



Hospital employees' experience with a Pedometer challenge in a health promoting hospital

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Abstract

Background Many health care centers join the International Network of Health Promoting Hospitals and Health Services (the HPH Network) initiated under World Health Organization. In this context, a university affiliated Canadian multisite health care center, which is also a member of the HPH Network, mounted a pedometer-based program for health care providers. Very few studies have examined the feasibility of a pedometer programme for health care providers in hospital settings, or these professionals' experiences with such programmes. The overall purpose of the study was to describe the experience of hospital employees, who participated in the pedometer activity challenge.

Methods The data for this qualitative study was collected through focus groups and individual interviews. Participants (n = 32) were hospital employees who had participated in an 8-week pedometer challenge.

Results According to most participants, the programme raised their awareness about the importance of keeping active and maintaining healthy habits. Half of the participants even saw improvements in their physiological problems, such as lower levels of bad cholesterol, lower blood glucose, improved blood pressure, and improved lung function.

Conclusions Health care organisations would greatly benefit from health promoting activities, for the health and well-being of their employees and their organisation.

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Introduction

Although the health benefits of physical activity are well recognized (1), physical inactivity remains a leading global risk factor for mortality and for burden of disease (2). Because walking is a readily available, inexpensive form of physical activity, numerous walking programmes have been developed in an effort to increase moderate physical activity levels. However, programmes and campaigns designed to publicise the need to walk at least an hour a day revealed that less than one-third of Canadians meet this recommendation (3). In recent years, research has suggested that using pedometers to measure physical activity levels can serve as a potential motivational tool that helps people develop self-monitoring strategies and increase their level of activity (4-8). A pedometer or step counter is a small, light, electronic device that is most often clipped to an individual's clothing at the hip. It is a measurement tool utilised for estimating the distance traveled by foot by recording the number of steps taken. Systematic reviews have found that pedometers, combined with a goal-setting

programme, can lead to short-term increases in steps walked daily by as much as 2,000 steps (9-10), lower blood pressure (9) and produce modest weight loss (11). Kang and colleagues (10) conducted a meta-analysis of 32 studies that investigated the impact of pedometer-based physical activity interventions. Their results indicated a moderate and positive effect, suggesting that pedometers are indeed a useful tool for increasing physical activity levels.

Although the above-mentioned study results are highly informative, very little research has examined the feasibility of a pedometer programme for health care providers in hospital settings, or these professionals' experience under such a program. Few studies have been performed in the workplace where a larger audience could perhaps be reached, and where an impact can be achieved on both the participating individuals and the population as a whole (12). Indeed, more and more health care centers join the International Network of Health Promoting Hospitals & Health Services (HPH) and understand the importance



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of implementing healthy strategies in order to promote and maintain employee health (13). In this context, a university-affiliated, multisite health care center, also a member of the HPH network, offered a pedometer-based programme for its health care providers. The results of the pedometer programme evaluation suggested that the pedometer programme had a significant positive impact on participants' weight and body mass index (BMI), systolic and diastolic blood pressure, total cholesterol levels, as well as fatigue and stress after the 8 weeks (14). Furthermore, hospital employees involved in the research maintained a high level of physical activity and healthy BMI for up to 6 months after the programme (15). The overall purpose of this study was to describe the experience of the hospital employees, who joined in the pedometer activity challenge.

Perception of pedometer programme benefits and barriers

Qualitative studies have found that participants highlight several benefits of pedometer-based programmes such as self-monitoring aspects, their use as motivation tool, low cost, application to individual or team intervention as well as their health benefits (16-20).

First, pedometers seem to make participants more aware of their physical activity levels. For instance, Gardner and Campagna (16) conducted in-depth interviews and focus group interviews with a sample of 10 middle-aged Canadian women involved in a 4-week pedometer-based intervention and reported that the women had learned something about their physical activity patterns by wearing the pedometer and recording their daily steps. The self-monitoring advantages of wearing a pedometer daily were also noted among other samples (e.g., rural community sample (17), inactive or irregularly active women (18;19), and college employees (20)). Participants in a 6-week intervention said they were surprised by how little they walked each day and how many steps could be added simply by parking their cars farther away or by walking around large stores (19). A similar sedentary lifestyle realisation emerged from Fukuoka and colleagues' study (18) of a 3-week intervention in a sample of sedentary women. These qualitative results are in line with a recent meta-analysis showing that the main predictor of successful physical activity behavioral change was self-monitoring (21).

Second, the pedometer appears to be a powerful motivational tool. Focus groups among participants in a pedometer-based, community intervention revealed that the pedometer provided participants with useful feedback, which served as a source of encouragement (22). Similarly, focus groups conducted a few months after

a walking intervention among rural African-American women revealed that wearing a pedometer provided motivation and encouragement to walk more (17). Furthermore, setting personal goals also appeared to be a useful motivator in pedometer-based intervention programmes (18-20).

Third, the practical advantages of pedometer-based physical activity intervention have been emphasised. These advantages included the fact that walking is an inexpensive activity that can be done alone and can be easily incorporated into a daily routine (22). Also, the sense of accountability generated in studies where participants had to make diary entries (17) or submit weekly logs (19) helped motivate participants to stick with the programme.

Fourth, results from a study revealed that participants enjoyed and were motivated by the friendly competition between walking groups (17). Similarly, participants from another intervention mentioned that they would have liked to have known the average number of steps walked by other women in the program in order to gauge their own progress and motivate themselves to walk more (19). However, a study conducted by Behrens and colleagues (23) suggested that a competition-based physical activity programme using pedometers may not be the most effective way to increase physical activity in the workplace.

Finally, health benefits were noted by participants following a 10-week walking intervention with pedometers (24) in a university campus setting. The results revealed that participants perceived improvements in their mood, energy levels and ability to cope as well as an increased awareness of their personal health.

The barriers to walking mentioned in different qualitative studies include the weather, boredom as well as issues related to the need to carry heavy items after choosing to walk to the grocery store or to work (22). Haines and colleagues (25) conducted focus groups and phone interviews with participants who dropped out of a 12-week walking programme in the workplace and found that the main barriers were lack of time, low motivation, job commitments as well as physical problems. Time pressure was also mentioned as a barrier in another workplace walking intervention (24).

Most studies that evaluated the qualitative impact of pedometer-based intervention programmes were conducted with populations at risk, such as inactive individuals. The specific aims of this study were to better understand the motivators and barriers associated with the pedom-



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eter programme, and its benefits for hospital workers and the organisation.

Methods

Design

The data for this qualitative study was collected through focus groups and individual interviews. Participants were hospital employees who participated in an 8-week pedometer challenge in a university-affiliated, multisite healthcare centre in Quebec, Canada.

Intervention

The pedometer intervention, called the “Wellness Challenge,” consisted of a one-hour on-site lunch lecture, 30-minutes one-on-one pre- and post-evaluations during work hours (including cardiovascular, diabetes, insomnia, stress and fatigue risk assessments and interpretation by a health professional from the McGill Cardiovascular Health Improvement Program, CHIP) and the 8-week pedometer activity challenge (September 19, 2011 to November 13, 2011). The lunch-hour lecture provided information on physical activity and nutrition as well as instructions on proper use of the pedometer. The activity challenge involved tracking physical activity on a website (www.myhealthcheckup.ca). Pedometer step counts or the step equivalents of other physical activities were recorded daily. A goal of 10,000 steps was used to motivate participants, and a goal of being the first site to cross Canada virtually as a group was used to motivate the teams. The website allowed participants to track their progress as individuals, as a site and as an entire group. All eligible participants received a pedometer (StepsCount) at the lecture and a code to access the program website. StepsCount pedometers have a research grade accuracy rating of no more than a (+/-) 3% margin of error and have also been tested for long term accuracy in maintaining their ability to count accurately over time. (26)

Procedure

Ethical approval was obtained from the Research Ethics Board (REB) of the participating organisation. In 2012, a questionnaire was sent out to the hospital employees who participated in the 8-week pedometer challenge as part of a research programme. A total of 157 participants (13 males and 144 females) completed the questionnaire, designed to collect information about the impact of the pedometer challenge on hospital employees six months after the end of the challenge (15). Participants were asked to complete a section at the end of the questionnaire, if they were interested in participating in interviews. The research team contacted all interested participants (n= 58) and provided them with details about

the interview schedule. Three focus groups (with 5 to 7 participants) as well as 15 semi-structured individual interviews were conducted in June and July 2012. A total of 32 participants were interviewed. The other participants were not available during the timeline schedule for the interviews. The study was explained verbally to each participant by a member of the research team, and written consent was obtained. To protect confidentiality, each participant was identified by a code. Each interview lasted 45 minutes and was conducted by the research team in a private room at the research centre.

Instrument

A semi-structured interview guide served as a data collection tool for interviews and focus groups. Based on the WHO “Global Strategy on Diet, Physical Activity and Health,” the main themes addressed were: motivators and barriers to participation in the workplace pedometer programme, the programme’s impact at an individual level and the benefits of the programme for the Health Promoting Hospital. A socio-demographic profile was developed at the beginning of each interview and focus group.

Data Analysis

Because the study was descriptive in nature, the analysis was primarily guided by the interview questions rather than a specific theoretical paradigm (27). Interviews were audio-recorded and transcribed. The data generated by the interviews and focus groups were analysed using NVivo according to the method proposed by Miles and Huberman (28). Data analysis consisted of three concurrent streams of activities: condensing the data (coding individual interview data to identify major themes and categories), presenting the data (data display of themes from all interviews) and elaborating/verifying the data. Two researchers independently coded the transcripts from a set of data to ensure consensus and regularly met to discuss data analysis and interpretation.

Results

Participants

The sample was composed of 32 women. The mean age of participants was 49 years. One participant (3.1%) had a doctoral degree, five participants (15.6%) had a master’s degree, ten (31.2%) had a bachelor’s degree, eleven (34.3%) had a technical or college degree and five (15.6%) had a certificate. Participants performed different duties such as clerical (n = 18, 56.2%), professional (ex, audiologist, social worker) (n = 8, 25%), nursing (n = 4, 12.5%), and management (n = 2, 6.2%).



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Participants had been performing their current duties for an average of 12 years, ranging from 1 to 45 years. A total of 31 participants over 32 years (96.8%) had a full-time position. All 32 participants (100%) had a fixed daytime position. Up to 26 participants (81.2%) did not work on weekends and four participants (12.5%) worked every other weekend; finally two participants (6.2%) worked occasionally on weekends.

The common themes that emerged from the interviews were grouped into five major themes: motivators to participate in the workplace pedometer programme, facilitating factors and barriers, individual outcomes, maintenance and organisational benefits

Motivators to participate in the workplace pedometer programme

The majority of participants were interested in the programme because they wanted to become more active, improve their overall health and fitness. Close to half of the participants also saw the programme as an opportunity to lose weight. Many participants were motivated by the challenge itself, because it was in their workplace, and by the fact that it facilitated and encouraged team work.

During the interviews participants described that:

- *... for health and I find I spend a lot of time at my desk. And I don't move from there. So it's motivating me to like get out at lunch time (participant 1).*
- *Especially, we work in the health system. We should be paying more attention to what do we represent and... I just thought it was interesting basically for that. Yeah. I think it's just health, like I'm really interested in my own health (participant 7).*
- *That was the challenge. We had a goal, a challenge. To have a goal, like as a collective, every step you take counts towards the group. Like it's more motivating. It's more motivating in that way. I mean, yeah, I sort of keep it up now, but I found I was more motivated when it was a group effort knowing that everybody had to contribute their part made it easier to participate. Cause you were aware that the group was counting on your participation (participant 18).*
- *I thought: it's time I took charge of myself. And it was fun to do that with my assistants (participant 6).*
- *Oh! I thought it would be really interesting to do something at work, like getting involved with my coworkers on a common goal. It was like we encouraged each other. It was like that ... I don't know. It interested me (participant 18).*

Factors that facilitated participation in the programme

According to most participants, the team aspect of the activities was the most motivating element of the challenge. It also appeared easier for participants to maintain an activity with the help of a well-structured programme and a good support team (i.e., the research team) as well as the website. Furthermore, receiving information about the programme in their workplace, rather than seeking it out on their own, was said to have been helpful. Also, the pedometer and the website were mentioned as a source of stimulation to get moving because they specified the number of steps walked, thus providing a benchmark for precisely evaluating how well they were doing.

During the interviews participants described that:

- *It's always better in a group cause, I find we motivate each other (participant 3).*
- *It's easy to reach people. Things like that. We know we have everyone within reach. And the fact that you have the meetings, the information sessions. It's on-site. We don't have to go to another site (participant 3).*
- *Well first, you guys made it easy. I mean, it was basically handed to us. And you came here and you helped us get organised. I mean, that made it very easy. We didn't have to go elsewhere. So that's helpful when people are busy to be able to fit it in their schedules. And that made it easy not only for me, but for everyone else (participant 12).*
- *I think that when you get feedback, a pedometer, a calendar, something that gives you feedback, you can see the progress, and it's a lot more motivating (participant 17).*

Factors that limit programme participation

Some participants mentioned factors that limited their participation in the walking challenge. The limiting factors that were most often cited were related to weather, such as cold and rainy conditions. Bad weather made it difficult to engage in physical activity and maintain healthy habits.

During the interviews participants described that:

- *So if the weather is cold, rainy, snowy that's like, for me, it was like during the winter time, I found like I, you know, you don't participate as much because the weather is a big problem (participant 3).*
- *But I think maintaining is always the hardest part of everything (participant 1).*



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Positive impact of participating in the programme

According to most participants, participating in the programme made them more aware of the importance of keeping active and maintaining healthy habits. Half of participants even improved a physiological problem by lowering bad cholesterol or blood glucose levels, or improving their blood pressure or lung function. Nearly half of the participants felt they were in better physical shape and said they had more energy, made better dietary decisions, and were more conscious of the importance of healthy eating habits. Half of participants also lost or maintained their weight, felt less stress and some even slept better.

During the interviews participants described that:

- *It really lowered my cholesterol level (participant 10).*
- *Also right now, I climb from ground floor to 5th floor. I'm not out of breath (participant 5).*
- *If I look back to a year ago, I'm still a lot more active than I was. Yes. Really a good trend, but overall, it's better. Sleep. Good mood too. I think that's enough. I don't know. It's a whole (participant 11).*
- *It got me thinking about my house habits, my exercise habits, my food habits, the choices I make around food... it's like a domino effect (participant 18).*
- *Well, it kick started me to lose 20 pounds (participant 1).*
- *... even the walk home was good. It was time to just like, it's my time. Yeah. To de-stress (participant 16).*

Maintenance

Most participants maintained their physical activity levels after the programme ended. Nearly half of participants included a new physical activity other than their walking routine such as biking, dancing, yoga, etc. Some participants stopped engaging in all forms of physical activity after the program, mostly because of family obligations or for no particular reason.

During the interviews participants described that:

- *Like me, I continue to do the stairs. And I walk like not every day, but some nights, after supper (participant 2).*
- *I do dance. I learn some social dance and sometimes I go to line dance also... Also I did some exercises. But since I begin the program, like it motivates me more, you know (participant 5).*
- *Some of my co-workers have small children and it was harder for them. I remember when I had younger children. It was homework, lessons ... (participant 11).*

Organisational benefits to support health promoting activities

All participants considered it important for the organisation to encourage health promoting activities for employees to help them become more active and improve their health. Some participants mentioned that they were less stressed, because the programme offered a break time that energised them. Many participants mentioned that it is profitable for an organisation to have active and healthy employees. Half of participants highlighted that they were thankful that their organisation cared about their quality of life in the workplace, their well-being and their overall health. Finally, some participants mentioned that their workplace as a health promoting organisation should lead by example.

During the interviews participants described that:

- *You know, studies prove that healthy employees means less time off, less cost to the system. So, you know, I think this programme is very beneficial and I'd like to really see it continue (participant 4).*
- *Because you get a sense of belonging. And then too, your employees are more fit (participant 9).*
- *But, you know, if there's stress at work and they're tired and they're busy. They come home and they're tired. They don't feel like exercising. But if something like that is in place at work, at least it gives them a choice (participant 4).*
- *And it's nice that the hospital takes our wellbeing into account especially since we're in the hospital or health care industry (participant 3).*

Discussion

This study helped shed light on the qualitative experience of participating in an 8-week, pedometer-based walking programme. A total of 32 individuals were interviewed either during focus groups or individual interviews in order to understand what factors facilitated or impeded the programme. This study was conducted in a university-affiliated, multisite health care organisation that has supported the World Health Organisation's Health Promoting Hospitals Network for several years. The present qualitative research led to a number of findings which are discussed below.

First, the programme appealed to participants because it offered means to become more active and improve their overall health. Improving their physical fitness and losing weight motivated participants to join the programme. In fact, participants mentioned improvements in their physical health such as weight loss, better blood pressure and lower levels of bad cholesterol, bet-



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ter overall fitness and better eating habits. This is consistent with the previous results from the same research programme (14;15) showing significant decreases in participants' weight and BMI, blood pressure, cholesterol levels as well as fatigue, insomnia and stress. Research by Gilson and colleagues (24) also reported perceived improvements in participants' mood, energy levels and awareness of their health, not to mention a number of studies (29;30) that identified physical health improvements following a walking intervention.

Second, the programme design facilitated a sense of team work by setting individual goals (i.e., 10,000 steps per day) as well as team goals (i.e., being the first site to cross Canada virtually as a group). Furthermore, the progress of individuals, sites and the entire group could be tracked through the research website. The interviews suggested that team work and informal competition were successful in motivating participants. Previous studies also found that friendly competition between walking groups can be a source of motivation. (17;19).

Third, the pedometer itself was mentioned as a valuable source of motivation because it provided participants with immediate and constant feedback, and thus helped them to quickly and easily evaluate how they were doing each day. The powerful, self-monitoring advantage of wearing a pedometer has been consistently reported in other studies conducted in diverse populations such as inactive individuals and college employees (16-20;22), and in a meta-analysis of 122 studies (21).

Fourth, research shows that having to record the number of steps walked either in a daily or weekly log is a motivator, because it created a sense of accountability. (17;19) Participants in our study did not mention this factor as a motivator, even though they were recording their daily steps. However, as previously noted, participants were motivated by the website, which posted updates of their individual and team progress daily. It can therefore be argued that recording their daily steps might have been an indirect motivator. Future research is needed to better understand the role of accountability among different populations.

The main barrier mentioned was bad weather. Participants said that the rain and cold reduced their interest in walking outside. Bad weather was also found to be a barrier to walking in other research (22). Haines and colleagues (25) as well as Gilson and colleagues (24) reported that time pressure was another major barrier to walking programmes, a factor not mentioned by participants in our study. The organisational commitment to the programme may have helped participants feel com-

fortable in moving more around the workplace, where they spend a significant portion of their time. Thus, they might have felt less pressure to walk primarily after work, when family obligations might be their priority.

The interviews in this study were conducted over six months after the end of the programme, allowing an evaluation on how well the improvements in physical activity were maintained over time. The results suggest that most participants maintained a higher level of physical activity. The results also suggest that nearly half of the individuals interviewed had incorporated new physical activities into their routine. The 6-month follow-up also found that three-quarters of the overall sample maintained their level of physical activity (15). These are very important findings considering that very little is known about the longitudinal impact of walking programmes.

Organisational Benefits

The costs of health problems in organisations have been estimated to be as high as 14 billion dollars a year in Canada (31), 20 billion Euros a year in the European Union (32) and up to 150 billion dollars in the United States (33). It is therefore important for organisations to support and encourage health promotion activities. In this study, all participants mentioned the importance for the organization to suggest health promoting activities to their employees and to encourage them to be more active and adopt a healthier lifestyle. The previous results from this research programme (14) showed significantly reduced levels of stress, fatigue and insomnia -a finding expressed by some interview participants. Furthermore, half of the interview participants were thankful that their organisation cared about their health and quality of life. This positive feeling towards the organisation can lead to increased organisational engagement and, eventually, lower turnover rates.

Limitations

One significant limitation of this study was that only the participants who completed the 6-month follow-up questionnaire were asked to participate in the interviews. Future research should include post-programme interviews as well as an effort to contact the participants who dropped out of the intervention.

Conclusions

The results of this study revealed that participants were strongly motivated by the physical activity challenge offered to them in their workplace. Health care organisations would greatly benefit by supporting health promoting activities given their positive impact not only on



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their employees' health and well-being, but also on the health of their organisation.

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Contribution details

Conception and design: CS, MLT, GL, KM, GC

Acquisition of data: GC, KM, MLT, CS

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Competing interests

None declared.

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