Barriers and Facilitators for Walking in Individuals With Intermittent Claudication

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This study aimed to identify barriers and facilitators associated with walking for exercise among people who experience intermittent claudication. Fifteen individuals (7 men and 8 women) participated in 3 focus groups that were tape-recorded and content analyzed. A social-cognitive framework was used to categorize barriers and facilitators as those related to the person, to the activity, or to the environment. Variables identified included those specific to intermittent claudication and those common among the general population. Barriers to walking included irregular or graded walking surfaces, uncertainty about the outcome of walking, ambiguity regarding pain, the need to take rest breaks, and the presence of leg pain. Facilitating factors included availability of a resting place, use of cognitive coping strategies, companionship support, and availability of a treadmill-walking program. Findings are interpreted in light of current research on exercise determinants and encourage prospective examinations of the predictive validity of these factors for walking.

Keywords: focus groups, exercise, peripheral arterial disease, social-cognitive theory

“A walk in the park” is not as easy as it sounds for individuals who experience intermittent claudication. Intermittent claudication is a symptom of leg pain caused by peripheral arterial disease (PAD) of the lower extremities that is characterized by atherosclerotic blockage in the arteries supplying blood flow to the leg muscles (Dormandy & Rutherford, 2000). Claudication pain is brought on by walking, when arterial blockage does not allow sufficient blood flow to the working leg muscles, making this mode of activity exceptionally challenging for those afflicted with PAD.

Although it creates substantial discomfort for individuals who experience intermittent claudication, walking is a form of therapy commonly recommended for people with PAD (Tsai et al., 2002). Engaging in regular walking is associated with the prevention of disease progression, as well as specific improvements in the pain-free distance walked and the maximum distance walked before pain necessitates a break (Stewart, Hiatt, Regensteiner, & Hirsch, 2002). Regular walking also contributes to overall increases in volume of daily physical activities apart...
from the walking itself (Gardner et al., 2000). In short, participating in a regular regimen of walking is associated with numerous health benefits for people with intermittent claudication.

Physical activity levels are also linked to quality-of-life issues for people with intermittent claudication. One study evaluating the effects of PAD on health-related quality of life showed that impaired walking ability limits physical functioning for activities beyond walking, including recreational pursuits and physical tasks at home and at work (Treat-Jacobson et al., 2002). Participants in that study also described feeling isolated because their condition limited their ability to be physically active with others and feeling ashamed or abnormal when stopping for rest breaks along a walk. Corroborating findings from a second qualitative study suggest a profound negative impact of intermittent claudication on quality of life, leading ultimately to a sense of powerlessness regarding the condition (Gibson & Kenrick, 1998). Participants in that study felt that their loss of mobility compromised their independence, and they took excessive measures to avoid pain, sometimes becoming less mobile than their symptoms necessitated.

There is evidence that regular walking, along with gains in walking ability and increased overall activity levels, is also associated with improvements in health-related quality of life (Gardner, Montgomery, Flinn, & Katzel, 2005; Tsai et al., 2002). Despite accumulating evidence showing the benefits of regular walking for people with intermittent claudication, some data indicate that this population is generally inactive, with as little as 16% of their total daily energy expenditure attributable to physical activity (Gardner et al., 1998). Other data show that individuals with intermittent claudication exhibit overall physical activity levels lower than those of the general population. For example, McDermott et al. (2002) compared physical activity between PAD patients and individuals without PAD using accelerometers over 7 days. Results indicated that average daily physical activity levels were significantly lower among individuals with PAD ($M = 783.8$ kcal/day, $SD = 426.2$) than in those without it ($M = 1109.0$ kcal/day, $SD = 640.1$). Data also show a steady decline in physical activity among people with intermittent claudication when they are not receiving treatment for their condition (Gardner, Montgomery, & Killewich, 2004).

In concert, the available data indicate that people with intermittent claudication can benefit greatly from engaging in regular walking, but few pursue these benefits. The fact that most people with PAD are older adults provides some explanation. That is, older adults constitute one of the most sedentary segments in the population, with behavioral surveillance data indicating that fewer than 14% of Canadians over 65 participate in regular physical activity.

In reviews of physical activity determinants for older adults (e.g., Brawley, Rejeski, & King, 2003; King, 2001), numerous personal-regimen-based and environmental variables have been identified that might have a bearing on participation rates in this cohort. Some of the factors identified include perceived barriers, physical condition, and medical concerns, as well as the structure and convenience of available exercise programs. Social support from family, friends, program staff, and physicians was also noted as holding promise for facilitating activity. Although many important determinants have been identified, King points to the need to identify specific variables among subgroups of the aging population, including individuals with chronic conditions.
Although many of the known determinants could contribute to inactivity among people with intermittent claudication, the experience of pain during walking is also an important consideration for this population. Managing the pain associated with walking is likely to pose unique challenges for people with this condition.

To begin understanding walking for exercise among individuals with intermittent claudication and ultimately intervene to promote and maintain their walking, we must identify the determinants of this form of physical activity. According to Buckworth and Dishman (2002), there are four main reasons to study determinants of physical activity (e.g., walking). First, identifying determinants helps in designing (and refining) theoretical models of physical activity behavior and aids in their application. Second, it helps promote the proper allocation of resources to promote or maintain physical activity for specific populations. Third, identifying variables related to behavior change that are modifiable will help improve the efficacy of interventions aimed at manipulating those variables. Finally, identifying determinants that are specific to special (or target) populations will allow scientists to develop more personalized interventions. Thus, drawing information from individuals with intermittent claudication regarding their walking experiences is an important step toward identifying and understanding factors that might facilitate or impede their motivation and efforts to be active.

At present, information regarding factors that influence regular walking activity among individuals with intermittent claudication is limited. One study by Galea and Bray (2006) shed some light on psychological determinants of walking for exercise using the theory of planned behavior (Ajzen, 1985, 1991). In line with the predictions of the theory, attitudes toward walking, perceived social pressure, and perceived control over walking predicted intentions to walk. Participants’ intentions were not correlated, however, with self-reports of walking activity. These findings suggest that despite having positive intentions to walk, individuals with intermittent claudication have difficulty translating their intentions into actual walking behavior.

Although intentions to go walking might not be an adequate predictor of walking behavior in individuals with intermittent claudication, it is possible that other variables play an important role. In particular, both qualitative and empirical findings point to perceptions of control as a factor associated with managing this symptom (e.g., Galea & Bray, 2006; Treat-Jacobson et al., 2002). According to Ajzen (1988), perceived control, or the perceived ease or difficulty of performing a behavior, takes into account the availability of resources and opportunities and incorporates beliefs about potential obstacles. This concept features prominently among various theories that have been applied to physical activity behavior, including Bandura’s (1986, 1997) social-cognitive theory and Ajzen’s (1985, 1991) theory of planned behavior. Accordingly, identifying variables that facilitate walking and those that act as barriers might be important for advancing our understanding of determinants of walking among people with intermittent claudication within a variety of theoretical frameworks and could help shed light on the mismatch between intentions and walking behavior.

The purpose of the current study was to apply a focus-group-interview methodology to elicit information about perceived barriers and facilitators associated with walking in individuals with intermittent claudication. Given the dearth of research on physical activity determinants among individuals with intermittent
claudication, a qualitative approach was used to explore participants’ walking experiences. According to Grant and O’Brien Cousins (2001), using qualitative methodologies in physical activity research provides valuable information through emphasizing the subjective experiences of older adults. In the case of barriers to walking, Brawley, Martin, and Gyurcsik (1998) also recommend the use of short-term (e.g., 1-week) qualitative recall procedures to elicit physical activity barriers. We used focus groups as a means of data collection because this allowed us to explore the knowledge and experiences of walking for exercise among people with intermittent claudication. Focus groups can be used to examine what people think, as well as how and why they think that way. They also allow participants to draw from and build on each other’s experiences by sharing information among individuals who are dealing with similar disease symptoms and their associated challenges (Kitzinger, 1995). By engaging participants as active agents in the research process and drawing on their direct insights, this study sought to enrich and improve our understanding of factors underlying decisions made and actions implemented by people with intermittent claudication regarding walking.

**Method**

**Participants and Procedures**

Participants were 15 older adults who were recruited from a medical facility in Windsor, Canada, specializing in the treatment of PAD. Eligible participants were identified and invited to participate by medical staff at the recruitment site. Interested volunteers were handed flyers with details of the study and were invited to speak with a researcher after their appointment for more information. Individuals were eligible if they had an ankle-brachial index less than or equal to .90 and had presented with intermittent claudication based on diagnostic criteria followed at the medical facility. In total, 7 men and 8 women with PAD who met the eligibility criteria participated in one of three small focus groups. Mean age of the participants was 76.9 years, and they ranged in age from 54 to 89 years. The mean ankle-brachial index representing the most diseased limb was .67 (SD = .13), indicating a moderate degree of disease severity among participants. Participants were not asked to indicate their current exercise status, but most indicated that they had been involved in an exercise rehabilitation program in the past or had tried walking for exercise on their own.

The focus groups included 4–6 participants per interview and were facilitated by a single moderator who was familiar with the content of the focus-group guide. This guide was developed and the focus groups carried out in a manner consistent with recommendations by Kreuger (1998). The guide was developed by the primary researchers and reviewed by a specialist in PAD who worked with patients at the recruitment site. The moderator had received formal training in conducting focus groups for community research. When participants arrived at a private meeting room on a university campus, their informed consent was obtained and they were asked to discuss 12 standard questions presented by the interview moderator (see the appendix). Discussions were audiotaped and supplementary notes were taken during the discussion. Key questions asked participants to identify and describe their experience of barriers and facilitators regarding walking for exercise. At the
end of each focus-group session participants were debriefed, and an overall summary of the focus-group discussion was presented by the moderator. Participants were invited to comment on this summary and to indicate any discussion points that might have been overlooked to corroborate the validity of the content drawn from each group.

Data Analysis

Consistent with a transcript-based-analysis approach (Kreuger, 1998), data were transcribed verbatim from the audiotape recordings, and notes were used to identify speakers and to indicate nonverbal responses and communications. Content analysis of the transcripts was conducted by two independent investigators, and interrater reliability was determined by calculating Cohen’s kappa (Cohen, 1960; Kvalseth, 1989; Landis & Koch, 1977). Investigators were instructed to familiarize themselves with the data by reading through the transcripts once and to identify barriers and facilitators for walking while reading the transcripts a second time. An emergent coding system was established by identifying barriers and facilitators using a nominal tag (e.g., weather, social support). There was no frequency threshold for including examples of barriers and facilitators in the results because of the small number of participants in this study. None of the factors identified by participants, however, were mentioned fewer than two times.

To assist in the process of synthesis and interpretation, the data were categorized using a social-cognitive framework (Bandura, 1986, 1997) that separated general barriers and facilitators from those that were gauged to be peculiar to individuals with intermittent claudication. The social-cognitive approach provides a structure that organizes determinants as characteristics associated with the person (e.g., pain severity, perceived capabilities), the activity or target behavior (e.g., recommended dosage of weekly walking activity), and the environment (e.g., social support, availability of facilities). Some barriers and facilitators might be considered common among older adults in the general population, regardless of their symptomatic health considerations (e.g., Craig, Russell, Cameron, & Beaulieu, 1998; Lees, Clark, Nigg, & Newman, 2005; Symons Downs & Hausenblas, 2005; Trost, Owen, Bauman, Sallis, & Brown, 2002), whereas others are likely to be disease-specific barriers and facilitators that are particular to individuals with intermittent claudication. Therefore, barriers and facilitators were differentiated in terms of those specific to intermittent claudication and those that were more general in nature. A summary of the general and disease-related barriers and facilitators for each category and the frequencies of their mention are presented in Table 1.

Results

A number of barriers and facilitators for regular walking were drawn from content analysis of the focus-group interviews. Overall, 298 statements were analyzed independently by two investigators. Among these, 67 statements were identified by either or both investigators as representing barriers to regular exercise and 106 as statements indicating facilitating factors. Analysis of agreement yielded a kappa coefficient of .63 (~p < .01), representing substantial interrater reliability.
Cognitive and behavioral pain-coping strategies were the most frequently mentioned facilitators for walking. Social support was also cited frequently by participants, as well as the use of psychological strategies such as goal setting. A highly discussed barrier to regular exercise was pain and the need to take frequent resting breaks. Psychological barriers and discouraging environmental conditions were also mentioned frequently.

General Barriers for Walking

**Barriers Related to the Person.** Physical and psychological variables were included among the personal barriers to walking. Among physical constraints, lack of energy and feelings of fatigue or tiredness were reported by numerous participants. In addition, individuals with intermittent claudication identified other
limiting health conditions or comorbidities including arthritis, angina, and back pain that thwarted their efforts to engage in regular walking.

Another personal barrier frequently identified by participants was a lack of self-motivation, which became highly salient just before the initiation of a walking session or program. On these occasions, negative self-talk, making excuses, and feeling lazy were among the frequently reported impediments to starting walking. One participant described his early attempts at walking as follows:

It’s almost like you’ve got to force yourself to get out for the first couple of times, the first couple of weeks. And once you get going then you want to go after that. It’s like you feel more energized.

**Barriers Related to the Environment.** Participants in all three focus groups expressed the view that inclement weather conditions presented a barrier to engaging in walking activity. Both cold winter weather and extreme heat were identified as barriers, although the winter season was cited most frequently as a challenge to regular walking. In addition to icy sidewalks and frigid temperatures, reduced daylight time for walking outdoors during the winter season was viewed as a limitation for opportunities to go walking. Additional time constraints included commitments to other activities and interests.

**Disease-Specific Barriers for Walking**

**Barriers Related to the Person.** Participants’ uncertainty regarding their condition and a lack of knowledge pertaining to the benefits of walking for intermittent claudication presented cognitive barriers for engaging in regular activity. Generally, individuals believed that walking is good for PAD; however, confusion pertaining to the benefits or harm caused by pain during walking was made apparent by several focus-group participants. In one example, a participant explained the frustration of not knowing the extent to which pain should be tolerated while walking: “I continue going on but as [the pain] gets worse, I don’t like to challenge it, because I don’t know whether it can harm me or help. I don’t know what the outcome would be.”

**Barriers Related to Walking.** Leg pain or discomfort was a common exercise-related barrier to walking among participants in each focus group. The inevitable onset of intermittent claudication presents an exceptional challenge for engaging in walking activity, as indicated by one participant in the following statement:

Well, my only drawback is the pains in my legs. That’s all. I mean, I have other problems but I don’t let them bother me. I know when I go out walking, if I walk too fast, then I’ll look good but in a couple hundred feet my calves are going to start to hurt.

The need for frequent rest breaks during a walk to alleviate claudication pain was also cited as a common deterrent from regular activity. Participants described concerns about being noticed by others when stopping to allow the pain to subside and experiencing frustration or unease while waiting until walking could
be resumed. One participant recollected having had passersby ask if she needed assistance on several occasions:

I found that the part that upset me more than anything was the fact that you’d walk a short walk and then you’d have to stop. And I’ve had half a dozen occasions where people stop—even stop their car—because they’re looking at you standing! And they say, “Are you alright?”

**Barriers Related to the Environment.** Characteristics of the physical environment affecting intermittent claudication pain included encounters with hills, uneven pavement, and smooth or bumpy surfaces, which presented a challenge even for walking short distances. In the following statement, one participant described how walking was made difficult by irregular pavement along his yard: “I can’t even walk from my back porch around to the front to take the garbage out and then walk back without having to stop because of the uneven ground.” Stairs and graded paths also exacerbate symptoms of pain and discomfort, making walking on an incline much more difficult than walking on level ground.

**General Facilitators for Walking**

**Facilitators Related to the Person.** Psychological strategies discussed by focus-group participants that enabled them to get out for a walk included goal setting and positive self-talk. Participants set goals during a walk, such as reaching the next park bench before taking a break or walking a longer distance on the treadmill each week. In the words of one motivated participant, “Some exercise is better than no exercise. So, even if you can’t reach a particular goal, at least you can try. And you’ll be halfway there. You’ve done something.”

In addition to setting specific goals, maintaining a positive attitude and engaging in positive self-talk were important during a walk. The following examples reflect an underlying determination to tackle the challenge of walking: “I guess, I just keep thinking that I can keep going, and I still don’t believe that I can’t do it.” “I can do anything I put my mind to. Whatever pushes me out... There really are no challenges. I can do it if I have to... if I want to.”

**Facilitators Related to the Environment.** Social support provided through companionship was indicated as an important facilitator for walking by nearly all participants. Oftentimes, participants’ spouses or significant others were their walking partners. Several participants also found companionship in walking their dog:

I could just put the dog out in the backyard every night. Instead, I go down to the park, just to go for a walk on the dog trail with him. I enjoy walking more than just letting the dog out.

Companions and walking partners also provided a source of emotional support, primarily through verbal persuasion to walk. Encouragement from others was discussed as an important source of motivation for regular walking activity.
Disease-Specific Facilitators for Walking

Facilitators Related to the Person. To manage the challenge of walking with pain, participants employed cognitive and behavioral coping strategies. Behavioral coping strategies included slowing down or stopping to take a rest break, massaging the leg to alleviate pain, and limping. The most frequently cited cognitive strategies for coping with pain included ignoring pain, distracting or diverting attention from pain, and using positive coping self-statements. For example, “I continue on walking, and what I do is I start counting steps that I’m taking. I’m just concentrating on steps, nothing else; just numbers.” “I just don’t let [the pain] bother me. I just kind of put it at the back of my mind. I say I’m going to do it anyway.”

Facilitators Related to Walking. The availability of a supervised treadmill-walking program facilitated the initiation of a regimen of walking and in some instances was the only walking participants had done. In addition to the structure and consistency offered by scheduled walking sessions, participation in a supervised program offered motivation along with the companionship of like individuals making walking feasible. In the words of one focus-group participant, “Some days, I get inspired, and then other days, most days, I don’t want to walk. So, that’s why I had to join the exercise clinic!”

Enrollment in a program also provided access to a treadmill, which alleviated many barriers to walking. In particular, treadmill walking enabled participants to determine their walking grade, take seated rest breaks as needed, and exercise despite inclement weather conditions.

Facilitators Related to the Environment. Both the social and physical environments provided mechanisms that facilitated regular walking activity. The provision of social support primarily serving the functions of companionship and informational support was important for engaging in walking. Having a walking partner who understands the need for taking frequent rest breaks during a walk helped participants overcome claudication pain. Here, one individual describes the social support provided by a close friend when walking: “I happen to have a very good friend and she comes along [walking] and says, ‘Let me know when your legs are going!’ When [I need] to sit down, we sit down.”

Further discussions revealed that companionship support is particularly important when having to take rest breaks. Having a partner to wait with as the pain subsided alleviated some of the unease associated with stopping during a walk. For example:

My experience has been that, after a couple of blocks, already the pain starts. And then you stand there. And they say, “Well you just stop!” That’s all well and good to say that. It’d be nice if you had someone to stand there with you!

A second function of social support identified frequently during focus-group discussions was informational support provided by a medical practitioner. Oftentimes, participants described intentions to walk that were based on a belief that walking is beneficial for their condition and necessary for the prevention of
disease progression: “I do have pain frequently, but I still go because I know I have to exercise. The doctor says, ‘You haven’t improved, but it’s not worse, so get out and walk!’”

Having a place to rest and recover blood circulation to the legs during a walk was a notable characteristic of the physical environment. Participants who walked for exercise routinely followed familiar routes in their neighborhood or at a shopping mall where benches were available for taking a seated break. For example:

We walked in the morning from the cottage over to the store to get the paper. That’s just about four, maybe five blocks. That’s when I start feeling the pain in my legs walking so I have to stop. And that’s quite a long distance to walk. But this last summer, we did it a couple of times. We had to stop where there’s a bench for people waiting to catch the bus. We’d stop and sit there maybe 2, 3 minutes, then we’d get up again and finish the walk.

Participants described benches and seated rest places as intended destinations during a walk, often directing their routes to ensure a place to recover comfortably: “If I go out to the mall, I’ll go through the entrance and I’ll head right out to the bench, and I’ll be hiding there for a few minutes, then walk some more!”

Furthermore, participants conveyed a sense of security or comfort in anticipating a place to sit down during a walk. Many were reluctant to go walking without knowing there would be benches along the way: “If there’s somewhere I can sit down for a few minutes, I never worry about it.”

Discussion

The purpose of this study was to examine barriers and facilitators associated with walking for individuals with intermittent claudication. Older adults with intermittent claudication served as active informants, sharing their experiences and insights about walking. Couched within social-cognitive theory, the data provide a qualitative description of barriers and facilitators for walking for individuals who experience intermittent claudication. Although some of the variables identified were akin to those that influence physical activity in the general population (e.g., Craig et al., 1998; Lees et al., 2005; Symons Downs & Hausenblas, 2005; Trost et al., 2002), factors associated with the experience of lower limb pain were prominent. These findings indicate that individuals with intermittent claudication face unique circumstances during walking that should be taken into account by researchers seeking to better understand walking adoption and adherence, by practitioners when prescribing walking activity, and by researchers and practitioners when developing and implementing interventions to facilitate walking in this population.

A finding that stands out from this study was the impact of environmental variables on walking activity. Recently, there has been an emphasis on identifying characteristics of the physical environment related to physical activity (Orleans, Kraft, Marx, & McGinnis, 2003; Saelens, Sallis, & Frank, 2003; Trost et al., 2002). Participants in the current study identified several environmental variables that impeded or enabled their efforts to walk. One feature of the physical environment
found to influence activity among older adults (Clark, 1999) and that appears to be particularly significant among individuals with intermittent claudication is the nature and quality of the walking surface. For example, uneven or icy sidewalks might be perceived as unsafe for walking and can discourage efforts to be active. Moreover, graded paths presented an exceptional challenge to sustaining activity. The intensity of effort required to walk along an incline or to climb stairs exacerbates leg pain and can make walking unmanageable for many individuals with intermittent claudication. Because sustained activity is limited and leg pain or discomfort typically necessitates frequent rest breaks during a walk, another characteristic of the environment identified as a particularly important facilitator for walking was having places to take seated rest breaks.

These findings, in addition to evidence from other studies of environmental correlates of physical activity among older adults (e.g., Clark, 1999; Li, Fisher, Brownson, & Bosworth, 2005), suggest that an ideal walking environment for individuals with intermittent claudication might include features that are overlooked or even undesired by individuals who do not have difficulty walking any distance. For example, locating frequent benches in parks and along sidewalks might be expensive and aesthetically distracting but could ease the burden of standing and waiting for pain to subside. In another example, Brownson, Baker, Housemann, Brennan, and Bacak (2001) found that a hilly neighborhood was positively associated with adults’ physical activity levels; however, this feature could present an exceptional challenge for walking for those with intermittent claudication. With these issues in mind, more research is clearly needed to examine environmental correlates of activity in individuals with intermittent claudication that can be modified through environmental policy and community interventions.

In addition to the physical environment, the social environment can play an important role in determining activity levels. Information and encouragement from significant social referents have been associated with physical activity levels among older adults (e.g., Clark, 1999), those with chronic disease such as arthritis (e.g., Marks & Allegrante, 2005), and people with cardiovascular disease (e.g., Rohrbaugh et al., 2004; Taylor, Bandura, Ewart, Miller, & DeBusk, 1985). What stands out from the results of the current investigation is the emphasis participants placed on the role of social support, in particular companionship, for facilitating walking activity. Consistent with evidence from the self-presentational literature on older adults (Martin, Leary, & Rejeski, 2000), people with intermittent claudication are sensitive to social attention brought on by symptomatic conditions. Participants described the value of having a walking partner who understood their condition and was aware of their inability to walk quickly and for long periods without a rest break. Indeed, it appears that during rest breaks a companion can be particularly helpful in alleviating anxieties about appearing conspicuous and in helping pass time while waiting for pain to subside.

Other studies provide corroborating evidence for a role of companionship support in facilitating activity among older adults (e.g., Dubbert, Cooper, Kirchner, Meydreh, & Bilbrew, 2002). Accordingly, interventions for increasing activity among individuals with intermittent claudication should include strategies for harnessing support from spouses, family members, and close friends who are able to accompany individuals with intermittent claudication during walking activity.
The unpleasant experience of pain or discomfort during walking is inevitable for individuals with intermittent claudication. Participants in this study described attempts at various coping strategies for tolerating and overcoming their symptoms. An immediate behavioral strategy for coping with claudication pain is to stop walking. Rest allows blood flow to resume to the aching muscles and alleviates pain within minutes. In instances when walking must be sustained, however—for example, when trying to reach a destination or resting place—some degree of pain or discomfort must be tolerated. The strategies identified and used by participants in this study are similar to those implemented by individuals with other pain syndromes (Boothby, Thorn, Stroud, & Jensen, 1999) and include ignoring pain, distracting or diverting attention from pain, and using positive coping self-statements. The use of pain-coping strategies is linked to confidence in one’s ability to function physically and to manage pain symptoms among patients with osteoarthritis (Keefe et al., 1997) and to reported levels of daily activity among individuals with symptoms of chronic pain (Jensen & Karoly, 1991).

One study examining subjective and physiological ratings of pain and anxiety during intermittent bouts of physical activity among patients with chronic low-back pain provided evidence that the use of cognitive coping strategies is associated with pain intensity and physiological arousal (McCracken, Goetsch, & Semenchuk, 1998). Along with these findings, accumulating evidence of the benefits of cognitive-behavioral interventions that teach pain-coping strategies for treating and managing pain (Jensen, Turner, & Romano, 1994) indicates one potential avenue for increasing walking activity among individuals with intermittent claudication. Research identifying effective coping strategies associated with pain appraisals and behaviors among individuals with intermittent claudication is needed.

Although providing unique and novel insights to factors that affect walking among individuals with intermittent claudication, this study bears several limitations that should be considered when interpreting the findings. First, variability among focus-group participants limits our understanding of barriers and facilitators that might be associated with disease characteristics or demographics. For example, group discussions included a heterogeneous mix of both men and women with varying degrees of physical disability, claudication pain, and comorbidities. In addition, information on current activity status might have been useful for stratifying participants into compatible groups. When holding group discussions, it is important that participants be alike to facilitate an open, coherent dialogue and to allow between-groups comparisons (Kreuger, 1998). To account for the variability among participants, small groups were held to optimize sociability and candidness during the focus groups. Nonetheless, conclusions distinguishing individuals with intermittent claudication based on disease characteristics or major demographic variables cannot be made.

A second limitation of this study is the preliminary nature of its findings. Given that very little is known about walking in individuals with intermittent claudication, the exploratory findings drawn from a small sample of this population and presented here contribute to our basic understanding of this topic. Qualitative research of greater depth and including larger sample sizes, however, is warranted to enhance our knowledge base. As a foundation of research is established, research should progress toward theory-based examinations of the predictive utility of the
barriers and facilitators related to walking activity in individuals with intermittent claudication.

Many adults identify walking as their primary and most preferred mode of exercise (Clark, 1999). For those with intermittent claudication, walking acts as both a stimulus and a therapy for pain, producing exceptional circumstances for engaging in walking. As a result this population faces particular environmental, social, and activity-related challenges to engaging in regular walking. Findings from this study provide a detailed description of determinants of walking activity among individuals with intermittent claudication. In particular, barriers to walking might contribute to our understanding of the challenge faced by this population in acting on their positive intentions to walk (Galea & Bray, 2006). Using information drawn from our focus groups, prospective studies examining known theoretical determinants of physical activity, as well as barriers and facilitators particular to individuals with intermittent claudication, are needed to gain a better understanding of walking in this population. Information drawn from such studies can be used as a foundation for intervention efforts to promote activity levels that are tailored to the needs of individuals who have difficulty walking because of intermittent claudication.

References


Barriers and Facilitators for Walking


Appendix: Focus-Group Discussion Questions

1. Tell us your name and tell us something you enjoy doing in your free time.
2. What comes to mind when you think about going for a walk?
3. Do you ever go for a walk for exercise? Describe this experience.
4. Whether or not you walk for exercise, do you believe there are any advantages of walking? Any disadvantages? If so, what are they?
5. If you think about going for a 30-minute walk, are there any barriers that you could face?*
6. All things considered, what is the greatest barrier to going for a 30-minute walk?
7. If you think about going for a 30-minute walk, are there any factors that could facilitate this activity or make it easier?*
8. Are there any barriers that are a result of the pain/discomfort in your legs? Describe.
9. Is there anything that you can do to deal with these pain-related barriers . . .
   a. when you’re planning to go out for a walk?
   b. during a walk, when you begin to feel pain or discomfort?
   c. when you stop to take a resting break during a walk?
10. Have you ever tried to deal with these barriers but been unsuccessful?
11. When you begin to sense pain/discomfort in your legs during a walk, how do you respond?
12. Do you have any other thoughts on walking activity that we may not have discussed already?
*Denotes key question