How do environmental factors influence walking in groups? A walk-along study

Aikaterini Kassavou[1], David P French[2] and Kerry Chamberlain[3]

Abstract

Insufficient attention has been given to the influence of context on health-related behaviour change. This article reports on walk-along interviews conducted with 10 leaders of walking groups while leading their groups to investigate the influence of contextual factors on walking behaviours in groups. Data analysis used ideas from thematic analysis and grounded theory, approaching the data inductively. We identified that characteristics of place influenced the type of walking that people do in groups and the processes used by walkers to make sense of their behaviours in the places they walk. This research provides insight into how place influences walking in groups. It also suggests recommendations for co-ordinators and policymakers that could be used to facilitate behaviour change, when designing interventions targeting public health within the community.

Introduction

The health benefits of physical activity are well documented (UK Department of Health, 2004; US Department of Health & Human Services, 2008a). However, most adults do not currently achieve the levels of moderate or vigorous physical activity recommended to achieve significant health benefits (NHS Information Centre for Health and Social Care, 2009). Thus, promoting physically active lifestyles has become a central aim of public health policy (UK Department of Health, 2011; US Department of Health & Human Services, 2008b).

Walking is a particularly promising form of moderate physical activity, as it is more acceptable to most people, especially those who are most physically inactive (Morris and Hardman, 1997). In line with this, walking groups have become increasingly popular in many countries. For example, one of the many walking schemes in England reported that there were more than 70,000 regular walkers during 2012 (Walking for

[1]Queen Mary University of London, UK
[2]University of Manchester, UK
[3]Massey University, New Zealand

Corresponding author:
Aikaterini Kassavou, Centre for Primary Care and Public Health, Blizard Institute, Barts and The London School of Medicine and Dentistry, Queen Mary University of London, Yvonne Carter Building, 58 Turner Street, London E1 2AB, UK.
Email: k.kassavou@qmul.ac.uk

Health, 2013a). Furthermore, a recent systematic review found that walking groups are effective at promoting increases in physical activity of sufficient size to have a significant impact on health (Kassavou et al., 2013).

Context and behaviour change

Despite the strong evidence on how social–cognitive constructs relate to individuals' health behaviour change, insufficient attention has been given to how contextual factors affect health behaviour and health behaviour change (Sutton, 2002). Contextual factors, such as the physical environment, influence health and health-related behaviour (Macintyre et al., 2002). However, to date, little is known about how the physical environment influences health behaviour. Identifying how specific characteristics of place affect health behaviour change may facilitate optimal targeting and promotion of health behaviour change interventions within those places (Cummins et al., 2007).

Many previous studies have looked at objectively assessed features of the walking environment and the amount of physical activity. One review suggested that accessibility, opportunities and aesthetic attributes had significant associations with physical activity (Humpel et al., 2002). Weather and safety showed less strong relationships. A recent study used mobile cameras and accelerometers to provide context information for objectively measured physical activity behaviour. Participants wore a camera, which was capturing photos from a first person point, while participants were physically active on everyday activities. This study reported that people do more walking outdoors and do the majority of it during their leisure time and while having social interactions (Doherty et al., 2013).

Although quantitative studies have identified the characteristics most strongly associated with physical activity or walking, they provide minimal direct insight into how people experience walking in these places. Qualitative research has attempted to explore this area using mobile methods, such as walk-along interviews. Walk-along interviews are in-depth qualitative interviews taking place in the context within which the behaviour of interest occurs (Brown and Durrheim, 2009; Carpiano, 2009). During walk-along interviews, the specific environment and its features, as well as participants' actions during the walk become topics for discussion. Such information would not be available in such detail in a typical interview, taking place in a different context from where the behaviour occurs.

Findings from this research describe walking as a process for people to make sense of their everyday life (Pink, 2007, 2008). For instance, people experience walking as a means to move and interact with the environment, to meet other people (Lee and Ingold, 2006), as a way of living, or as an occasion to participate in an activity or event (Radley et al., 2010).

Other qualitative studies provide a different perspective, proposing that people construct their self-identities through daily walking in particular places. Researchers argue that this is happening when people invest aesthetic, moral and personal meaning in specific environmental characteristics (Hodgetts et al., 2007, 2010).

Previous qualitative research on walking groups has suggested that the outdoor environment and the social setting have beneficial effects on health outcomes relevant for walkers' psychological well-being (Priest, 2007). However, to our knowledge, no research has been conducted with walk leaders on what or how aspects of the environment facilitate behaviours within walking groups.

A study most relevant of the present one used walk-along interviews to identify the perceived environmental factors that influence walking for transportation among older adults (Cauwenberg et al., 2012). Findings indicated that access to facilities, walking facilities, traffic safety, familiarity, safety from crime, social contact, aesthetics and weather were the environmental characteristics most frequently mentioned as influencing walking among participants.

Table 1. Demographic characteristics of walk leaders and characteristics of walk-along interviews.

Pseudonym	Gender	Age (years)	Type of walk	Time of the walk	Duration of walk-along interview (minutes)
Zak	Man	72	Park walk	Morning walk	45
Sophie	Woman	37	Park walk	Morning walk	45
Alex	Woman	33	City centre walk	Noon walk	30
Fay	Woman	42	Park walk	Morning walk	45
Ann	Woman	63	Lap walk	Evening walk	40
Maria	Woman	64	Park walk	Morning walk	45
Tony	Man	45	Lap walk	Evening walk	40
Georgia	Woman	56	Lap walk	Evening walk	40
Helen	Woman	36	Park walk	Morning walk	45
Tanya	Woman	27	City centre walk	Noon walk	40

In this article, we used walk-along interviews to elicit walk leaders' experiences and practices of walking within the contexts in which they walk. Understanding how the context facilitates behaviours is important, not only for advancing our knowledge of how contextual factors influence health but also for identifying potential areas of intervention.

Walk leaders usually facilitate walking groups. We considered walk leaders to be appropriate participants for this research, for two main reasons. First, walk leaders are responsible for participants' health and safety, which mainly involves consideration of environmental factors that might influence participants' health, so they have an understanding of group walking places. Second, walk leaders conduct assessments of walking places in advance and often have control over the choice of walk locations, ensuring they have an awareness of contextual factors that might affect walking behaviours within groups. Thus, they ought to have more insight than walkers into how and why these factors affect behaviours within walking places.

Methods

Participants

Participants were walk leaders aged 18 years or more, who were leading walking groups that were part of Walking for Health (2013b) in a city with a population of over 300,000 people in the Midlands of England. Exclusion criteria for walk leaders were medical problems that could impair their abilities to participate in the interview, or if they were not sufficiently fluent in English.

Ten walk leaders, eight women and two men, aged 27–72 years, participated in these interviews (see Table 1 for details). All participating walk leaders had a minimum of 6 months experience of leading walking groups. Two of them were leading walking groups as part of their principal job, which concerned facilitating public health via changing behaviour. The other eight walk leaders were leading groups voluntarily to gain health and social benefits (Kassavou, 2012). The interviewer was acquainted with one of the walk leaders from another research project (Helen, leader at park walk) but not with any other walk leaders.

Procedure

Recruitment. After gaining institutional ethical approval, the Health and Physical Activity Team at the participating city's local authority provided walk leaders' contact details to our research team. Eleven walk leaders were sent the information sheet and invited to participate in a walk-along interview. One volunteer walk leader was excluded based on the inclusion criteria. The purpose of this study and the process

of the walk-along interviews were explained to participants, who then gave written consent to participate.

Following the suggestion by Chamberlain et al. (2004), we decided that sufficient number of participants had been recruited when we had gained rich and sufficient data to answer the research questions. We concluded that this criterion had been reached by making constant comparison between the categories emerging from each interview until no new categories were added to the existing ones.

Interviews and interview settings. Interviews were conducted between November 2010 and April 2011. Interviews lasted from 30 to 45 minutes (Table 1). During the interviews, walk leaders were asked to talk about the route, environment that the walk was occurring in and how this affects the behaviours of the walking group. Walk leaders were also asked to talk about their practices to facilitate walkers' behaviours and their understandings of walking places. Conducting interviews with walk leaders while leading their groups provided the opportunity for them to talk about their understandings directly, by discussing their actual behaviours at that specific time, rather than discussing their experiences more generally or abstractly.

All interviews were recorded, with the interviewer and interviewee both having their own digital recorders. The first author conducted and transcribed all interviews. All information that could lead to participant identification were removed or modified in transcripts to retain anonymity.

Analysis

For the analysis of the data, we used some ideas from thematic analysis (Braun and Clarke, 2006) and grounded theory (Corbin and Strauss, 1990) (see Table 2). A grounded theory analysis was not appropriate because it requires openness and freedom from preconceived ideas, whereas for this research, we had specific research aims. Moreover, there are some principles of grounded theory analysis that could not be satisfied in this study due to limited resources. On the contrary, as the focus of this study was to find out what comes out of the data and apply theoretical ideas to describe the data, thematic analysis only could not satisfy this purpose (Braun and Clarke, 2006). Using ideas from both thematic analysis and grounded theory in the analysis, we were able to use theoretical ideas to systematically describe and interpret what is in the data but without seeking to produce an explicit theoretical model. The stages of analysis are given in Table 2. For this study, the first author conducted the analysis with feedback from the second and third authors.

Results

Two main foci were generated from the analytic process. The first of these discusses place-related meaning of group walking as contextualised by the type of walk (whether park, lap or city centre walks). The second considers the shared meaning of places to group walks, and practices that people use to make sense of group walking.

Place-related meaning of group walking

Analyses indicated that place matters when it comes to the implementation of group walking and the processes people engage in to make sense of their behaviours while group walking. There were three main theoretical ideas associated with the place people walk in: socialisation, fitness and convenience. The walks differed in terms of the relevance to these dimensions. In general, park walks were more associated with socialisation, whereas lap walks were more associated with fitness and city centre walks were associated more with convenience. Below, we detail how these theoretical ideas were associated with particular places and how the characteristics of those places facilitated the construction of these connections by walk leaders.

Table 2. Process of analysis.

Stage	Description
1	The researcher transcribed and listened to the recordings to make any amendments.
2	The researcher read the transcripts line by line to find what was in the data and took some notes. These included notes on reflexivity (e.g. how researchers' previous knowledge may have influenced data interpretation). The researcher at this stage applied theoretical ideas of what was in the data and drew a diagram showing the main ideas that come out of the data. This process was similar to open coding. These preliminary notes served as a point of reference for working with the text and to inform the next stages.
3	The researcher wrote an outline of what was in each interview, consisting of descriptions about ideas, processes, categories and so on in the form of memos.
4	The researcher identified quotes in the transcripts that best described the key content of each interview and highlighted them in the transcripts, made notes in the margin of each transcript and noted the general ideas that these quotes described.
5	When all transcripts were analysed separately, the researcher wrote down all ideas, with a description of what each idea was about and used participants' quotes to describe the idea.
6	The researchers reread all the transcripts and screened them for the identification of the ideas (deductively). During this stage, the researcher examined whether there were similarities or differences between the ideas across the transcripts, a process similar to axial coding. If not, the researcher produced another idea that best described the meaning of participants' quotes. At this stage, new, more abstract ideas were produced or previous ideas were generated in a broader idea. Theoretical ideas produced at the stage (2) also informed this process.
7	When all transcripts were read and screened and new ideas were produced, the researchers reread all the transcripts to clarify that the new ideas produced were 'accurate' interpretations of participants' quotes.
8	The researcher repeated the above process until she felt that the ideas produced provided best representations of what was described in the data. The purpose was to reach the point where the ideas produced provided the simplest, most straightforward and coherent description of the data.
9	The researcher wrote about the meanings of these ideas and how they could be used to inform the aims of this study.
10	At the final stage of analysis, the researcher discussed the findings with the other researchers and after getting their input, she wrote the discussion.

Park walks. Park walks are generally located in larger regional parks outside the city or in smaller parks inside the city centre. In this study, all park walks were located outside the city and were accessible by public transport.

Shared meaning: socialisation. Leaders stated that people choose to participate in park walks mainly for social reasons. Parks were meeting places for walkers, where they could meet, talk, spend time and form social relationships with each other:

> It's the social thing again. It's nice and it is very good for them to get out and mix with groups of other people. (Maria 64 years old, park walk leader)

This particular group is very much the social aspect of the walk. (Sophie, 37 years old, park walk leader)

Walking places were perceived as nodes where people formed social networks, which were not restricted only to the specific place (e.g. the park during walks) but expanded beyond that to other places of socialising:

> At the end of each walk everyone goes and has a cup of tea at the café near by. (Helen, 36 years old, park walk leader)

For instance last Sunday we went for coffee in café after the walk and we chat for an hour and

that was lovely it is a social thing most definitely. You know you make friends and I think it is a very important part of walking. (Maria, 64 years old, park walk leader)

How did the place facilitate this shared meaning? Walk leaders claimed that park walking places have to be aesthetically pleasant. Moreover, walk leaders associated these aesthetics with seasonal changes and the sensory pleasure people experienced from walking in these places. The diversity and changeability of the environmental characteristics triggered discussions between participants and facilitated their social interaction:

It is nice because it is constantly changing, the seasons obviously are changing, the wildlife, every week you see something different, so we are talking about that and we do share the environment around us, we talk about all the different senses you can use while walking. (Helen, 36 years old, park walk leader)

Additionally, walk leaders argued that the repetitiveness of the environmental stimuli, if they remained in a single place, tended to negatively affect people's motivation:

Even in the woods if you go the same way every week, people get bored. It is repetitive, you know? I think the repetition can be a bit boring. (Helen, 36 years old, park walk leader)

Walk leaders also distinguished their group from other groups according to the nature of the walking places. They mentioned how differences in the places were important for distinguishing the shared meaning of walking from that of other groups. Park walk leaders constructed park walking places as more favourable for socialising, whereas they saw lap walking places as more appropriate for exercise and fitness:

I would say that if you go for lap walking you are probably going for fitness and more of the general exercise purpose, whereas this is more about the

social aspect. You know, emotional wellbeing and happiness. (Helen, 36 years old, park walk leader)

Lap walks. Lap walks are walks that take place on circuit tracks, usually in a sports stadium. For this study, all lap walks were located outside of the city centre, occurred in sports stadia and were accessible by public transport.

Shared meaning: physical health benefits. Walk leaders reported that people choose lap walks primarily to gain physical health benefits. Getting fit, recovering from a disease or losing weight were some of the reasons that walk leaders gave for people choosing lap walks:

That's the beauty of the lap walking, losing weight, if they've been ill and then they need to build their strength back up, get themselves off the couch. (Georgia, 56 years old, lap walk leader)

How did the place facilitate this shared meaning? Walk leaders at lap walks mentioned that the predetermined route and the predictability of the place were important for lap walking, whereas environmental diversity and complexity were not desirable. Lap walking routes were divided into measurable and countable sections, were controllable, repetitive and provided simple, memorable cues that could be easily associated with behavioural progress. Walk leaders considered that lap walking facilitated individual walking behaviour, as walkers were not tailoring their walking to others' walking, but walking to meet their individual goals:

As you can see the scenery is the same, so every time you go around it is gonna be the same which they prefer because you can count how many laps you are doing, you can easily focus on something. For example if we do like twenty laps last week, we are trying to twenty-one the following week, so it is always trying to better themselves. (Tony, 45 years old, lap walk leader)

It is lap walking so you can go at your own pace and you have to look at the end goal. I don't think that it is a social event. Nobody else in the group

would think so 'oh do you want to walk with us'? (Georgia, 56 years old, lap walk leader)

Moreover, lap walk leaders did not consider lap walking places as facilitating maintenance of walking. One possible explanation for this is that people walked in these places specifically to increase their walking and to gain health benefits. Once goals had been achieved, the place could lose its instrumental value and no longer facilitate walkers' behaviour:

> When they see the results coming, you know the pounds coming off, they do walk on a regular basis. And they do push themselves. They do what they've got to do and then they stop coming (laughs) once they've reached their goal, that's it, they give up. (Georgia, 56 years old, lap walk leader)

In common with leaders at parks, leaders at lap walking places distinguished lap walking from walking in other places, such as parks and the city centre. They argued that lap walking facilitated individual goals, which was less likely in places like parks, where there was less control over the context and environment:

> I think walking in the parks is nice because you have got the environment, you have got the greenery and the trees and it makes it more I suppose happier experience. [....] Whereas when you are out in the park is more, is more of a stroll I think. (Tony, 45 years old, lap walk leader)

City centre walks. City centre walks are walks that take place in the city centre of large residential areas. For this study, city centre walks were accessible by foot, usually from workplaces.

Shared meaning: convenience. City walk leaders said that the common meaning that people shared in the city centre walk was convenience. The main attractions of these walks seemed to be their proximity to places of work, ease of participation, and that they provided opportunity to distract attention from work:

It is quite convenient, people they work in town and they can perhaps make it. (Alex, 33 years old, city centre walk leader)

How did the place facilitate this shared meaning? The routes for these walks varied constantly; therefore, there were no stable characteristics of the walking place. Proximity, and hence convenience, appeared to determine the uptake of participation in such walks:

> What we are trying to do is to appeal more people in the lunchtime, picnics combined with the walks in the summer but people just want to go for a walk and time can constrain. (Alex, 33 years old, city centre walk leader)

Walk leaders at city centre walks distinguished their walk from the other type of walks based on the characteristics of the place. Alex talked about the difference between walking in the city centre for gaining health benefits and walking in the city centre for other reasons. She stated that organised city centre walks facilitated brisk walking, as the routes have been chosen with this aim in mind. By contrast, in a casual walk in the city centre, people would not walk briskly because of others walking more slowly in the same location:

> I don't know, I think it is just so much more pretty than walking around the city centre and obviously it is lot quieter and you can get out and do a proper health walk, you warm up and then you walk a bit briskly whereas if you walk into town you have lots of people. (Alex, 33 years old, city centre walk leader)

Shared meaning of all walking places: accessibility

Across contexts, all walk leaders shared a common concern about ensuring the accessibility of walking places. When walking places were accessible, walk leaders perceived this as safe environment for people to walk in. Accessible walking places were promoted by several instrumental factors and the action taken by

walk leaders. The instrumental factors mentioned by walk leaders were path accessibility, route continuity, traffic and availability of crossings and lack of antisocial behaviour. Furthermore, to facilitate walkers' behaviours within walking places, walk leaders used several strategies including indicating the route, warning about hazards in the route and asking walkers for feedback:

> So we are going to walk straight up here under the subway to the [name of the place] we do a little round, watch the leaves are a bit slippery there, just be careful [Comments directed to walkers while leading the walk]. (Alex, 33 years old, city centre walk leader)

When the researcher asked walk leaders to explain their logic behind these actions, they could not articulate the reasons. Instead, they reported only the observed action they had to implement:

> You have to be mindful and check it as you are walking around as well to see if there are any problems just anything that is on the floor that would be an obstacle. (Georgia, 56 years old, lap walk leader)

> We have to minimize obvious things like crossing the road, things like paths will be a risk. If you are trying to cross the crossings you know it's not the safest of the routes. (Alex, 33 years old, city centre walk leader)

Discussion

In this study, we found that the place influences both the type of walking people do in groups and how walking is understood. Park walks were perceived as nodes of social networks, where the spatial characteristics of parks (i.e. the aesthetics, complexity and non-predictability of environmental stimuli) were found to facilitate walkers' social relationships by acting as cues to prompt social interactions. Moreover, these places were found to facilitate maintenance of attendance at the walking groups. The spatial characteristics in lap walking (i.e.

countable, predictable and repetitive routes) were found to facilitate walkers gaining health benefits. In these places, spatial characteristics acted as stimulus controls to regulate walkers' individual walking goals. However, these places were found not to facilitate maintenance beyond goal achievement. The spatial characteristics of city centre walks, especially the proximity to workplaces, were found to facilitate an efficient use of time for walking as exercise to occur. Across contexts, walk leaders were concerned with safety, illustrated by their actions to ensure accessibility, and frequent reference to relevant environmental features throughout the walks.

To our knowledge, this is the first study aimed at exploring how contextual/spatial factors influence walking in groups in situ. The approach to data collection using walk-along interviews provided the advantage of gaining information that would not be easily available from interviews outside the context in which walks occur. For example, actions that walk leaders took in specific contexts to facilitate walking in groups were discussed while being implemented, without the researcher asking about them. The context acted as stimulus to guide the interview process, so the interview was not directed solely by the interviewer's previous knowledge of the subject. In this way, more innovative ideas emerged from the analysis of the interviews.

For this study, saturation was achieved for interviews with walk leaders at lap and park walks but was not completely achieved for walk leaders at city centre walks. This was due to limited participants being available for this group. Future research should consider further whether and how city centre walks are different or not from other type of walks.

Several previous studies have identified those contextual factors that facilitate physical activity and walking. In line with these studies, this study identified some contextual characteristics that facilitate walking, like aesthetic attributes, convenience of facilities (Humpel et al., 2002) and perceptions about traffic and busy roads (Duncan et al., 2005).
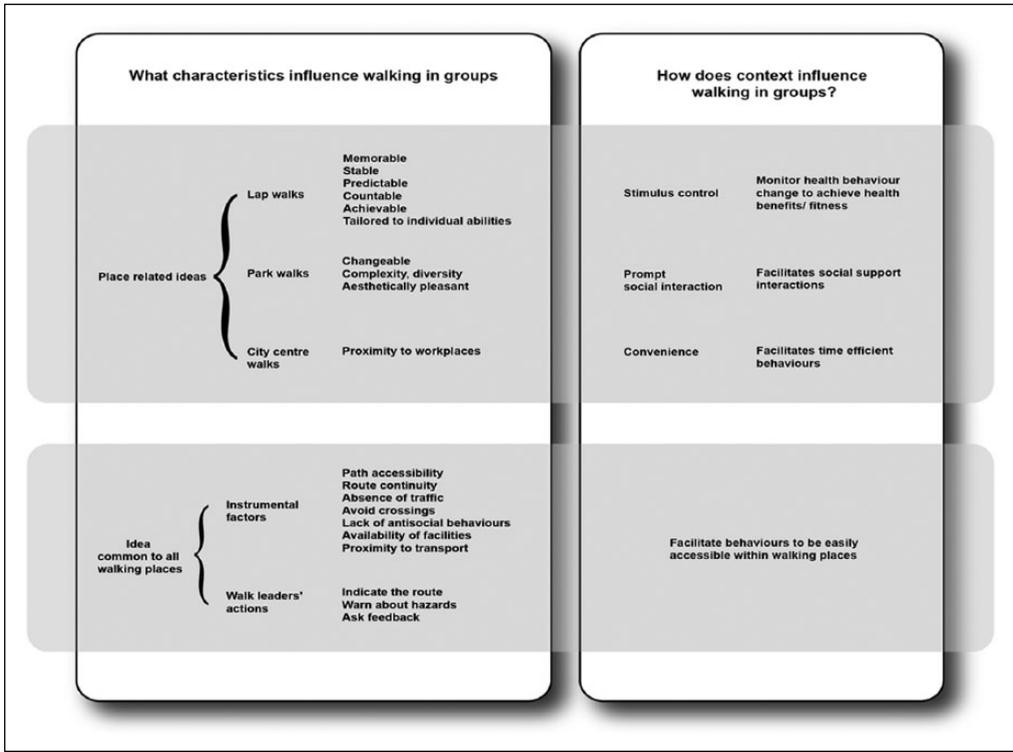
Figure 1. Summary of results.

However, the findings of this previous research do not provide a clear picture of how particular environmental factors could facilitate walking. Moreover, there are considerable differences in design and aims between previous research and this study. First, the previous studies focused on individual walking and not walking in groups. Second, all the above studies used quantitative methods, whereas this study used qualitative methods to elicit talk in context. Third, the previous studies aimed at identifying only what contextual factors are associated with walking behaviour or different reason for walking. In contrast, this study aimed at exploring *how* these contextual factors influence the way people make sense of their behaviours within walking groups.

Moreover, this study revealed for the first time the different functions of different types of walks. For example, no previous study had identified that people use spatial characteristics,

especially of lap walks, to control and regulate their walking goals and that this was not associated with long-term maintenance. Previous studies had only identified and reported those characteristics that were associated with walking and not the process of regulating and changing walking behaviour or more importantly how environmental factors might influence the maintenance of these processes towards behaviour change. This is a considerable finding taking into consideration that it is difficult for behaviour change to be sustained in the longer term.

On the contrary, there are several in situ qualitative studies, which used walking experiences, but treated walking in particular places as a mode to make sense of everyday life or to construct self-identities (e.g. Hodgetts et al., 2007, 2010; Pink, 2007, 2008; Radley et al., 2010). In contrast, this article associates the characteristics of walking places with how

people make sense of their behaviours and behaviour change in those places.

There is also one previous qualitative study with walkers in walking groups that provides some insight into how people experience group walking outdoors and what outcomes are associated with this experience (i.e. psychological well-being) (Priest, 2007). However, this research does not reveal how specific environmental factors facilitate specific behavioural change and/or maintenance of behavioural change, which was the aim of the present research.

The study most comparable to this study is that of Cauwenberg et al. (2012), who applied content analysis to their walk-along interviews. Thus, their findings describe only the most frequently mentioned characteristics of the place where participants were walking and only in the context of walking for transportation. Cauwenberg et al. (2012) predefined the meaning that the walk has for walkers, by asking walkers to talk about the spatial characteristics that facilitate a walk to be comfortable, pleasant, interesting or safe. They did not investigate whether and how walk characteristics were related to the meanings provided (e.g. pleasant walk). By contrast, this study explored how people understand and make sense of their experiences during group walks in specific places and how spatial characteristics relate to these meanings. This cannot be realised by simply counting the times that an idea appears in the data.

Implications for practice

The findings of this article suggest that contextual factors for walking facilitate the achievement of different goals, and that people chose places to walk that facilitate the achievement of particular goals.

Given this, it might be worthwhile for policymakers and walking group organisers to use these insights and explicitly aim to design walking groups to facilitate these goals. For example, in lap walking places, signs or pedometers could help make the distance walked more salient and easily countable and consequently facilitate walkers in regulating their walking goals (e.g. by gradually increasing distance of walking). For park walks, it might be worthwhile to deliberately provide walkers with a variety of routes, where different features could prompt and enhance social interactions. For city centre walks, routes that are close to walkers' working places and less busy at lunchtimes could be identified. In each case, walk leaders might consider highlighting those spatial characteristics that facilitate walkers' goal achievement. For example, in lap walking places, walkers might be encouraged to count their laps and assess their goal progress by focusing on specific environmental stimuli.

Moreover, when identifying which kind of walking group is most appropriate for a new walker, group organisers might consider assessing walkers' goals and referring them to walking places where their goals could be facilitated by the spatial characteristics of that particular place. For example, for walkers who want to meet other people, expand their social network and who like green places, a park walk seems most appropriate.

In addition, different contextual factors are shown here to influence maintenance of behaviour change. This finding in consistent with a previous study that supported that people maintain walking in groups for longer period of time when they receive satisfaction from multiple sources (i.e. both social interaction and physical activity benefits) (Kassavou et al., 2013). This finding might also explain the reason why many interventions, such as weight loss interventions, are often effective only in the short term (Avenell et al., 2004). Strategies that focus only on repetition and interaction with stable contextual characteristics are usually less enjoyable and people might easily lose their interest. A useful implication might be the formation of 'hybrid' walking groups that possess features of more than one of these types of groups. Walkers might initiate changes in walking places that facilitate behavioural regulation (e.g. lap walks) and progressively change places to sustain and/

or increase their walking behaviour (e.g. park or city centre walks).

In terms of research implications, the effectiveness of many of these innovations in promoting maintenance of walking behaviour could be explored, possibly using stepped wedge designs across walking schemes. It would also be useful to audit how commonly such ideas are used by the co-ordinators and walk group leaders with their participants. It might also be useful to explore the ideas of walkers who participate in group walks using walk-along interviews, to get their perspectives on the ideas investigated in this study.

A further research implication concerns the major problem of dropout from physical activity interventions that has been noted many times and limits health benefits which accrue over the longer term (Dishman and Buckworth, 1996). Based on the research reported here, future interventions might consider including contextual factors to facilitate social interaction and thereby promote maintenance in walking groups. Much previous research has focused on developing intervention techniques to address individual psychological factors such as self-efficacy or outcome expectancies to promote maintenance (Kassavou et al., in press). However, future research could locate interventions, both group and individual, in settings, which vary in aesthetically pleasing ways, rather than in often less stimulating environments such as gyms.

Funding

References

Avenell A, Broom J, Brown TJ, et al. (2004) Systematic review of the long-term effects and economic consequences of treatments for obesity and implications for health improvement. *Health Technology Assessment* 8(21).

Braun V and Clarke V (2006) Using thematic analysis in psychology. *Qualitative Research in Psychology* 3(2): 77–101.

Brown L and Durrheim K (2009) Different kinds of knowing: Generating qualitative data through mobile interviewing. *Qualitative Inquiry* 15(5): 911–930.

Carpiano RM (2009) Come take a walk with me: The 'go-along' interview as a novel method for studying the implications of place for health and well-being. *Health & Place* 15(1): 263–272.

Cauwenberg JV, Holle VV, Simons D, et al. (2012) Environmental factors influencing older adults' walking for transportation: A study using walk-along interviews. *The International Journal of Behavioral Nutrition and Physical Activity* 9: 85.

Chamberlain K, Camic P and Yardley L (2004) Qualitative analysis of experience: Grounded theory and case studies. In: Marks D and Yardley L (eds) *Research Methods for Clinical and Health Psychology*. London: SAGE, pp. 69–89.

Corbin J and Strauss A (1990) Grounded theory research: Procedures, canons, and evaluative criteria. *Qualitative Sociology* 13(1): 418–427.

Cummins S, Curtis S, Diez-Roux A, et al. (2007) Understanding and representing 'Place' in health research: A relational approach. *Social Science & Medicine* 65(9): 1825–1838.

Dishman RK and Buckworth J (1996) Increasing physical activity: A quantitative synthesis. *Medicine and Science in Sports and Exercise* 28(6): 706–719.

Doherty AR, Kelly P, Kerr J, et al. (2013) Using wearable cameras to categorise type and context of accelerometer-identified episodes of physical activity. *The International Journal of Behavioral Nutrition and Physical Activity* 10: 22.

Duncan MJ, Spence JC and Mummery WK (2005) Perceived environment and physical activity: A meta-analysis of selected environmental characteristics. *The International Journal of Behavioral Nutrition and Physical Activity* 2: 11.

Hodgetts D, Radley A, Chamberlain K, et al. (2007) Health inequalities and homelessness: Considering material, spatial and relational dimensions. *Journal of Health Psychology* 12(5): 709–725.

Hodgetts DJ, Stolte O, Chamberlain K, et al. (2010) The mobile hermit and the city: Considering links between places, objects, and identities in social psychological research on homelessness. *The British Journal of Social Psychology* 49: 285–303.

Humpel N, Owen N and Leslie E (2002) Environmental factors associated with adults' participation in

physical activity: A review. *American Journal of Preventive Medicine* 22(3): 188–199.

Kassavou A (2012) *Building an evidence base for effective walking groups*. PhD Thesis, Coventry University, Coventry.

Kassavou A, Turner A and French DP (2013) Do interventions to promote walking in groups increase physical activity? A meta-analysis. *The International Journal of Behavioral Nutrition and Physical Activity* 10: 18.

Kassavou A, Turner A, Hamborg T, et al. (in press) Predicting maintenance of attendance at walking groups: Testing constructs from three leading maintenance theories. *Health Psychology*.

Lee J and Ingold T (2006) Fieldwork on foot: Perceiving, routing, socializing. In: Coleman S and Collins P (eds) *Locating the Field: Space, Place and Context in Anthropology*. Oxford: Berg, pp. 67–86.

Macintyre S, Ellaway A and Cummins S (2002) Place effects on health: How can we conceptualise, operationalise and measure them? *Social Science & Medicine* 55(1): 125–139.

Morris JN and Hardman AE (1997) Walking to health. *Sports Medicine* 23: 306–312.

NHS Information Centre for Health and Social Care (2009) *Health Survey for England: Physical Activity and Fitness*. London: National Health Service.

Pink S (2007) Walking with video. *Visual Studies* 22(3): 240–252.

Pink S (2008) An urban tour: The sensory sociality of ethnographic place-making. *Ethnography* 9(2): 175–196.

Priest J (2007) The healing balm effect: Using a walking group to feel better. *Journal of Health Psychology* 12(1): 36–52.

Radley A, Chamberlain K, Hodgetts D, et al. (2010) From means to occasion: Walking in the life of homeless people. *Visual Studies* 25(1): 36–45.

Sutton S (2002) Changing health behaviour: Intervention and research with social cognition models. In: Rutter D and Quine L (eds) *Using Social Cognition Models to Develop Health Behaviour Interventions: Problems and Assumptions*. London: Open University Press, pp. 193–208.

UK Department of Health (2004) *At least five a week: Evidence on the impact of physical activity and its relationship to health*. A report from the Chief Medical Officer. London: Department of Health.

UK Department of Health (2011) *Start active, stay active. A report on physical activity for health from four home countries*. Chief Medical Officer. Gateway Reference 16306, 11 July. London: Department of Health.

US Department of Health & Human Services (2008a) *Physical Activity Guidelines Advisory Committee Report*. Washington, DC: US Department of Health & Human Services.

US Department of Health & Human Services (2008b) *Physical Activity Guidelines for Americans. Be Active, Healthy and Happy*. Washington, DC: US Department of Health & Human Services.

Walking for Health (2013a) The case for walking for health: A briefing for Scheme Coordinators. Available at: http://www.walkingforhealth.org.uk/sites/default/files/caseforsupportbriefing-final.pdf (accessed 23 March 2013).

Walking for Health (2013b) Supporting you to get active and stay active. Available at: http://www.walkingforhealth.org.uk/ (accessed 23 March 2013).