Reviewer’s report

Title: Informal carers' experience of assistive technology use in dementia care at home: A systematic review

Version: 0 Date: 10 Apr 2019

Reviewer: Grant Gibson

Reviewer’s report:

The paper provides an interesting and needed systematic review summary of the evidence base pertaining to assistive technologies (ATs) and their use by informal carers of people living with dementia. The review covers the majority of the papers exploring the topic and provides a summary analysis of the major issues identified across the literature in relation to their uptake, benefits and problems pertaining to their usage. Informal carers are key figures in determining whether ATs will be used by people with dementia, and are also important beneficiaries of these technologies, so collating the available evidence relating to relative effectiveness and benefits of ATs for this group means the paper makes a useful contribution to the literature.

I did feel that there were a few areas of relative weakness in the analysis that would require some further attention before the paper was published, which I make below. I first did feel that while the authors are correct to say that carers have only infrequently been explicitly studied as recipients and beneficiaries of ATs or the impacts of AT's on the health and wellbeing of importance, they are often been identified as implicit beneficiaries of AT's, and a number of studies (including but not limited to my own) have noted that informal carers are key gatekeepers and decision makers regarding uptake and successful use of ATs. In addition, in practice it is often the outcomes for carers, rather than the person with dementia, that are the key driver behind the deployment of ATs. I therefore felt that the argument being made that little is known about informal carers use of AT doesn't accurately reflect the knowledge base regarding ATs, and that the authors need to provide a more nuanced justification for the review given our current knowledge of AT use among informal carers of PwD. I felt that a better justification is that the literature around ATs has not explicitly looked for outcomes in terms of carer wellbeing, even though carers have routinely been identified as essential to AT deployment.

The systematic review methodology described in the paper was well described and accounted for. There was a point in the section on data synthesis, (pg10 lines 230-232) that needed clarification in relation to thin and thick descriptions. These are specific sociolocial and anthropological terms, but from the brief account I was not entirely clear if they were using these meanings, and if not what the authors meant when classifying papers in this way. I therefore felt that the authors needed to clarify this, as there are certainly papers which have undertaken what could be called a 'thick' descriptive approach based on the authors description when exploring AT use - (for example Mort et al 2013).

I did feel that the authors review of the qualitative studies in relation to question 3 could be improved somewhat. First I thought that their claim of there being 4 themes and 11 subthemes
(pg 12 lin 282-283) wasn't entirely clear. I counted 15 sub themes, of which some were included as both positive and negative aspects of AT - I felt this could be clarified a little. I also felt that the descriptions of the key themes summarised from the wide ranging literature were a little brief and could be expanded upon. For example where the authors state that the AT became a 'member of the PwD's wider social network', the authors do not expand on this. Doe they mean the technology itself becomes an actor in a person's network, or does it facilitate wider relationships with family members or others. the author's meaning needs to be clarified.

The authors could also do more to relate the positive aspects to each other. Did any appear to be prioritised as more important in the paper, and if so which? Or did some occur more prominently as others? Providing some information about the relative frequency or importance of the themes would help the reader make better judgements about their analysis. For example issues of security and risk management are frequently identified as priority issues for the implementation of AT, particularly by carers, yet this is not highlighted or engaged with in the paper, and safety only receives a relatively small amount of attention. I would have also expected levels of knowledge about ATs among informal carers to feature within the reviewed papers so was surprised that this didn't appear in the author's discussion.

In terms of the discussion I felt the manuscript gave a useful summary of some of the practical issues that are influencing AT use from the perspective of informal carers, and highlight a number of changes which could be implemented based on the review. In the main I felt these were well identified and thought out. I would agree with the authors that the issue of timing the introduction of AT is particularly important, however I would argue that in reality it is rare for ATs to be provided via a preventative approach, and it is more likely that devices will be sought at or after a person reaches a crisis point. In addition, the discussion relating the customisation of AT could be informed and strengthened by recent papers in relation to this issue by Gibson et al (2018) and their paper called 'personalisation, customisation and bricolage' how people with dementia make Assistive technology work for them, which explicitly looks that this issue.

The conclusion could be strengthened by summarising some of the key findings of the review as well as identifying some of the potential areas for research in the future. Based on these changes being made, I would be happy to review another version of the manuscript with a view to accepting it for publication.

Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

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Yes

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