remotely, across multiple devices for ease of use (13-15).

A systematic review of PROMs to measure ADL limitations in stroke survivors found that existing scales were not easily accessible, and did not provide a comprehensive assessment to measure the extent to which these difficulties could be improved with environmental facilitators (8). Thus, this study aimed to develop and test an ePROM that is both sensitive to the nuances of ADL limitations from stroke survivors' perspective, available in both paper and online versions.

A review of PROMs developed and tested in other populations yielded a comprehensive PROM widely used in people with rheumatic and musculoskeletal diseases (RMD) and shown to be highly valid and reliable in measuring a wide range of ADL and the impact of the environmental facilitators in this population. The British Evaluation of Daily Activity Questionnaire (EDAQ-UK) includes 14 domains to assess 138 daily activities with and without

ergonomic methods/help (16). Having two sections to include aids and adaptations to enable a function helps to distinguish an intrinsic disability from an extrinsic disability (17). The EDAQ-UK has been psychometrically tested on people with RMD, and has strong validity, reliability and acceptability, which can be used both in clinical and research practice (18). The EDAQ-UK is also digitised and can be easily completed on an online platform (MSKHUB) (19). Thus, provided an opportunity to create a template for and ePROM, target for British stroke survivors.

Cross-cultural adaptation is typically used to translate materials from one language to another, but it also applies when adapting content between different patient populations (20). This process involves iterative rounds of translation, synthesis, back translation, expert panel review and pre-testing with the target population (21-23). Although the EDAQ has already been translated into English, cultural adaptation is still necessary to ensure the information and context are relevant for stroke survivors. This approach involves key stakeholders, including stroke survivors, in developing meaningful and relevant questions, rather than relying solely on clinical questions created by researchers.

This paper reports on the development and digitisation of the EDAQ-UK for British community-dwelling stroke survivors (EDAQ-SS) specifically the cross-cultural adaptation and the acceptability of the online version (eEDAQ-SS) by stroke survivors.

Methods and materials

The recommended guidelines on cross-cultural adaptation of PROM were used to guide the development of the EDAQ-SS (22,23). This process included an expert panel meeting and cognitive debriefing interviews. In addition, content analysis was conducted by systematically linking the EDAQ-SS items with the International Classification of Function, Disability and

Health (ICF) Core Set for Stroke to assess the comprehensiveness of the EDAQ-SS (24). The Stroke Survivors Hub (SSHUB), (www.strokesurvivorshub.com), was developed to host and improve access to the eEDAQ-SS. It is an online platform that allows stroke survivors to complete ePROM to self-assess their ADL limitations and track changes over time. Feedback from both expert panel members and stroke survivors were incorporated to make the SSHUB user friendly. The process of developing the SSHUB will be detailed in a future dedicated paper.

Ethical Consideration

Ethical approval was obtained from the X Ethics Committee (HSR1819-023). Informed written consent was obtained from British stroke survivors before collecting the data and all data obtained was anonymized, kept strictly confidential, password encrypted, and used for research purposes only.

Expert Panel Meeting

Translation was not required as the EDAQ-UK, originally developed in Sweden (25,26) had already been translated and culturally adapted into British English in 2014 (16). Cross-cultural adaptation process started from an expert panel review to make sure that items of the EDAQ-UK are understandable and relevant for British stroke survivors.

The expert panel, consisting of physiotherapists, stroke and movement specialist, psychologist, speech and language therapist, occupational therapist, social worker, and lay member assessed the clarity, comprehensiveness and relevance of the EDAQ-UK's domains and items. A structured report was used, that listed all the EDAQ-UK items in an order to ensure thorough discussion, and to confirm that each item was relevant and culturally appropriate for British stroke survivors. The meeting took place at the X and was audio-recorded, and transcribed

verbatim. Content analyses of the transcription was conducted alongside the experts' handwritten notes on the paper version of the measure, as well as the notes taken by the synthesis recorder during the meeting. The findings were reported to the expert panel in writing, alongside the revised version of the EDAQ-SS ahead of the cognitive debriefing interviews for review and comment to reach a consensus on the final set of items to include in the cognitive debriefing interviews. This was followed by the digitisation of the questionnaire to produce eEDAQ-SS.

Cognitive debriefing interviews

A convenience sample of participants from the volunteer database of the X were recruited. A participant information sheet was emailed to stroke survivors. After receiving a positive reply, potential participants were telephoned by the researcher for the eligibility check. Stroke survivors were eligible if they were aged over 18, able to write, understand, speak English, had access to the internet and a personal e-mail address, could provide consent and lived in the UK. Stroke survivors were excluded if they had another long-term chronic health condition that impacted their ADL, such as rheumatoid arthritis, to ensure ADL difficulties were relevant to their stroke. Eligible participants were provided information about the study and had the opportunity to ask any questions they had before deciding to take part.

Participants were booked in to take part in a cognitive debriefing interview by telephone. They were mailed the URL link for the SSHUB to complete the questionnaire at home, within one week before the arranged telephone interview. Additionally, they received a paper copy of the EDAQ-SS through the post (this was required to assess the layout of the paper version of the questionnaire). They were asked to complete the paper and ePROM separately, but not in a specific order, prior to the interview. The structured interview was used to assess paper and electronic versions of the EDAQ-SS (Table 1).

The researcher used a five-point rating scale developed to assess the relevancy and ease of comprehension of each item in the EDAQ-SS during the interview (relevancy was measured as 1=relevant to 5=not relevant, and comprehension was measured as 1=very easy to understand to 5=very difficult to understand). Following the completion of the cognitive debriefing interviews, resulting revisions were highlighted in the questionnaire and forwarded to the expert panel, along with a report for them to summarise changes, to gain feedback and further advice regards to the final EDAQ-SS items and layout. In addition, feedback on the digitised version was discussed with the expert panel and IT company to implement the changes.

Data Analysis

Development of the EDAQ-SS items

An initial version of the EDAQ-SS was developed after the expert panel meeting and edited version was used at the cognitive debriefing interview. Categorical responses to the closed questions were documented during the cognitive debriefing interviews and any comments made by participants were recorded. For the importance of items and to get the spread of the middle half of data, the median score was calculated (Table 2). A cut-off score was determined based on the literature for PROM development (16). This was, if 30% of the participants preferred to remove a question or found a question difficult to understand, the question would either be removed or rephrased if appropriate. In addition, comments of stroke survivors were analysed through content analysis to decide upon the removal or addition of new items. Content analysis was conducted using the common method (27-28), which involved dividing participants' comments into smaller parts and then grouping them into categories.

ICF linking

After the cognitive debriefing interviews, the content of the latest version of the EDAQ-SS was evaluated against the ICF linking rules (29,30). This helped to systematically link each item with the ICF Core Set for Stroke Conditions (24,29) to make sure that the EDAQ-SS was comprehensively addressing these core set of items and identify any gaps.

Results

Expert panel

Several changes were made in three months following the expert panel meeting prior to the cognitive debriefing interviews. Eleven experts were involved and reached a consensus of adding 13 new items that reflected their understanding of tasks that stroke survivors would find challenging. For example, "do you have a swallowing problem?" or "do you have an incontinence problem?'' The expert panel rephrased the wording of 30 items to make it relevant to British stroke survivors, such as ''lift a glass'' rephrased to ''drinking from glass''. The panel recognised the need for an additional domain, to address the cognition/perception aspect of ADL limitations, which are common in stroke survivors. Seven items added to develop the cognition/perception domain, such as ''remember new thing'' or ''do things in order''. Finally, expert panel members agreed to remove 11 items from the EDAQ-UK as they were not relevant to stroke. These items were only removed if stroke survivors at the cognitive debriefing interviews agreed that they were irrelevant.

Cognitive Debriefing Interview

Cognitive debriefing interviews were conducted with ten British stroke survivors (Table 3) between December 2018 and March 2019 via telephone. Participants' categorical responses were calculated as a median to show how relevant and understandable they all found the items

(Table 2). Most of the items were deem relevant and understandable. For Part-One of the EDAQ-SS, participants found items relevant and easy to complete except the answer options and preferred horizontal answer option as opposed to vertical, with additional visual cues such as emoji faces, to increase clarity.

For Part-Two of the EDAQ-SS, participants liked the clear instructions, which explain how to complete both sections A and B. Thirty percent of the participants indicated removing eight items. In addition, 11 additional items and two assistive devices were suggested by participants, and these additional items were added to the EDAQ-SS with consensus from the expert panel.

Generally, participants thought that the EDAQ-SS would provide sufficient detail for their self-assessment of ADL limitations as it increased their awareness. Participants said that it would help to assist their discussions with their healthcare professionals and understand to what extent these limitations affect their lives. Participants also mentioned that the EDAQ-SS helped them to realise what they can achieve with an equipment use. A participant mentioned that: "***EDAQ-SS underlines and shows that people can improve. I am pleased that so much work is done for stroke survivors. I think it is necessary.***" Another participant commented that: "***This questionnaire addresses things that you avoid. It made me realise that I can do better.***" Only one participant reported that the EDAQ-SS was too long. However, she thought that all the items were relevant, and did not find any questions in the EDAQ-SS which made her question their purpose. Following the results of the cross-cultural adaptation, the eEDAQ-SS was updated on the SSHUB.

Compared to the paper version of the EDAQ-SS, more than half of the participants (68,4%) were satisfied with the eEDAQ-SS and did not find it burdensome, which showed that the development process was successful. Nearly, all of the participants (84.2%) were happy to use the eEDAQ-SS again in future to evaluate their progress and discuss their situation with

healthcare professionals. It took 40 minutes on average for participants to complete the eEDAQ-SS (SD:18.6; range 15 to 60 minutes). Most of the participants preferred to use electronic version as it helped them to complete it independently with an upper limb limitation. They thought that completing a paper version could be challenging for them.

The International Classification of Functioning Linking

The results of the ICF linking showed that the EDAQ-SS covers most of the ICF Stroke Core Set Activities and Participation items (Supplementary information). Seven ICF Stroke Core Set Activities and Participation items were not included at the EDAQ-SS. These items were asked about in the expert panel meeting and cognitive debriefing interviews. All participants reported that they were covered by other questions and not deemed important for British stroke survivors. This approach supports the content validity of the instrument, implying that the full range of relevant content is covered effectively, even if specific items are not directly included. By not including separate items for concepts that are already covered, it was suggested that the questionnaire can be more efficient, reducing the burden on respondents and potentially improving response rates and quality of the data collected.

It is possible that participants may underreport or overreport certain behaviours or attitudes to conform to what is perceived to be socially acceptable. If participants are aware that their responses might be judged or could influence their care, they might intentionally or subconsciously adjust their answers. The fact that they didn't request additional items could be influenced by a desire to conform to perceived expectations or to avoid expressing needs that might be seen as less acceptable or burdensome.

However, given that the EDAQ-SS development process involved multiple stakeholders, including healthcare professionals and British stroke survivors, and followed recommended

guidelines for PROM development, this bias has been mitigated. Moreover, the iterative process of adaptation and validation, including cognitive debriefing, is designed to identify and address these kinds of issues by ensuring the tool accurately reflects the experiences and needs of stroke survivors.

Discussion

As this study sought permission for a licence from the original developers, it is the first to report the cross-cultural adaptation of the EDAQ-UK for British stroke survivors' use. The EDAQ-SS equips stroke survivors with a nuanced tool to potentially deepen their understanding of the impact on their ADL. This insight may encourage more informed self-management and suggests the possibility for a more collaborative relationship with healthcare professionals, potentially enriching the rehabilitation journey.

Both healthcare professionals and British stroke survivors were involved as part of the EDAQ-SS development process. This helped to recognise that stroke survivors' perspectives can differ from healthcare professionals and helped to develop a comprehensive PROM with strong content validity.

Although there are concerns that older adults with comorbidities may struggle with ePROMs (31), particularly when visual, cognitive, or arthritic issues are present, the findings in this study suggest a more nuanced reality. Despite the common assumption, most participants in this study, who were over 70, successfully completed the eEDAQ-SS independently using SSHUB. This indicates that while some older stroke survivors may face challenges, others do not encounter significant barriers in using ePROMs. It highlights the importance of not generalising the abilities of older adults; the extent of individual limitations, like visual or

cognitive impairments, will vary and may influence the ease with which they engage with ePROMs.

The literature showed that patients with other health conditions are willing to use ePROM regularly due to its advantages (32-33). In this study, results showed that nearly all the participants (84.2%) were happy to use the eEDAQ-SS again in the future. Results of this research were in line with the literature and showed that use of the eEDAQ-SS has potential to improve their self-assessment, as it can help people to increase their awareness on their limitations (6,7).

Due to limited time and resources, we recruited participants exclusively from local networks. Although constrained, this recruitment effort extended over four months, ultimately yielding a sample that accurately reflected the intended demographic and supported the primary objectives of the study. Nevertheless, the small sample size meant that it was not possible to make a comparison between subgroups, i.e., differences in user satisfaction stratified by age, sex, gender, ethnic background, living status, socio-economic status, digital and health literacy, and type of stroke. Future research should include larger sample and longer testing time to maximize users' inputs in the eEDAQ-SS. A power calculation will be necessary to determine the sufficient sample size to proceed to the psychometric testing of the EDAQ-SS, which is also recommended to demonstrate validity and reliability within this population. While the expert panel did not include caregivers, reflecting the focus on self-assessment by stroke survivors for the PROM, this approach might overlook valuable insights. Caregivers often have a close understanding of survivors' needs through daily interactions, and their perspectives could reveal important aspects of the survivors' experiences not captured otherwise.

Conclusion

The EDAQ-SS represents a significant advancement as a detailed and validated PROM for evaluating the nuances of ADL faced by stroke survivors. Its comprehensive nature addresses a crucial gap in existing ePROMs, providing a self-assessment tool tailored to the specific needs of this group. The ability to use the EDAQ-SS at home not only empowers survivors with greater awareness of their capabilities and challenges but also lays the foundation for more meaningful dialogues with healthcare providers, fostering a collaborative approach to management and rehabilitation. Future psychometric evaluation is essential to refine the EDAQ-SS further and confirm its effectiveness and applicability for the British stroke survivor community.

Author contribution

X and X conceived and designed the study. X was responsible for data collection and analysis. All authors played a significant role in interpreting the data and contributed to the manuscript's writing. The final manuscript was approved by all authors.

Disclosure of Interest

None

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Declarations of Interest

None

Tables

Table 1: The questions that were asked to stroke survives in cognitive debriefing interviews for EDAQ-SS and eEDAQ-SS.

Paper version of the EDAQ-SS	Electronic version of the EDAQ-SS
Clarity of the instructions, layout and length	How did they found the SSHUB?
How easy or difficult it was to understand the EDAQ-SS on a numeric scale?	How long did it take for them to complete the eEDAQ-SS?
How important it is to include or remove each item, and if there is any important activity missing?	Was it easy to submit their responses?
If the EDAQ-SS provides sufficient information to them and their healthcare professionals about the difficulties that stroke survivors face?	What would they like to change about the SSHUB to make it easier?
If they are satisfied with the items and domains of the EDAQ-SS and would	Did they require any help to complete the online questionnaires?

consider using it again as a self-assessment

tool?

Table 2: Summary of the Cognitive Debriefing Interview Findings after the Expert Panel Meeting

Domain and item	Participants' relevance rating: Median (IQR) (1 =relevant, 5 =not relevant)	Number of people who wanted to remove or rephrase the item	Rewording of the items
EATING/DRINKING			
1.Drinking from glass	1 (1 to 1)	0	
2.Drinking from cup/mug	1 (1 to 1)	0	
3.Use a knife and fork	5 (3 to 5)	10	Use cutlery
4.Slice food (e.g., bread, cheese)	1 (1 to 2)	0	
5.Get the milk out of the fridge	1 (1 to 1)	0	
6.Open a milk carton/ plastic bottle and pour out	1 (1 to 1)	0	
7.Open a bottle top (e.g., lager)	2 (1 to 5)	3	Removed
8.Open a screw top jar or bottle	1 (1 to 1)	0	
9.Open a tin or a ring pull can	1 (1 to 1)	0	
10.Open a packet/pouch	1 (1 to 1)	0	
11. Enjoy a normal diet	2 (1 to 3)	0	
12. Enjoy a normal drink	2 (1 to 3)	0	
13. Keep well nourished	5 (3 to 5)	6	Removed
14. Enjoy meals with family/friends	1 (1 to 2)	0	
15. Swallow tablets	1 (1 to 1)	1	
IN THE BATHROOM/PERSONAL CARE			
1.Get on and off the toilet	1 (1 to 1)	0	
2.Wipe yourself with toilet paper /clean self below	1 (1 to 1)	0	
3.Using sanitary or/and incontinence products	1(1 to 1)	0	
4.Flush the toilet	1 (1 to 1)	1	
5. Arrange your clothes before and after going to toilet	1 (1 to 1)	0	
6.Wash your hands	1 (1 to 1)	1	
7.Brush and comb your hair	1 (1 to 1)	0	
8. Use a tube of toothpaste	1 (1 to 2)	2	

9. Brush your teeth	1 (1 to 1)	4	Brush your teeth/dentures
10.Open a medicine bottle/ blister pack	1 (1 to 1)	1	
11.Do your make up or shave	1 (1 to 1)	0	
12.Put on jewellery/watch	2 (1 to 2)	2	Put on standard or elasticated jewellery/watch
13. Control your bladder	1 (1 to 1)	0	
14. Control your bowel	1 (1 to 1)	0	
GETTING DRESSED/UNDRESSED			
1.Put on / take off a coat	1 (1 to 1)	0	
2.Pull clothes over your head	1 (1 to 1)	0	
3.Put on front-opening clothes	1 (1 to 1)	0	
4.Do up/undo buttons	1 (1 to 1)	0	
5. Pull clothes over your feet (e.g., trousers or skirts)	1 (1 to 1)	0	
6.Do up /undo zips	1 (1 to 1)	0	
7.Put on tights/ socks	1 (1 to 1)	0	
8.Take shoes/ boots on and off	1 (1 to 1)	0	
9.Tie shoelaces	1 (1 to 1)	0	
10.Put on/take off gloves	1 (1 to 1)	0	
11.Fasten clothes at the back	3 (2 to 5)	4	Fasten clothes/ undergarments at the back
BATHING/ SHOWERING			
1.Get in and out of the bath	1 (1 to 1)	0	
2.Shower whilst standing	1 (1 to 1)	0	
3.Use shower controls	1 (1 to 1)	0	
4.Feel the temperature of the water?	1 (1 to 1)	0	
5.Turn taps (any in home)	1 (1 to 1)	0	
6. Wash all your body parts	1 (1 to 1)	0	
7. Dry all your body parts	1 (1 to 1)	0	
8.Wash your hair	1 (1 to 1)	0	
9.Style/ blow-dry your hair	1 (1 to 1)	1	
10. Take care of your hands and feet including cutting/filing your nails	1 (1 to 1)	1	
COOKING			
1.Stand while working in the kitchen	1 (1 to 1)	0	
2.Set the table/ carry plates, cups etc	1 (1 to 1)	0	
3.Peel and chop vegetables	1 (1 to 1)	0	
4.Carry a full pan to/ from the cooker	1 (1 to 1)	0	
5.Drain water from a saucepan (e.g., vegetables, pasta)	1 (1 to 1)	0	

6.Remove heavy items (e.g., bag of sugar) from top cupboards	1 (1 to 1)	0	
7.Baking (e.g., cakes, bread, pastry)	1 (1 to 1)	0	
8.Take things in/out of oven	1 (1 to 1)	0	
9.Wash up	1 (1 to 1)	0	
10.Put crockery/pans etc., into kitchen cupboards	1 (1 to 1)	0	
11.Use a kettle (e.g., fill, pour)	1 (1 to 1)	0	
12. Use your cooker/microwave	1 (1 to 1)	0	
13.Open fridge door	3 (2 to 4)	7	Removed
14.Prepare and cook a snack and/or a meal	1 (1 to 1)	1	
MOVING AROUND IN DOORS			
1.Walk indoors (e.g., get to toilet/ bathroom; round kitchen)	1 (1 to 1)	0	
2.Open the front/ back door	1 (1 to 1)	0	
3.Lock and unlock doors	1 (1 to 1)	0	
4.Get to the front door in time to answer	1 (1 to 1)	0	
5.Get to the phone in time to answer	1 (1 to 1)	0	
6.Stand for longer periods	1 (1 to 1)	0	
7.Get up and down steps/ stairs	4 (2 to 5)	8	Separated into two different questions: -Get up and down steps -Get up and down stairs
8.Bend to floor/pick up items	1 (1 to 1)	0	
9.Reach up	2 (1 to 2)	2	
10. Get on /off floor	1 (1 to 1)	0	
11. Carry items around the house	1 (1 to 1)	0	
12.Manage heating (e.g., controls, woodburner, multifuel stove, open fire)	1 (1 to 1)	0	
CLEANING THE HOUSE			
1.Make the bed	1 (1 to 1)	0	
2.Dust and wipe surfaces	1 (1 to 1)	0	
3.Sweep up/ mop floor	1 (1 to 1)	2	
4.Wring out a cloth	1 (1 to 1)	0	
5.Vacuum clean	1 (1 to 1)	2	
6.Open a window	1 (1 to 1)	0	
7.Clean windows	1 (1 to 1)	0	
8.Clean the bath and/or shower	1 (1 to 1)	0	
9.Heavy housework (e.g., move furniture, take down curtains)	2 (1 to 2)	2	

LAUNDRY/ CLOTHES CARE			
1.Do the hand washing	3 (2 to 5)	3	Removed
2.Use a washing machine (e.g., load and unload)		0	
3. Hang out and folding washing	1 (1 to 1)	0	
4.Plug in and pull out a plug (any in home)	1 (1 to 1)	1	
5.Put up an ironing board	1 (1 to 1)	0	
6.Iron	1 (1 to 1)	0	
7.Do small repairs e.g., hemming, buttons	1 (1 to 1)	2	
8.Cut cloth and/ or use scissors	1 (1 to 1)	3	Use scissors
9.Pick up pins/needles	4 (3 to 5)	4	Removed
MOVING AND TRANSFERS			
1.Get into and out of bed	1 (1 to 1)	0	
2.Turn over and sit up in bed	1 (1 to 1)	1	
3. Stand up from a chair	1 (1 to 1)	0	
4.Pull up bedclothes/duvet	1 (1 to 1)	0	
5.Getting a comfortable sleeping position	1 (1 to 1)	1	
6. Sit independently (e.g., in a car, train)	1 (1 to 1)	0	
7. Move from bed to chair	1 (1 to 1)	0	
COMMUNICATION			
1.Use a phone / mobile (call/ text/ any functions)	1 (1 to 1)	1	
2.Read directions on food packets	1 (1 to 1)	0	
3. Follow instructions on a microwave	1 (1 to 1)	0	
4.Read and choose from a menu	1 (1 to 1)	2	
5. Read newspapers/magazine/books	1 (1 to 1)	2	
6. Read street names and road signs	1 (1 to 1)	0	
7. Read maps	1 (1 to 1)	0	
8. Use a computer and a mouse	1 (1 to 1)	0	
9. Use remote controls and/ or environmental control	3 (2 to 4)	3	Removed
10. Write a shopping list	1 (1 to 1)	0	
11. Write a letter	1 (1 to 1)	10	Write a letter/card
12. Fill out a from	1 (1 to 1)	0	
13. Write a card	1 (1 to 1)	10	Removed
14. Chat in social situations	1 (1 to 1)	0	
15. Talk with the doctor	1 (1 to 1)	0	
16. Order in a café, pub or restaurant	1 (1 to 1)	0	
17. Ask and/or give directions	1 (1 to 1)	0	

18. Tell bus/taxi driver your destination	1 (1 to 1)	0	
19. Ask for something in a local shop	1 (1 to 1)	0	
20. Exchange something	1 (1 to 1)	0	
21. Complain in a shop	1 (1 to 1)	0	
22. Give money and count change	1 (1 to 1)	0	
23. Use a pin pad in cash machine	1 (1 to 1)	0	
MOVING AROUND OUTSIDE/ SHOPPING			
1.Walk on level ground	1 (1 to 1)	0	
2.Go for a long walk (e.g., a mile)	1 (1 to 1)	0	
3.Go upstairs without a handrail	4 (3 to 5)	10	Removed
4.Travel by public transport	1 (1 to 1)	2	Separated into two different questions: - Get on and off a bus -Get on and off a train
5.Get in and out of a car and open car door	1 (1 to 1)	0	
6.Drive a car (e.g., hold steering wheel, turn car key, change gear)	1 (1 to 1)	2	
7.Fill the car with petrol	1 (1 to 1)	0	
8.Open a heavy (e.g., shop) door	1 (1 to 1)	0	
9.Walk around the shops	1 (1 to 1)	0	
10.Carry shopping	1 (1 to 1)	0	
11.Do the weekly shopping	1 (1 to 1)	0	
12.Safely cross the road in time for the light	1 (1 to 1)	0	
13. Walking on uneven floor	1 (1 to 1)	0	
14. Walking in slopes	1 (1 to 1)	0	
GARDENING/ HOUSEHOLD MAINTENANCE			
1.Light gardening (e.g., weed, prune, plant)	1 (1 to 1)	0	
2. Heavy gardening (e.g., dig, mow)	1 (1 to 1)	2	
3.Clean the car (inside and out)	1 (1 to 1)	2	
4.Do household repairs	1 (1 to 1)	1	
5.Car maintenance (e.g., oil, water)	1 (1 to 5)	4	Removed
CARING			
1. Feed another person, prepare bottles	1 (1 to 1)	0	
2. Bathe another person/ change nappies	1 (1 to 1)	0	
3. Dress another person	1 (1 to 1)	0	
4. Do another person's hair	1 (1 to 1)	0	

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5. Use equipment for another person (e.g., high chair, push wheelchair, car seat)	1 (1 to 1)	0	
6. Put another person in/ out of high chair, push chair, high seat, wheelchair	1 (1 to 1)	0	
7. Help move another person	1 (1 to 1)	0	
8. Engage or occupy with another person	1 (1 to 1)	0	
HOBBIES, LEISURE AND SOCIAL ACTIVITIES			
1.Crafts (e.g., knitting, crochet, sewing, embroidery, model making)	1 (1 to 1)	0	
2.Do-It-Yourself (e.g., using tools, decorating)	1 (1 to 1)	2	
3.Visit friends/ socialising(e.g., pub, cinema, theatre)	1 (1 to 1)	0	
4.Attend community / religious groups or classes	1 (1 to 1)	0	
5.Physical activities (e.g., dance, active sports, swimming, bicycling, fishing)	1 (1 to 1)	0	
6.Quiet recreation (e.g., painting, cards)	1 (1 to 1)	0	
7.Performing arts (e.g., music, choir, dramatics)	1 (1 to 1)	0	
8. Pet care (e.g., feed, groom, walk)	1 (1 to 1)	0	
COGNITION/PERCEPTION			
1. Think quickly	1 (1 to 1)	0	
2. Concentrate	1 (1 to 1)	1	Concentrate (e.g., when driving, talking, reading)
3. Remember new things	1 (1 to 1)	0	
4. Discuss news/current issues	1 (1 to 1)	0	
5. Make decisions	1 (1 to 1)	1	Separated into two questions: - Make a decision about daily choices (e.g., what to eat) -Make decisions about financial issues (e.g., manage money)
6. Do things in the right order	1 (1 to 1)	1	Do things in an order
7. Notice things on both side of you	1 (1 to 1)	0	

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Table 3: Cognitive Debriefing Interview Participants' demographic characteristics

Stroke Survivors	
Range of age (years)	49-81
Stroke Survivors	**Number (n:10)**
Gender Male:Female (n)	7:3
Type of stroke (n)	Ischemic: 7
	Haemorrhagic: 3
Location of injury of brain as described by participant (n)	Brainstem: 1
	Cerebellum: 1
	Left: 5
	Right: 3
Effects of the Stroke (n)	Hemiplegia: 7
	Aphasia: 3
	Vision: 3
	Reduced balance: 1
	Neglect: 2
	Dysarthria: 1
	Memory issues: 2
Accommodation (n)	House: 7
	Bungalow: 1
	Flat: 2
Internal steps:	7
Problem using stairs:	4
Stair lift:	1
Lives with family:	6
Lives alone	4
Affected side of body:	Left: 4
	Right :5
	Not Appropriate[1]:1
Other health condition impacting health (e.g., Arthritis):	4
Help required to complete questionnaires:	1

[1]For stroke survivors who did not have a specific body side limitation and had other problems such as balance.