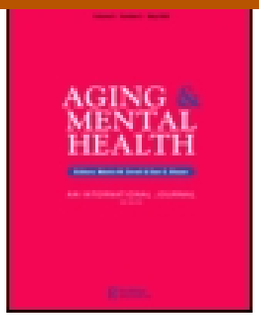

Aging & Mental Health

Taylor & Francis Group

ISSN: 1360-7863 (Print) 1364-6915 (Online) Journal homepage: https://www.tandfonline.com/loi/camh20

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To cite this article: Veronika van der Wardt, Jennie Hancox, Kristian Pollock, Pip Logan, Kavita Vedhara & Rowan H. Harwood (2019): Physical activity engagement strategies in people with mild cognitive impairment or dementia – a focus group study, Aging & Mental Health, DOI: 10.1080/13607863.2019.1590308

To link to this article: https://doi.org/10.1080/13607863.2019.1590308

Published online: 07 Apr 2019.

AGING & MENTAL HEALTH
https://doi.org/10.1080/13607863.2019.1590308

Physical activity engagement strategies in people with mild cognitive impairment or dementia – a focus group study

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ABSTRACT

Objective: This focus group study aimed to explore how to motivate people with mild cognitive impairment (MCI) or dementia and their carers to engage in exercise and physical activity.
Methods: Four focus groups were conducted with six people with MCI or dementia, three carers and four clinicians (nurse, occupational therapist, physiotherapists). A thematic analysis of the data was undertaken.
Results: Five main themes were identified: 'memory problems', 'self-motivation', 'external motivation', 'design of activities' and 'barriers'. Participants viewed exercise positively but emphasised that it needed to fit into their daily routine. Goal-setting was seen as helpful by some participants but others saw this as a source of potential failure. Enjoyment was seen as key to engagement.
Conclusion: Exercise and physical activity interventions need an individualised approach to engage people with MCI or dementia, with a positive emphasis on enjoyment. Goal-setting should be used with caution in this group of people.

ARTICLE HISTORY
Received 19 March 2018
Accepted 23 February 2019

KEYWORDS
Dementia; physical activity; exercise; motivation; behaviour change

Introduction

Exercise and physical activity have multiple benefits in people with mild cognitive impairment (MCI) or dementia including positive effects on functional abilities, mood, mobility and cognition (Forbes, 2015; Brett, Traynor, & Stapley, 2016; Rao, Chou, Bursley, Smulofsky, & Jezequel, 2014; Barreto, 2015; Bossers et al., 2014; Hernandez, 2015). Three recent systematic reviews (van Alphen, Hortobagyi, & van Heuvelen, 2016; van der Wardt et al., 2017; Nyman, Adamczewska, & Howlett, 2018) identified barriers and facilitators for exercise and physical activity engagement in people with dementia. In addition to practical support strategies such as exercise recording sheets, reminders and pedometers, the reviews identified intra- and interpersonal factors that might support exercise and physical activity engagement in people with dementia. Intra-personal factors were the importance of enjoyable activities, a positive attitude to physical activity and the ambition to overcome barriers. Interpersonal factors included the support of others and supervision either in a one-to-one or a group setting. The evidence for goal-setting as a potentially useful behaviour change technique was mixed (Nyman et al., 2018; French, Olander, Chisholm, & Mc Sharry, 2014). However, the effectiveness of behaviour change techniques in people with dementia has not been determined due to a lack of randomised controlled trials (RCTs) of motivational interventions in this population. Furthermore, it is unclear how facilitators and barriers to exercise and activity engagement interact; for example, while bad weather might deter an individual from going for a walk (barrier), knowledge regarding the importance of physical activity (facilitator) might lead to the decision to walk despite the weather. Similarly, simply knowing how beneficial exercise is might not be enough to motivate someone; but this knowledge in combination with the support from others might lead to higher physical activity levels.

The Behaviour Change Wheel (Michie, van Stralen, & West, 2011) reflects the interrelatedness of barriers and facilitators influencing behaviour change and outlines the conditions needed to initiate and maintain health behaviour changes, which are categorised into capability, opportunity and motivation (COM-B model). Barriers and facilitators can affect any of the three components and are likely to moderate the resulting behaviour change. However, research so far only looked at individual facilitators and barriers and it remains unclear how barriers and facilitators interact, and how this will impact on exercise and physical activity behaviour of people with MCI or dementia.

In preparation for the development of an exercise and physical activity intervention, four focus groups were conducted to explore patient, carer and professional perspectives about what influences engagement in exercise and physical activity in people with MCI or early dementia. The aim was to explore in depth facilitators and barriers for exercise and physical activity engagement and their interactions in people with MCI and early dementia in the UK.

Method

Design

Four focus groups were conducted using a semi-structured interview guide. Two focus groups included people with

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Table 1. Focus group participant.

Focus group 1: participants without exercise intervention experience	Focus group 2: participants without exercise intervention experience	Focus group 3: participants with exercise intervention experience	Focus group 4: clinicians
Two men with MCI or dementia (Mr W. and Mr R.)	Two men with MCI or dementia (Mr M. and Mr A.)	One woman (Mrs N.) and one man (Mr B.) both with MCI or dementia who had participated previously in an exercise intervention study	One nurse (N) falls specialist (Mrs S.)
One spouse with carer responsibilities (Mr R.'s wife)	One spouse with carer responsibilities (Mr A.'s wife)	Woman's daughter who had carer responsibilities (Mrs N.'s daughter)	One occupational therapist (OT; Mr E.)
			One physiotherapist working (PT) for the local falls prevention services (Mr J.)
			One physiotherapist (PT) working for the local mental health service (Mrs T)

MCI or early dementia and their carers who had not previously participated in a research exercise intervention (focus group 1 and 2), one group included people with MCI or dementia and their carers who had participated in an exercise proof-of-concept intervention study (Booth, 2016) (focus group 3) and the last group included clinicians with experience in treating people with MCI and dementia (focus group 4).

Ethical approval was granted by the NHS Health Research Authority (xxxx).

Participants

Participants with a diagnosis of MCI or dementia were recruited from memory clinics across the East Midlands/UK, the Join Dementia Research network and, for focus group 3, from a proof-of-concept study testing an exercise intervention. The proof-of-concept study included a six week individually-tailored strength, balance and dual-tasking training programme including twice weekly sessions at the participant's home with an exercise supervisor.

Relatives with caring responsibilities were invited to join. Clinician participants were recruited from the local healthcare services. All clinicians had extensive experience in working with people with dementia. Recruitment continued until all groups had at least three participants. Focus group participants are presented in Table 1.

Further demographic information was not collected from the participants unless they mentioned it in the interview.

Procedure

Prior to the focus groups, all participants received written information about the study. Consent was signed before the start of data collection. Each focus group was attended by three researchers, two leading the conversations and one taking notes. A draft manual for the exercise and functional activity intervention was sent out to the clinicians in focus group 4 in order to focus the discussion on the role a clinician could have in an exercise and functional activity intervention. This was reflected in the semi-structured interview schedule for this group. While the questions for the groups including people with MCI and early dementia and their family carers focused on motivation to engage in exercise and physical activity, the clinician focus group discussed the development and implementation of the whole exercise and functional activity intervention. Motivation to engage in exercise was only a part of that discussion. Unless stated otherwise, the discussion and the participants' responses followed the questions of the interview schedule, which had been developed collaboratively by the authors. All participants were encouraged to talk freely about any topic they deemed important. All discussions were recorded and transcribed verbatim. In addition, field notes were taken to support the analysis of the transcriptions.

Analysis

Based on the voice recordings, the transcripts and notes, a thematic analysis was completed (Clarke & Braun, 2014). Following standard procedures of qualitative research, an initial coding frame with preliminary themes was developed by the first author, using the principle of constant comparison to include data-driven themes and patterns. Transcription texts were analysed using inductive coding, for example, quotes referring to reminders and consequences of forgetting how to use devices were indexed under 'memory problems'. Author 2 and 3 independently examined the data for the purpose of data triangulation. Following discussions and collaborative reflections with author 2 and author 3, the coding was extended, the themes were adapted and a consensus reached. The software analysis programme NVIVO 11 was used to manage the data and record changes in interpretation.

Results

In total, the focus groups included 13 participants. Six of the nine participants of the focus groups including people with MCI or dementia and their carers (focus groups 1 to 3) mentioned their age during the discussions. Their age ranged from 64 to 86 years. All participants made an active contribution to the discussion. Participants in focus groups 1 to 3 undertook varying degrees of exercise and physical activity though none of them participated in exercise groups or sports. Two participants regularly walked their dogs. All participants were able to walk independently but one preferred to use a walking stick on occasion.

The participants of the clinician focus group did not indicate their age or the duration of their professional experience. Pseudonyms have been used throughout (see Table 1: focus group participants). In the pseudonyms, POC refers to proof-of-concept study participants, PT to Physiotherapists and OT to Occupational Therapists. For clarity, all participants with MCI or early dementia will be called patients, all participants who were spouses or

Table 2. Themes, sub-themes and further sub-ordinate themes.

Main theme	Sub-theme	Further subordinate themes to the sub-theme
Memory problems	—	—
Self-motivation	Organisation	Goal-setting; reminders; planning; habit/routine; control
	Benefits	Enjoyment; remaining independent; keeping fit and healthy
External motivation	Family	—
	Dogs	—
	Socialising with others	—
	Feedback from clinicians	—
	Gadgets	Music; videos, DVD and video apps; rewards; equipment
	Information	—
Design of activities	Tailoring	—
	Setting	—
Barriers	Environmental barriers	—
	Health issues	—
	Conflict with other activities	—
	Believing being unable to complete the exercises or physical activities	—

children of the patients will be called relatives and all participants who were clinicians will be called clinicians.

Findings are presented under five themes: memory problems, self-motivation, external motivation, design of delivery and barriers. The clinicians' views were added separately to allow comparison. Themes and sub-themes are presented in Table 2.

Memory problems

'Memory problems', and strategies to overcome them, was a topic that cuts across all other themes and was discussed in the context of the use of reminders and support by others. Participants used different types of reminders to aid memory. Some described leaving paper notes around the house.

> 'We leave scraps of paper around' Mr A's wife

Some used a timer or their smartphones to set reminders. However, patients as well as relatives indicated that they would not like to receive calls to remind them to carry out their exercises. Furthermore, not all patients had a mobile phone; one just disliked using it, and one patient did not know how to use it

> 'I've got my mobile phone and I'm useless with it.' Mr B. (POC)

Others used calendars or diaries to support their memory. None of the participants currently employed reminders for exercises or physical activities but ideas were discussed around how these could be used to support engagement. One patient who had completed the proof-of-concept intervention study suggested that it would be helpful to have the exercise booklet provided in the study lying in a frequently looked at place. It was unclear, however, if the participant had actually done that. Another patient had used a large memory board with changing pictures to set reminders for his mother who had dementia. He used pictures that would draw her attention, for example pictures of her favourite TV personalities. Texts, messages and emails were also seen as a useful tool to remind people to do their exercises or physical activities

> 'It's very useful to get the reminder or, like the email this morning' [reminder email for the focus group] Mr R.

For some, memory problems meant that substantial support from others might be needed; for example, to walk with them to ensure that they arrive safely back home as just picking them up from a walk would not be enough.

> 'You [her husband] walk from here to here, and I'll meet you there, he would possibly struggle because of his memory, his short term memory is so bad, he would forget what the arrangement was.' Mr R's wife.

Self-motivation

'Self-motivation' included the sub-themes 'organisation' and 'benefits'. The participants used a wide range of strategies to support their self-motivation to do activities and exercises. The sub-theme 'organisation' comprised four further subordinate themes including 'goal-setting', 'planning', 'habit/routine' and 'control'. These strategies were not only discussed in the context of supporting exercise and physical activity motivation but also in relation to staying active in general.

Some patients used goal setting to motivate themselves to be physically active and considered it as a helpful strategy, but not everyone liked the idea of setting goals.

> 'I do always have something in the day, sort of like, little goals and little, little rewards, if you like, little things, if it's something at lunchtime' Mr A.

> 'I think I'd set myself up for a fall' Mr A.'s wife.

Keeping the goals in mind might be difficult for people with memory problems and require additional reminders or organisation.

Planning the exercises and activities was seen as important in supporting engagement. However, there was also an awareness that exercise had to be fitted round other daily goals and activities, and that diaries can get quite busy.

> 'Yeah could do [planning]. If there's room. It really does get … chocka. Doesn't it?' Mr A.'s wife.

Most participants did routine physical activities such as treadmill cycling, dog walking or household chores. Participants considered habit formation as a good way of doing exercises and physical activities regularly. However, while some reported wanting to or actually following a rigidly set routine, not everyone agreed.

> 'Yeah. I think I shall put in the diary, every day, you know, especially when I'm stopping in, to make sure I get my exercises done every day'. Mrs N. (POC);

> 'Can create my own routines and keep to them, or vary them, … as I need.' Mr M.

For some participants, it was important to have control over their activities. One participant emphasised that she wanted to be in charge of the timing of her exercise.

'And somebody else coming in and telling me I should be doing it at a certain time because you, you've agreed to this wouldn't go down well with me.' Mr A.'s wife.

The sub-theme 'benefits' included the sub-ordinate themes 'enjoyment', 'remaining independent' and 'keeping fit and healthy'.

Enjoyment was considered key to participating in exercise and physical activity.

'Well, if you're going to keep it up, it needs to be something that you enjoy, in the main' Mr R.'s wife;

Leisure activities including gardening, dog walking, mountaineering and walking were discussed as an opportunity for physical activity that people currently enjoy or enjoyed in the past.

'I don't know, I just find that I enjoy it [dog walking] but I don't know that there's anything special that about it, it's the sort of thing you do.' Mr A.

Remaining independent and active was an essential goal for some participants and relatives.

'I would say that, as far as I'm concerned, they want to be able to carry on, I don't want to be sat in a chair, I don't want to finish up in a wheelchair, or reliant on other people too much' Mr B. (POC)

Also, keeping fit and healthy were considered important benefits of physical activity and exercise for some participants.

However, while remaining independent was important to the participants, this did not necessarily translate into a commitment to engage in regular exercise or sports participation. The comments above also suggest that physical activity was seen as a way to not deteriorate rather than to regain or extend functional capacity.

The exercises completed as part of the proof-of-concept study were also seen as helpful by one patient.

'Well, I think it keeps you, it keeps you moving. It keeps you lively, because if you sit too long, I find, you get stiff …, very stiff…' Mr B. (POC)

However, despite recognising these benefits of the exercises completed in the proof-of-concept study, this individual was not motivated to continue the exercises or to take up any other kinds of physical activities following his involvement in the study.

External motivation

'External Motivation' included the sub-themes 'family', 'dog-ownership', 'socialising with others', 'feedback from clinicians', 'gadgets' and 'information'.

Family was seen as an important support mechanisms for doing exercises and activities. For some patients and relatives it meant that they would like to be active together.

'Me and my wife' Mr A.

Support from others can also encourage and give confidence to be independent.

'Well, I go, I go to [a city] now. I didn't for a time, you know, because I was a bit nervous. …. But, you [daughter] said to me, Oh, you going to be all right in the (bar)? You know. Yes. And, it does give you independence, going out and…' Mrs N. (POC)

However, support from others also might discourage independent activities as one patient pointed out:

'And if I want anything, she'll get it me …., I can do that myself really, I've said to her, I can go down there myself, I'm going in my car, I'm still driving and that. So, you know, but they insist on it and you know, if they want to help you, you, I think you've got to let them.' Mr B. (POC).

Two patient and relative couples had dogs, which motivated them to go for regular walks. Though the motivation for dog walking was taking care of the dog, participants did see it as a contribution to their physical activity.

'For me, you go out, they make you go out, they make you walk, you have to go out, twice a day, you have to do it.' Mr M.

Feedback from clinicians in the proof-of-concept study was considered helpful though it was unclear if this translated into more engagement in physical activity.

'Well, [the clinician] said to me one day, I think it was on the final day, she looked at the papers and she said, "You've, you're better now because, that, the first one was whatever, and this one was that much better." And, so, you knew that it had done something good, and yeah, and it, and that helps you, that, that brightens you up a bit, yeah.' Mr B. (POC)

Motivation support through gadgets included the sub-ordinate themes 'music', 'videos, DVD and video apps', 'rewards' and 'equipment'. Participants were specifically asked about these elements. While most patients and relatives would welcome music during their exercises, one participant indicated that while she would like music, she had forgotten how to switch her audio player on. Some participants were receptive to using videos or DVDs to help them do their exercises but would not necessarily prefer these over personal contact with a clinician.

'You could do. But it's not the same, it's not so personal, is it?' Mr B. (POC)

In addition, not everyone considered a DVD preferable to drawings of the exercises. Communication using video apps (e.g. Skype) to remind people to complete the exercises was also not seen as useful. One participant suggested that this would feel intrusive. Another reported rewarding himself with watching television after completing his exercises but there was no interest from participants in receiving external encouragement, such as certificates for completing exercises or physical activities regularly.

The use of exercise bikes was discussed in one focus group with one participant sometimes exercising on it in front of the television, which prompted interest from the other participants in the group to use an exercise bike. Other equipment included a walking stick, which was seen as essential by one participant for his physical activity.

'And that's a godsend, isn't it, that stick?' Mr B. (POC)).

Information was seen as positive if it related to the exercise, depending on its format. Leaflets about exercise or physical activities were generally not appreciated but information on how to do specific exercises and how to do them safely was seen as important. One participant suggested that large graphics should be used, so people would be able to see what they should be doing while

they are exercising. The information should also be individualised and not in a general 'one size fits all' format.

> 'I think you've got to treat us as individuals. You can't just have a little textbook that's going to work for everybody' Mr M.

Design of activities

'Design of activities' included the sub-themes 'tailoring' and 'setting'.

The diversity of preferences shown under the themes above indicates that tailoring would be key to engaging people in exercises. Tailoring was discussed in relation to different aspects of the intervention, including preferences for activities and gadgets, as well as the adaptation of activities to the changing abilities and context of the patient. Therefore, repeated re-assessment of the patient's abilities and context is required. Prescribed pathways might not be helpful as one participant observed.

> 'Oh dear, all these good, they are on paper, good ideas, and a different group of people, they might grab those, fantastic. But we're all different, as you'll find, we're all different.' (Mr M.)

Also, for the setting of the activity, preference was a key factor. The focus groups included patients who would enjoy doing activities with others but also patients who were clearly not encouraged by the idea of going to group activities.

> 'I would like somebody who was interested in walking.' Mr R.

> 'I'm personally not interested in going in groups. Really, really not.' Mr B. (POC)

One-to-one supervision of activities and exercises had only been discussed in the focus group including people who completed the proof-of-concept study. They all enjoyed doing the exercises with the clinician on a one-to-one basis.

> 'It's more a personal touch, which is nice, and like this lady [another participant] says, if you're on your own a lot, that is, it's company as well, for that time.' Mr B. (POC)

In addition to the home setting, outdoor activities were considered a good choice as well as a gym setting with appropriate support for the exercises, depending on individual preferences.

Barriers

A variety of barriers to exercise and physical activities was mentioned by the participants. These included the sub-themes 'environmental barriers', 'finances', 'health issues', 'conflict with other activities' and 'believing being unable to complete the exercises or physical activities'.

Environmental barriers included the surroundings not being inspiring for walks and potential activities not being accessible.

> '… the trouble is, it's all located that far away' [distances to activities] Mr W.

The potential financial impact of some physical activities might deter some people from choosing this option.

> 'It's, I mean, you're talking gyms, you're talking money again, and we're pensioners, and we just haven't got the funds.' Mr A.'s wife

In addition to the memory problems discussed above, depression and physical limitations might limit engagement in exercise and physical activity. This could be due to health problems being a perceived barrier. One patient indicated that he preferred to stop exercising before it gets strenuous.

> 'I don't get out of breath nowadays, but I've got asbestos lung disease so I don't try to get out of breath particularly.' Mr B. (POC))

However, the same patient also recognised that the exercises that he did during the proof-of-concept study helped him with his breathing.

> 'Yeah. It helped my breathing, I think, because, when I first started, up and down stairs, I tried to do it faster and faster, and I was puffing and panting. But if I did it more regular, I didn't seem to get out of breath so quick.' Mr B. (POC)).

Conflict with other activities was discussed in the context of planning (see above under Self-Motivation) and dog-ownership, which was also seen as a limitation to flexibility to engage in exercise and physical activity as it might interfere with taking care of the dog

> '… we can't be away from the house for a long time, because of the dogs.' Mr A.

New activities that could not be easily accommodated within the dog caring routine were therefore not considered suitable.

Believing themselves to be unable to complete exercises or physical activities due to feeling too old or busy, and lacking physical abilities or discipline was also discussed. One participant also indicated that he did not see the benefits of exercise, which could be due to a lack of information. The fear of falling when doing exercises, a lack of confidence to do group exercises and the fear of being a burden to a supporting relative were mentioned as barriers to doing exercises and physical activities.

> 'I was going to say, my, the carer is important, the carer needs caring for.' Mr R.

Interaction of barriers and facilitators

Barriers and facilitators can reinforce or lessen each other. The interactions of barriers and facilitators were shown for two cases.

Mr M. recognised the benefits of exercising and physical activity and wanted to keep active but found it difficult at times due to his depression and memory problems. He considered himself a 'fighter' and wanted to overcome these barriers, determined to enjoy life and to not be a burden to his wife. The support of his wife and using his mobile phone to set reminders helped him to overcome these barriers and be more active. Furthermore, watching television while using his exercise bike, in particular watching cycling events like the Tour de France, and getting feedback from his exercise bike (activity statistics such as miles cycled) increased his enjoyment in the activity.

In this case the depression and memory problems were the barriers for Mr M. His wife's support, his positive

attitude to being active, the use of his mobile phone, enjoying using his exercise bike while watching television and getting feedback from the bike enabled and encouraged him to regularly exercise and be physically active.

According to his wife, Mr A. also suffered from depression and memory problems but was interested in physical activity and exercises and completed physical activities that were within his routine (such as vacuum cleaning the house every morning and going for walks with the two dogs) but he was not as active as he used to be. She tried to find tasks for him to keep active, and both would be happy to be more engaged in physical activities and exercises but seemed to lack opportunities. To make sure that physical activities were done regularly both suggested using phone reminders and the calendar to prompt them. Mr A suggested that if he had an exercise programme, he would set goals for himself to achieve the desired exercise levels. However, if these activities required attending groups or a gym, this would need to fit into their routines around the dogs.

Again, memory problems and depression seemed to be barriers for engaging in physical activity. Furthermore, the responsibility for the dogs might limit what activities Mr A. and his wife would engage in. While walking the dogs was a regular activity for Mr A., their city environment did not encourage them to walk more.

These cases demonstrate how different facilitators and barriers can affect each other. What works for one person might not be relevant for the other and some factors such as dog ownership might act as a facilitator as well as barrier.

Influence of focus group discussion on participants' views

Rather than eliciting previously formulated positions, the focus group discussions clearly influenced some participants' views (co-construction). This occurred in two ways: firstly, during the discussions, the participants' views seemed to gravitate together, i.e. the participants showed a tendency to agree with each other and support each other's views. It was unclear if participants then provided views that were different to their own because they were perceived as socially desirable, if people shifted perspective in different contexts, or if participants emphasised and supported only those views that were in line with their own opinion. Secondly, the discussion seemed to increase the interest in exercise and physical activities in patients and relatives.

> '… I, you've made my mind up, I am to definitely go [swimming].' Mr R.'s wife

Clinicians' views

Some of the topics discussed in the patient and relative focus groups were also explored in the clinician focus group. These topics included 'goal setting', 'the role of relatives', 'reminders', 'tailoring' and 'barriers'.

The clinicians indicated that goal setting is regularly used in clinical services. One clinician pointed out that short-term goals might be more appropriate as they are deemed more achievable. Another clinician suggested that relatives might have a key role for engaging in activities and exercises.

> 'Working with them and working together with them, it became part of their routine as a couple, and that really helped in terms of her motivation, because she would do the exercises with him,.' Mr E. (OT)

The clinician focus group did not discuss possible barriers to engagement in activities due to relatives.

Similar to the view of a patient participant, one of the clinicians pointed out that visual prompts such as notes around the house might lose their impact after a while as people might overlook them once they got used to them.

> 'The prompts just lose any meaning when they lose that impact, when you've seen them, you know, ten, twenty times' Mr E. (OT)).

Tailoring was discussed in the clinician focus group and again seen as key to exercise and physical activity engagement. The clinicians also debated that the participant might not want the clinicians to come to their home to support activities or exercises when they just received a diagnosis of dementia. Clinicians also identified changes to the participant's health as a potential barrier to continuing exercises.

Discussion

The findings of this study showed that people with MCI or dementia have individual preferences for support to engage in exercise and physical activity. They use different types of prompts but visual reminders might need to change regularly to ensure that they stand out and are not ignored. Some participants were interested in gadgets such as DVDs and exercise bikes, and information was generally welcome but only if it was individualised to the participant's needs. Developing an exercise and activity habit was seen as something positive that enabled people to remain active and independent but it was important that the routine would fit into their daily routine.

While goal setting was suggested by the clinicians to be part of clinical practice, it was seen as helpful by some participants but not by others. Family involvement and dog ownership could have a positive or negative impact on exercise and activity engagement. Enjoyment of exercising and physical activities was seen as key to motivation and engagement. Remaining independent and healthy was also considered important but did not necessarily lead to long-term engagement in exercise. Barriers included environmental factors, finances, health issues, conflict with other activities and holding beliefs about being unable to exercise or complete physical activities. Barriers and facilitators were interacting rather than disconnected factors. The findings from the clinician focus group confirmed the need for an individualised, patient-centred approach to support engagement in exercise and physical activity.

In addition to preference, further factors make tailoring of interventions key to engagement; different co-morbidities, environmental and social contexts as well as capabilities require an individualised approach. The barriers and facilitators to exercise and physical activity engagement identified by the participants in this study fit in with the

three components of the Capability-Opportunity-Motivation model for behaviour change (Michie et al., 2011) but vary for each individual and some of these individual factors are likely to change over time. Future interventions may need to be tailored to each individual case and include a re-evaluation of changing circumstances.

The results of this study reflected the facilitators and barriers found in other studies including people with dementia. The need for tailoring the exercise and physical activities has been highlighted in several studies (Phillips & Flesner, 2013; Cox et al., 2013; Frederiksen, Sobol, Beyer, Hasselbalch, & Waldemar, 2014). Also using prompts, enjoyment of exercise and providing information have been found supportive of exercise engagement (Cox et al., 2013; Frederiksen et al., 2014; Rosenberg et al., 2012; Wu, 2015). Believing in the benefits has been shown to have a significant effect on engagement in exercise and physical activity (O'Connell, 2015; Malthouse & Fox, 2014). Information about the health benefits of exercise and physical activity is therefore important to exercise engagement but as our findings suggest, the information needs to be individualised. The varying views regarding goal-setting expressed in this focus group study might explain why only about half of the participants in two exercise studies achieved their goals (Fairhall, 2012; Kerse et al., 2008). In addition, a systematic review of behaviour change techniques in physical activity interventions for older adults has demonstrated that goal-setting was associated with lower self-efficacy following behaviour change interventions (French et al., 2014). This might be due to feelings of failure if not achieving the goal, as one of our participants suggested. Therefore, goal-setting should be used with caution in this population.

Strengths and limitations

This focus group study explored a wide range of potential facilitators and barriers for exercise and physical engagement in people with MCI and early dementia as well as their family carers. The questions focused on engagement support rather than engagement barriers although these emerged in the discussions and were further explored including the interactions between barriers and facilitators. Often participants' responses were not limited to exercise and physical activities but included activity in general. However, as engagement strategies for any type of activity are likely to be applicable to physical activities and exercises, this was not discouraged. The sample size was small, but participants included those with and without previous experience of exercise interventions, carers as well as clinicians, and participants engaging in different levels of physical activity. A self-selection bias might affect the generalizability of the results as it is likely that only those interested in physical activity engagement participated in the study. Rapid technological development and applications will impact on attitudes towards, and use of, assistive technology in future.

Conclusion

Exercise and physical activity interventions need an individualised approach to engage people with MCI or dementia. Activities need to fit into people's daily lives, they need to be supported by from people with dementia preferred strategies and require tailored information. Researchers and clinicians should use goal setting with caution in this population and make sure that people enjoy the activities proposed. Adequate training is key. Potential facilitators and barriers need to be explored in the context of each other, and beliefs need to be discussed as misconceptions such as being too old for exercise might limit engagement unnecessarily. Research should further explore barriers and misconceptions around exercise and physical activity in people with dementia.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This article presents independent researchfunded by the National Institute for Health Research (NIHR) under its ProgrammeGrants for Applied Research Programme (Reference Number RP-PG-0614-20007). The views expressed are those of theauthors and not necessarily those of the NHS, the NIHR or the Department of Health and Social Care.

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