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The feasibility and acceptability of using mobile methods for capturing and analysing data about dog-walking and human health

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ABSTRACT

The aim of this study was to assess the feasibility and acceptability of Mobile Methods to capture and analyse data relating to a test research question: "How does dog-walking influence health and well-being?" in healthy dog walkers. Eleven self-reported healthy adults from the Otago region of New Zealand were interviewed twice between 18/3/13 and 12/6/13. One of the interviews took place during their regular dog-walk. In *Design One* a walk-along interview was followed by a participatory analysis session and in *Design Two* a sit-down interview was followed by a walk-along interview. Qualitative analysis of the feasibility and acceptability of Mobile Methods was guided by a general inductive thematic approach. Four themes were identified: 1) Walk-along interviews are dynamic in nature; 2) Walk-along interviews generate enriched data; 3) Sharing ideas; and 4) Logistical challenges of walk-along interviews. Memory triggers, human-dog interactions, and environmental connections provided enriched qualitative data in *Design One*. For future dog-walking research we recommend using familiar route(s), during daylight hours, with data recorded by head-mounted video cameras and supplemented with field notes.

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INTRODUCTION

Mobile Methods is a collective term for strategies designed to collect data about movement within the social world (Büscher et al 2010; Ross et al 2009), for example, 'go-along' interviews involve collection of data 'on-the-move' in order to observe interactions between the participants and their environment (Kusenbach 2003). The use of Mobile Methods is expanding in response to the emergence of the 'mobilities paradigm' (Sheeler and Urry 2006), an intellectual movement which recognises the inseparable nature of movement (or lack of movement) with every day experiences. These methods are increasingly utilised in multi-disciplinary fields (Anderson 2004; Carpiano 2009; Hall et al 2008; Ross et al 2009) and, it is proposed that these facilitate greater insight into movement-related activities compared to traditional seated interviews (Carpiano 2009; Trell and Van Hoven 2010). Data generated by Mobile Methods are analysed in a spirit of collaborative participation between participant and researcher (Brown and Durrheim 2009; Garcia et al 2012).

Physical activity involves bodily movement through space, making it an appropriate topic for go-along interviews. It is well documented that higher levels of physical activity are linked to long-term health and longevity (Hardman and Stensel 2013; Powell et al 2011). Dog ownership might be one way to support increased levels of physical activity.

There is growing evidence that dog ownership increases physical activity, psychological health, and community participation in the general population (Christian et al 2013; Johnson and Meadows 2010, Cangelosi and Sorrell 2010). Little is known, however, about how these health benefits are achieved (Headey 2003; Utz 2013) and further investigations of this complex relationship are warranted.

Data from dog-walking studies have been captured through both quantitative and qualitative methodologies. Within the qualitative paradigm, dog walking experiences have been captured through seated interviews, focus groups and surveys (Peel et al 2010; Utz 2013; Wharf-Higgins et al 2013). It is possible that Mobile Methods might more fully capture how

dog-walking might impact upon the health and well-being of the human.

As far as we are aware, no published studies have used Mobile Methods to explore dog-walking as it relates to the health and well-being of the human. Therefore, the focus of this study was to investigate the feasibility and acceptability of Mobile Methods for capturing data relating to the human-animal interaction of dog-walking. To provide a worked example, a specific test research question was applied: "How does dog-walking influence a dog-walker's health and well-being?"

The specific objectives of this study were to: (1) determine the pragmatic feasibility of capturing data via audio and video-recorded walk-along interviews, (2) compare the nature of data collected between a seated interview and a walk-along interview, and (3) determine how the participatory philosophy of Mobile Methods influences the direction of analysis.

METHODS

Participants and Recruitment

Ethical approval was obtained from the University of Otago School of Physiotherapy Ethics Committee (SoP/EC/2013/02). We recruited participants (University employees and/or their relations) via advertisements placed on campus notice-boards. Adults aged 18 years or older who considered themselves healthy and walked a dog at least three times per week were eligible for inclusion.

Design

In order to best answer the study objectives, data were collected and analysed through two study designs, both involving a walk-along interview.

Design One: Mobile Methods

Participants in design one (n=7) first completed a walk-along interview, followed on a subsequent date by a participatory analysis session. Prior to this session, participants were invited to read the verbatim transcript from their walk-along interview. Those participants who had been video-recorded (n=3) were also able to view (in advance) and comment on their video clips. At the analysis session participants were asked which aspects of their transcript and video recording they thought best answered the research question. Participants were also encouraged to expand and clarify anything they felt necessary and, offer their opinions on the acceptability of the Mobile Method approach.

Design Two: Walk-along interview last

Participants in design two (n=4) completed a sit-down interview followed by a walk-along interview on a subsequent date. Two walk-along interviews in this design were video-recorded by author 2 with a hand-held camera. This design helped us to determine the pragmatic feasibility of capturing data via audio and video-recording during walk-along interviews; and to compare the richness of data collected between design one and two.

Methods used in both Design One and Design Two

Interviews in both design one and design two were semi-structured. The interviews included an open-ended questioning technique relating to health and well-being, dog walking, and the environment. Interviews began with questions about the dog's characteristics and their ownership history, followed by questions relating to the research topic (eg "How do you think dog walking influences your health and well-being?"). Follow-up questions were developed based on analysis of completed interviews (Thomas 2006). All interviews were audio-recorded using a lapel microphone and audio recorder. Author 1 transcribed all audio-recordings verbatim. Transcripts were checked for accuracy by author 2. Other data captured in transcription included the interviewer's senses (smell, touch, sights), pauses in the narrative, encounters with the dog, pedestrians, and the environment, the dogs' behaviours, and communication (verbal and non-verbal) between the participant and dog and any additional event. This additional data were added in italics and bracketed for the purpose of identification, for example: *[dog barking]* or *[affectionate]*.

Walk-along interviews were conducted during the participant's usual dog-walk, whilst the sit-down and participatory interviews were usually held during working hours at a mutually agreed location. Written consent was obtained from each participant before commencement of his or her first interview.

Participants were encouraged to lead and talk about aspects of the walk. The interviewer tried to minimise the impact on participants' 'normal walk' by minimising contact with the dog and allowing the participant to freely communicate with the dog, other pedestrians and/or situations throughout the interview.

Both interviewer and videographer independently documented their reflections of the interview process on a secure computer, the same day following each interview. The reflections were guided by a set of pre-determined questions which are listed in Box 1.

Box 1. Researcher reflective questions

- How did I feel audio-recording and/or video recording this person walking their dog?
- Did I influence the usual course of the walk?
- How did audio-recording and/or video recording influence the usual course of the walk?
- How rich were the data gained from this method?
- Were the difficulties worth the enriched data?
- How could I modify this method to make the process run more smoothly?

ANALYSIS

A general inductive thematic approach guided data analysis of both interview design transcriptions and the researchers' reflections (Thomas 2006; Braun and Clarke 2006). Analysis followed an iterative process, moving back and forth between data collection and analysis (Thomas 2006). The interviewer (author 1) began dual coding the transcripts in response to A) the test question and B) aspects of feasibility and acceptability, by constructing separate documents with quotes under headings of identified preliminary themes. After preliminary analysis of four interviews, three other researchers reviewed the transcripts. At this stage the analysis of test question themes ceased and the analytic focus shifted towards answering the primary research question about the feasibility and acceptability of Mobile Methods. Throughout the study all researchers discussed the interviews through group meetings and emails.

A description of each theme was established by collapsing codes found within researchers' reflections, along with explicit examples from the interview narrative. Links identifying differences and commonalities within and across reflections of design one and design two were established to construct themes.

RESULTS

Thirteen people volunteered for the study: one did not meet inclusion criteria (self-reporting an on-going health condition) and another withdrew due to time restraints. The 11 participants (nine women, two men) ranged in age between 25 and 64 years. Three participants had two dogs, and eight had one dog. Time between first and second interviews ranged from four to 56 days (median ten days).

Four themes relating to the feasibility and acceptability of Mobile Methods were identified: Theme one: '*Walk-along interviews are dynamic in nature'* explained how the moving nature of data collection and human-animal interaction added context and explanation. Theme two: *'Walk-along interviews provide enriched data'* demonstrated how the act of walking combined with open-ended questions, triggered thoughts, perceptions, interpretations and memories for participants. Theme three: *'Sharing insights'*, highlighted advantages of participant-researcher analysis of the walk-along interview through the use of transcripts and video clips and, appeared to facilitate more equitable power dynamics between interviewer and interviewee. Theme four: *'Logistical challenges of walk-along interviews'* facilitated practical recommendations for other researchers considering these methods. These four themes will be explained in greater detail in the following sections.

Researchers' written reflections (interviewer 'I' and videographer '*V*') and field notes are documented in italics. Non-italicised 'I' and 'P' numbers' (for example P7) identify the interviewer's voice and participants' voices respectively. All dogs have been given a pseudonym to enhance confidentiality. Extracts of the narrative are contained within quotation marks and regular print.

Theme One: Walk-along interviews are dynamic in nature

Two subthemes were identified which highlighted the contribution of the dynamic nature of the walk- along interview experience. Firstly, in 'My dog, My Patch', the researcher was introduced to the participant, their dog, and their environment. Secondly, 'Dog on the move' entailed the added dimension of watching dogs and their behaviour and interactions with owners.

My Dog. My Patch

Participants were eager to show the researcher their dog-walking route and introduce the interviewer to their canine companion. Participant 1 enthusiastically described her dog, Goofy:

> P1: "You know he is 10 months old his birthday is going to be in April."
>
> I: "Oh right, what type of dog is he?"
>
> P1: "He is a German Short-haired Pointer, we went to the breeder. I have had one before and I just thought she was such a lovely nature, you know?"

The participant guided the researcher through a regular walk, which involved activities such as stopping to talk to other walkers; attending to their dog's needs, or, disciplining them. For example, Participant 4 engages with Swamp-Monster and Wriggle-Butt:

> P4: "Come on. [*Laughs]*. So … ah… Swamp-Monster, come on! Sit! Wriggle-Butt, come on, sit! Good boy [*biker goes past*] [*barking*] come on! It's just good manners for them to sit when they see a bike… Swamp-Monster! Heel! [*Dog panting*] Swamp-Monster, come on! [*Heavy breathing – dog and owner]* Heel… heel… [*Dog barking*] … go for it! Phft! [*Laughs*].

The ever-changing environment along each route led to few breaks in conversation and, follow-up questions, the dog, fellow dog walkers/pedestrians or the surrounding area initiated conversation throughout the walk.

Dog on the move

The addition of a dog further enhanced the dynamic nature of the interview process. At times the dog(s) appeared more in control of their owner than their owner was of them. One such incident occurred before commencing the walk, as reflected by the interviewer: *"When I first came to the participant's house the dog's excitement got the best of him. He jumped up on me numerous times and as a researcher in her house I did not feel as if I was to be the one to tell him off. The participant did make an effort to control him but it was not very successful/ persistent."* (I).

In most cases the dog(s) was permitted to be off the lead, and allowed to roam. Some dog(s) misbehaved in the middle of asking or answering a question, resulting in lost train of thought. However, the impact of the dog(s) on the interview process was expected and encouraged, in keeping with the spirit of walk-along interviews.

Walk-along interviews captured emotional interactions such as affection, anxiety, enjoyment, and laughter between the participant and their dog, and these emotions were not so apparent during sit-down interviews. For example, Participant 5 demonstrated panic and then relief when she realised her dog, Weasel, was out of sight during the walk through a bush-filled park:

> P5: "Oh isn't it gorgeous? [*P5 realises Weasel is out of sight*] "Weasel! Weasel! Weasel, come!" (*Authoritative*) [*We stop*] Ah I have to go up… [*She backtracks our steps up a small hill*] "Where are you Weasel? Weasel? (*Affectionate*) Weasel!" (*Clap hands*) "Weasel, come! (*Authoritative*) Come! Come here! Hey!" (*Clap hands*) "Weasel… come… here! Weasel! Come Weasel this way!" (*Affectionate when Weasel obeyed*)

The presence of the videographer at times influenced the dog's usual behaviour and in one case resulted in the dog disobeying commands to 'sit'. As Participant 7 reflected:

> P7: "I think that it was pretty good actually, that didn't really impact it a lot apart from Tyler chasing the videographer all the time sort of thing, so that it was probably the third person that made her more anxious yeah… following behind her is perhaps what did spook her a little bit because she wasn't sure who was behind us."

Theme Two: Walk-along interviews provide enriched data
This theme describes how walk-along interviews elicited participants' memories during their regular walk. The environment appeared to trigger more participant memories than a seated interview. These memories facilitated rich descriptions and encouraged further lines of enquiry. For example, whilst watching her dog Elvis, Participant 9 revealed:

> P9: "When we lived in France I was unemployed for a while, and some days would only leave the house because the dog had to be walked. Looking back, I'd say I was a bit depressed, and if it were not for Elvis I would have never left the house, would not have gotten any exercise, and my well-being would have been much worse."

During walk-along interviews, participants described how they connected positively with the environment. For example, Participant 6 explains:

> P6: "I really like as soon as it starts getting into the fields and seeing what's happening up there and kind of monitor the seasons as well. You know you can sort of tell or you know which trees come out early. There's a, a red tree down there *(she points back towards a tree)* that's always the first one to go in autumn, the first one to get buds on in spring and yeah I kind of liked that… So you get to know things in greater detail. And I really like that. Just gives you a bit of sense of place."

Theme Three: Sharing Insights
This theme comprises two subthemes. Sharing ideas in the participatory process led to new insights for both researcher and participant, under the subtheme 'Dual Analysis'. The subtheme 'Equality of Power' helps to explain how power seemed more equitable between the researcher and the participant in the participatory analysis.

Dual Analysis
The participatory interview required the participant to be actively involved in the analytical process. This proved beneficial to the researcher: *"I found it helpful that Participant 1 was able to go through the transcript beforehand, and really give some feedback on it, it stimulated memory recall of events that happened and allowing the participant the opportunity to explain her reasoning."* (I).

Some participants responded best to the video clips, whilst others made greater use of their transcript. This was illustrated by the researcher's reflection after Participant 3's second interview: *"I obtained a lot of additional information, through the use of video clips as well as verbal reflections of the walk-along. The video clips did evoke more responses and triggered more memories from the participant." (I).* The participant described new insights while partaking in the analysis process of *Design One* (Mobile Methods).

P3: "It's quite interesting watching them cos I'm seeing them from a different perspective than I would normally see, which from a dog-owner's point of view, is an advantage of doing this."

Equality of power
The Mobile Methods design appeared to facilitate equity of power between interviewer and interviewee because the setting of the walk-along interview was more informal than that of the sit-down interview. The participant and interviewer met at an agreed location and the participant directed the dog-walk. In the following sit-down participatory interview the intention of interaction was not that of asking set questions, but to fully engage, share and compare ideas and reflections. For example, after Participant 10 was given a transcript to review prior to the participatory interview he sent through an email summary of what he thought were the most important points discussed from our walk-along interview.

P10: "I have tried to edit my responses to your questions so they make more sense. If I could sum up what owning a dog means to me in one sentence it would be: 'nothing makes me more happier than making Maxine happy'."

This participant felt comfortable enough to analyse the test research question data and highlight concepts that he felt as most important. This was not observed during any of the initial sit-down interviews in *Design Two*. Consequently the participatory interview appeared to address equality of power through joint analysis in a mutual non-threatening environment, which resulted in benefits pertinent to both participant and researcher.

Theme Four: Logistical Challenges
This theme outlines challenges experienced during walk-along interviews, including difficulties capturing and processing data and safety issues including weather and location.

Muffled narrative, loud background sounds such as streams or traffic, and the audio recorder being caught on external objects or falling out of pockets during running resulted in data that were difficult to transcribe. In addition, two recordings were lost due to connection problems between the lapel microphone and the audio-recorder. Whilst frustrating "*Observations and note taking by the researcher was still helpful and provided an opportunity to learn from this incident to hopefully minimize the chance of the recording failing in the future."* (I).

Without video, author 1 had to begin transcription immediately in order to accurately recall and insert contextual information (eg dog(s) behaviour, sights, sounds, smells). In order to describe observations and interactions without the aid of a video camera, the interviewer recorded field notes, and incorporated these into the transcript after conducting the interview. In interviews where the videographer was present, videography facilitated recall of interviewer's observations. An advantage of *Design One* (with follow-up participatory analysis session) was the opportunity to repeat questions; whereas in *Design Two* lost narrative generally resulted in lost data.

Video recording dog-walks was challenging for both videographer and interviewer. Inexperienced videography, in combination with unsuitable equipment, resulted in flat batteries, excessive download time, darkness, and shaky video recordings.

Being videoed caused the interviewer to feel self-conscious and distracted. This lead to *"trouble concentrating on the interview questions, and listening to the participant's responses, as well as trying to observe interactions between the participant and the environment" (I)*. This response subsided with additional interviews.

One participant politely and repeatedly tried to include the videographer in the interview process. *"I kind of felt that the participant did not want to leave me out during the interview, especially on the way back, I felt that she wanted to include me and she was making space for me on the sidewalk when we were walking."* (V).

Dark streets, frosty sidewalks, narrow footpaths close to traffic, and unfamiliar routes resulted in feelings of compromised safety for the researchers. Adverse weather resulted in postponement of dog-walking interviews. Locating the starting point of a walk was occasionally challenging in rural or remote areas.

DISCUSSION

This study examined the feasibility and acceptability of Mobile Methods, specifically video-recorded and audio-recorded walk-along interviews and participatory analysis sessions as a way of capturing the experiences of dog walking and health. Findings suggest that walk-along interviews are a viable and dynamic method of data collection for dog walking activity, generating rich, in-depth data. However, several logistical challenges to collecting data on-the-move were identified. Power relations between the researcher and the participant were found to be more equitable during both data collection and the analytic process.

Garcia et al (2012) suggested the use of Mobile Methods to investigate protective factors and resources associated with health promotion. Our study embodied these two concepts; i.e. dog walking walk-along interviews can be used to investigate aspects of health and well-being via inquisition and exploration of participants' perceptions of, or engagement with, their dog-walking environment.

Previous studies have highlighted the dynamic, multi-sensory nature of walk-along interviews (Garcia et al 2012; Sheller and Urry 2006; Law and Urry 2004). Furthermore, they have suggested that the distractions and natural interruptions caused by environmental stimuli result in a more comfortable and "free flowing" conversation (Ross et al 2009; Lee and Ingold 2006). Our study suggests that the presence of a dog during a walk-along interview promotes this "productivity of distraction" (Ross et al 2009, p. 620) through unpredictability, liveliness, and owner-pet interaction.

In our study, observation of human-animal-environment interaction and the elicitation of memories resulted in enriched data. Authors who have used walk-along interviews to investigate people's perceptions of their immediate environment (familiar or unfamiliar) or community (Brown and Durrheim 2009; Garcia et al 2012; Kusenbach 2006; Kusenbach 2003), suggest that familiar surroundings are more useful for memory elicitation and this might be a useful strategy for future researchers to consider.

Observation of interactions between owner and dog uncovered possible areas where dog-walking might influence health negatively. For example, Participant 5 displayed anxiety when their dog Weasel disappeared into the bushes and, through memory, related this event to another where Weasel had become sick following that disappearance. Barring dog-bites and accidental trips, little is known about the negative influences of dog-walking and ownership on human health (Orritt 2014).

In our study, participatory analysis sessions proved a useful way of encouraging participants to contribute in an equitable way towards answering the research question. The advantages of this participatory analysis component have been discussed in previous studies (Brown and Durrheim 2009; Ross et al 2009; Miaux et al 2010) and enable participants to validate insights and experience(s) that they found most relevant throughout the walk-along interview (Miaux et al 2010). Additionally, it has been observed that the location of the interview has a noteworthy effect on the power relationship between interviewer and interviewee (Elwood and Martin 2000). It is recommended that participant and researcher mutually agree on a suitable location (Elwood and Martin 2000; Carpiano 2009) and in our study this was often the work office or home of the participant.

Logistical challenges were similar to those already documented in the literature (Carpiano 2009; Garcia et al 2012; Kusenbach 2003; Evan and Jones 2011; Hein et al 2008; Miaux et al 2010). These included difficulties with regards to audio and video-recording, transcription, safety, environmental conditions, and location of the interview. A checklist is recommended for researchers conducting walk-along interviews (see Table 1), which provides more specific information for dog-walking research following that outlined by Garcia et al (2012). In addition to the points on this checklist, we make the further recommendations in the following section.

Video-recorded walk-along interviews should ideally be conducted in daylight hours to avoid lost footage due to reduced visibility. The use of a participant head-mounted camera is recommended (Mackenzie and Kerr 2012) to minimise difficulties with video-recording and furthermore, placing a camera on the interviewer could capture further descriptive data such as body language and facial expressions. Lastly, it is advisable to establish the approximate duration of the walk, as well as the general route prior to the walk (Miaux et al 2010). This will aid time management; optimise safety; and guide the questioning process throughout the walk. Also, if a dog owner has several walking route options, opt for quieter routes to minimise excessive sound (eg traffic noise) on recordings.

In our study, participant diversity was not purposively sampled with regards to gender, age, ethnicity or cultural background and this may limit the relevance of results (particularly to men) with regards to both feasibility and acceptability of this approach. Future studies might benefit from a sampling strategy that aimed to capture demographic diversity.

The study was conducted in an urban area potentially limiting the transferability of results to more rural settings. In rural areas dog(s) may be allowed to freely roam, thus reducing the owner's need to walk the dog(s) for the animal's benefit (Brown and Rhodes 2006).

CONCLUSION

Mobile Methods are an acceptable and feasible way to investigate the perceived effects of dog ownership and dog walking on health and well-being among healthy adults. This approach generated enriched data through observation of

Table 1: Checklist for Dog-walking Interviews
(Expanded and adapted from Garcia et al 2012)

Prior to the interview:

- ☐ Ensure up-to-date tetanus injection > 2 weeks prior
- ☐ Carry small, portable first aid kit
- ☐ Avoid contact with other animals shortly prior
- ☐ Sufficient supply of batteries/fully charged devices (have spare microphone and recorder at hand)
- ☐ Ensure each device is working – turn on/off
- ☐ Dog treat or other form of remuneration for the dog/owner
- ☐ Bring spare satchel bag in case participant has no pockets for audio-recorder
- ☐ Be familiar with planned semi-structured questions
- ☐ Be familiar with route and duration of dog-walk
- ☐ Gain written and verbal consent
- ☐ Review ethics of confidentiality with participant

At the commencement of the interview:

- ☐ Attach lapel microphone securely to participant, avoiding friction-prone areas
- ☐ Check that the recording device(s) is recording
- ☐ Place recording device on 'hold' to secure recording status
- ☐ Review procedure of walk-along interview with participant allowing usual human-animal interactions, human-human interactions

During the interview

- ☐ Avoid interfering with participant's usual routine (participant-led interview)
- ☐ Subtly monitor status of recording device eg connection between microphone and recorder

After the interview:

- ☐ Document environmental factors (weather conditions), senses (sights, smells, touch, sounds), non-verbal communication
- ☐ Upload and check interview recordings onto secure system
- ☐ Document any technological difficulties
- ☐ If narrative is lost, immediately construct memos and reflections to outline discussion
- ☐ Delete data from devices as soon as possible after download

human interactions with both their dog, their community and their environment and, through elicitation of memories.

We recommend pragmatic strategies, which minimise the logistical challenges of this approach. Purposeful sampling strategies in future studies with regards to gender, ethnicity, and age might further enrich data relating to dog-walking and health.

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CONFLICTS OF INTEREST

The authors declare no conflicts of interest with regards to this study.

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