Motivators and Barriers to Walking in Older Adults With Peripheral Artery Disease

According to the most recent data, approximately 8.5 million Americans older than 40 have peripheral artery disease (PAD) (Mozaffarian et al., 2016). The incidence of PAD is the same in men and women, and increases dramatically in both sexes as age advances (Criqui & Aboyans, 2015). PAD with intermittent claudication (IC) is described as cramping in the calf while walking and is indicative of insufficient blood flow to the lower leg muscles. Although PAD and cardiovascular disease (CVD) share the same risk factors (Criqui & Aboyans, 2015; Hirsch et al., 2006, Rooke et al., 2011), Smith, Shipley, and Rose demonstrated that PAD with IC is linked to increased mortality even when controlling for the presence of CVD (as cited in Criqui & Aboyans, 2015).

The American College of Cardiology/American Heart Association (ACC/AHA) guidelines recommend that individuals with PAD receive education on the benefits of walking. As an initial, noninvasive treatment, the ACC/AHA guidelines endorse a supervised walking program that gradually increases in speed and distance (Hirsch et al., 2006; Rooke et al., 2011). Unfortunately, many individuals with PAD do not participate in activity. A comprehensive review to explore motivators and barriers to walking in older adults with PAD was performed to help guide development of interventions to increase activity. Several databases were used for the literature review, with inclusion criteria being all study designs with samples of older adults with PAD. From the initial yield of 22 abstracts, and additional hand search, eight publications were used for this review. Social cognitive theory provided a context for understanding barriers and motivators to walking experienced by older adults with PAD. Nurses may contribute to walking self-efficacy with support and motivation. [Journal of Gerontological Nursing, 44(1), 43-50.]

ABSTRACT

The purpose of the current review is to provide, within the context of social cognitive theory, a current description of behavioral, personal, and environmental factors that motivate or prevent an individual with peripheral artery disease (PAD) from participating in activity. A comprehensive review to explore motivators and barriers to walking in older adults with PAD was performed to help guide development of interventions to increase activity. Several databases were used for the literature review, with inclusion criteria being all study designs with samples of older adults with PAD. From the initial yield of 22 abstracts, and additional hand search, eight publications were used for this review. Social cognitive theory provided a context for understanding barriers and motivators to walking experienced by older adults with PAD. Nurses may contribute to walking self-efficacy with support and motivation. [Journal of Gerontological Nursing, 44(1), 43-50.]

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in any type of physical activity; they are unaware of the need to exercise, are not adhering to the proposed exercise guidelines, or worse, do not walk at all (Wolosker, Nakano, Rosoky, & Puech-Leao, 2003).

Prior research has revealed not just claudication pain, but other factors such as diabetes and depression, may also discourage an individual with PAD from participating in physical activity (McDermott et al., 2001). Psychosocial and environmental factors have been explored in the older adult population (Berke, Koepsell, Moredon, Hoskins, & Larson, 2007; Carlson et al., 2012; Kaplan, Newsom, McFarland, & Lu, 2001; King et al., 2005; Li, Fisher, Brownson, & Bosworth, 2005). However, few studies have examined motivators and barriers to walking in older adults with PAD. A comprehensive review of the literature to explore the motivators and barriers to walking is necessary to increase and sustain physical activity; they are unaware of the need to exercise, are not adhering to the proposed exercise guidelines, or worse, do not walk at all (Wolosker, Nakano, Rosoky, & Puech-Leao, 2003).

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Purpose

The aims of this integrative review are to (a) identify and appraise the current level of evidence, (b) identify demographic characteristics and cardiovascular risk factors for older adults with PAD, (c) identify motivators and barriers to walking, (d) organize the findings into personal and behavioral or environmental categories, and (e) explain how social cognitive theory may assist in developing an appropriate intervention to enhance adherence to a walking program in older adults with PAD.

**Method**

An integrative review following Whittamore and Knafl’s (2005) review strategy was performed using the following databases: PubMed, PsycINFO, CINAHL, OVID/ Medline, and Cochrane. The following search terms were used with the date ranges from 2010-2016: “motivation” OR “barriers to physical activity” AND “walking” OR “physical activity” OR “exercise” AND “peripheral arterial disease” OR “peripheral vascular disease” OR “diabetic vascular disease” OR “intermittent claudication.” Search results and inclusion and exclusion criteria that guided the search are included in Figure 1. Abstracts were reviewed, and full publications were obtained for those that met inclusion criteria. The publications were further reviewed for appropriateness and selected for analysis. Data extraction was conducted using a standardized template that included purpose/research question, research design/level of evidence, sample, independent and dependent variable, data analysis, and results and implications headings.

**Quality of Evidence/Level of Evidence**

For each publication, the quality of research methodology was evaluated using the Critical Appraisal Skills Programme (CASP) evaluation checklist. CASP is a method of critically appraising research evidence for quality, focusing on the validity of the study and usefulness of results. CASP provides guidelines for appraisal of all types of research, including systematic reviews, as well as quantitative and qualitative research. The checklist consists of two screening questions regarding the aims and appropriateness of the methodology of the research. If the questions are negatively answered, the study does not meet the quality criteria to continue with evaluation. If the screening questions are positively answered, more in-depth evaluation of the study can continue. The remaining detailed questions are specific to the type of research design used, addressing topics such as recruitment strategies, homogeneity of the participant groups, randomization blinding, data collection, researcher/participant relationship, ethical considerations, rigor of the data analysis, clarity of findings, and value/applicability of the results. All questions are answered with a simple yes, no, or can’t tell response (CASP, 2014).

Because an integrative review includes all types of study designs, the...
level of evidence for the current review was assigned using the Level of Evidence pyramid by Melnyk and Fineout-Overholt (2011). Using the hierarchy of evidence designed by Melnyk and Fineout-Overholt (2011), the study is assigned a numerical value based on its design. The highest levels of evidence (Level I) are systematic reviews or meta-analysis studies, whereas the lowest level of evidence (Level VII) is expert opinion. Because integrative reviews can include qualitative studies, this hierarchy also includes qualitative or descriptive studies (Level VI). The assignment of level of evidence is not meant to be used alone, but it is meant to be used in conjunction with a framework (in this instance, CASP) to evaluate the quality of the evidence.

Search Results
Twenty-one abstracts were retrieved in the initial literature search. Of those, 10 were duplicates, and although one met inclusion criteria, it was a medication study, and therefore excluded. An additional hand search was performed, which yielded one additional manuscript for a total of eight that addressed motivators and barriers to walking in the PAD population.

RESULTS
All eight studies addressed the motivators and barriers to walking in the PAD population, which were further categorized into behavioral and personal or environmental factors related to the key concepts in social cognitive theory (Figure 2).

Current Level of Evidence
As a whole, based on the CASP evaluation of the quality of evidence, all studies were of sound design with useful results. According to the hierarchy of evidence from Melnyk and Fineout-Overholt (2011), the level of evidence for studies in the current review ranged from Level III to Level VI, which is mid-low level of evidence. However, the nonexperimental or qualitative evidence is fitting for this type of research question. Two studies were exploratory qualitative interview studies (Collins et al., 2006; Egberg, Andreason, & Mattiasson, 2012), comprising individual interviews and focus groups that described the patient experience, and one study explored guided communication between the patient and health care provider (Collins et al., 2006). The remainder of the studies were nonexperimental descriptive studies that described the motivators and barriers to walking, including physical (i.e., pain, comorbid conditions, and fatigue), behavioral/personal (i.e., emotional, commitment, and motivation), and environmental issues (Barbosa et al., 2015; Barnes, Curran, Lunos, Ahluwalia, & Collins, 2010; Cavalcante et al., 2015; Farah et al., 2013; Galea & Bray, 2007; Müller-Bühl, Engeser, Leutgeb, & Szecsenyi, 2012) (Table A, available in the online version of this article).

Demographic Characteristics
The studies reflect international representation as evidenced by the locations of research. Three studies were conducted in South America (Barbosa et al., 2015; Cavalcante et al., 2015; Farah et al., 2013), and three stud-
ies were conducted in North America (Barnes et al., 2010; Collins et al., 2006; Galea & Bray, 2007). Of those North American studies, two studies were conducted in the United States (Barnes et al., 2010; Collins et al., 2006). The remaining two studies were conducted in European countries (Egberg et al., 2012; Müller-Bühl et al., 2012).

All participants had some degree of PAD defined in two studies as ankle brachial readings <0.9 with or without claudication (Cavalcante et al., 2015; Farah et al., 2013); the other studies (Barbosa et al., 2015; Barnes et al., 2010; Collins et al., 2006; Egberg et al., 2012; Galea & Bray, 2007; Müller-Bühl et al., 2012) only reported PAD as a diagnosis, without providing evidence of PAD from vascular studies. The degree or severity of PAD was not categorized in the studies. The age of study participants ranged from 55.5 to 81 years. Although all studies included both sexes, the majority of participants were men. Only three studies reported the ethnicity of participants. Of those studies, the majority of participants were White (Barnes et al., 2010; Cavalcante et al., 2015; Galea & Bray, 2007). However, one study reported 39% of participants were non-White (Cavalcante et al., 2015). In addition, one study conducted in the United States reported White (n = 14), African American (n = 12), and Hispanic (n = 9) participants (Collins et al., 2006). The studies conducted in Europe (Egberg et al., 2012; Müller-Bühl et al., 2012) and two studies conducted in Brazil (Barbosa et al., 2015; Farah et al., 2013) did not report ethnicity of participants.

Educational background of participants varied from elementary education (≤8 years) (Barbosa et al., 2015; Cavalcante et al., 2015) to 11 years of school (Cavalcante et al., 2015) and some college education (Barnes et al., 2010). Two studies reported low income (Barbosa et al., 2015; Cavalcante et al., 2015), and three studies reported marital status (Barnes et al., 2010; Cavalcante et al., 2015; Galea & Bray, 2007).

In addition to PAD, several risk factors and comorbid cardiovascular conditions were documented in these studies. Diabetes, hypertension (Barbosa et al., 2015; Cavalcante et al., 2015; Farah et al., 2013), heart disease (Barbosa et al., 2015; Cavalcante et al., 2015), dyslipidemia, and being overweight (Cavalcante et al., 2015) were prevalent among participants in these studies. Participants also had poor circulation as demonstrated by their ankle brachial index (ABI) (Barbosa et al., 2015; Farah et al., 2013). Smoking was also prevalent in participants across studies (Barbosa et al., 2015; Cavalcante et al., 2015; Farah et al., 2013; Galea & Bray, 2007).

**Barriers to Walking**

**Personal Factors:** Comorbid health issues were identified as potential barriers to walking in individuals with PAD, such as diabetes associated with lack of energy and other medical conditions (Cavalcante et al., 2015). Health conditions, such as abdominal obesity and other diseases, are also significant factors as reported in Barbosa et al. (2015). Metabolic syndrome components and diabetes are associated with physical activity (Barbosa et al., 2015), whereas Farah et al. (2013) presented a prediction model demonstrating that diabetes and coronary artery disease (CAD), along with
Walking Impairment Questionnaire (WIQ) scores, predict walking distance and claudication distance.

Other personal factors that may relate to lack of physical activity are age, because physical activity is negatively associated with age and fear of falling (Barbosa et al., 2015). Low economic status was also found to be associated with fear of falling (Cavalcante et al., 2015). In addition, Barbosa et al. (2015) reported lack of finances and lack of knowledge as barriers affecting physical activity.

Although no study explored depression as a potential barrier to physical activity in older adults with PAD, Egberg et al. (2012) addressed some of the feelings expressed by this population with IC, such as feeling inconvenienced when forced to stop walking and uncomfortable when needing to rest. Participants also expressed that they missed their former life, experienced sadness, and avoided social outings and physical activity all because of leg pain. The positive aspect of the feelings of sadness and isolation led participants to adapt and integrate adjustments for IC in daily activities. Alternatively, in other studies, participants reported positive attitudes, perceived control, and intentions to exercise (Galea & Bray, 2007) and some participated in other physical activity (Müller-Bühl et al., 2012). These positive attitudes, in turn, influenced behavioral factors.

Behavioral Factors. An individual's physical ability, as related to the ABI, results in negative physical feedback (pain and fatigue). Although one study found that pain did not factor into intent to walk (Galea & Bray, 2007), Cavalcante et al. (2015) reported that decreased walking capacity was associated with leg pain. Barbosa et al. (2015) reported that pain was a factor in 75% of participants, and 64% needed to rest because of leg pain, whereas in this same study, claudication onset distance and need to rest due to leg pain were significant barriers to physical activity. The finding of pain resulting in the inability to participate in physical activity—along with fatigue associated with pain, especially when carrying extra weight or navigating stairs or hills—was echoed by findings from the study conducted by Egberg et al. (2012).

Fatigue (Barbosa et al., 2015; Cavalcante et al., 2015), lack of energy, and diabetes (Barbosa et al., 2015) were reported by participants as issues affecting participation in physical activity. Specifically, in one study, 34% of participants immediately declined the invitation to exercise due to fatigue and lack of motivation, and of the 8% who did not complete the study, 59% reported lack of motivation as the reason for attrition (Müller-Bühl et al., 2012). Other barriers affecting physical activity identified by Barbosa et al. (2015) were lack of monitoring of adherence to an exercise program and lack of time.

Environmental Factors. Environmental factors may include physical factors of the environment or social factors (social support). Barbosa et al. (2015) found a significant list of physical environment barriers to walking, such as physical obstacles that aggravate leg pain, difficulty moving, no accessible exercise site, lack of security, poor sidewalks, uneven streets, no crosswalks, traffic, and inclement weather, with the most significant barriers being no place to sit for rest/recovery and lack of green space. Of these findings, physical activity was negatively associated with lack of green space (Barbosa et al., 2015). Cavalcante et al. (2015) also found lack of green space to be a barrier to walking, whereas others chose not to participate in physical activity because of the lengthy travel distance to get to a place to walk (Müller-Bühl et al., 2012). However, study participants had the self-confidence to adjust to overcome environmental barriers. According to Egberg et al. (2012), they identified need for planning ahead to secure transportation to the exercise site and know safe areas to sit for rest/recovery as well as continuous adjustments to ensure adherence to the environment.

Motivators to Walking

Rewards, commitment to exercise, and perceived control all contributed to motivation to participate in physical activity. Barnes et al. (2010) used the stages described in the transtheoretical model and related those change processes with achievement of self-efficacy. The results of Barnes et al.’s (2010) study found that individuals who were actively participating in exercise were significantly different from individuals in the pre-contemplation/contemplation stage of participating in physical activity regarding problem-solving exercise alternatives and rewarding themselves for adherence. In addition, all groups were statistically different when assessed for commitment to exercise. The pre-contemplation group was statistically different from the action group when it came to decisional balance regarding the positives and negatives of changing behavior and enjoyment of physical activity (Barnes et al., 2010). Furthermore, Egberg et al. (2012) noted that because older adults needed assistance to balance themselves while walking, having an exercise partner made physical activity easier, and encouragement from health care providers motivated individuals with PAD to walk even though they were experiencing pain.

DISCUSSION

Within the context of social cognitive theory, personal, behavioral, and environmental factors have been identified that contribute to motivation and barriers to physical activity. Although the quality of studies was found to be mid to low, the findings provide a better understanding of factors to consider when developing strategies to improve physical activity in older adults with PAD. The current review confirmed known barriers to walking, such as low socioeconomic status, age, comorbid conditions, pain, fatigue, and no place to rest while walking. New information from this review suggests social factors are a major barrier. However, with social
support and motivation, barriers to walking can be overcome and self-efficacy can be achieved.

In a predominantly White, male population with PAD, older age and presence of comorbid conditions, such as diabetes and CAD, result in lack of motivation. Lack of interest in physical activity is a similar finding in a sample of adults between ages 65 and 100 (Gellert et al., 2015) and individuals with diabetes (Clarke et al., 2015). In addition to poor physical health, mental health conditions and lower socioeconomic status influenced intention to exercise and self-confidence in older adults (Sniehotta et al., 2013). Middle-aged and older adults with diabetes reported high cost of gym memberships as a barrier to exercise (Clarke et al., 2015; Lascar et al., 2014). It has been suggested that struggles of the lowest socioeconomic group may not benefit from an intervention based on social cognitive theory as much as those in higher socioeconomic groups (Sniehotta et al., 2013). These demographic findings describe social cognitive theory’s personal factors that negatively influence self-efficacy. However, Wu, Chang, Courtney, and Kostner (2012) demonstrated in older cardiac patients with diabetes that with education and/or social support knowledge and self-efficacy can be improved.

The behavioral factors of pain, fatigue, fear of falling, and need to rest while walking culminate in lack of motivation. Pain has been reported in other populations that experience chronic conditions such as diabetes (Labrunée et al., 2012), and pain, fatigue, and fear of falling were reported in patients with chronic kidney disease as barriers to walking (Clarke et al., 2015). The same barriers of lack of knowledge, lack of monitoring of activity, and lack of time were echoed in patients with diabetes (Labrunée et al., 2012). However, individuals with chronic illness want exercise education (Clarke et al., 2015; Lascar et al., 2014). Lascar et al. (2014) reported that individuals wanted education provided by a fitness expert, whereas Clarke et al. (2015) reported no preference for who provided the education. Individuals also want monitoring of activity, preferably weekly (Labrunée et al., 2012).

With increased social support, motivation, commitment, and support from a health care provider, pain was not a barrier for most participants, with one exception. Although health care provider support in goal setting and social support from peers were seen to be beneficial (Clarke et al., 2015; Lascar et al., 2014; Khan, Stephens, Franks, Rooke, & Salem, 2013), individuals with arthritis did not increase physical activity despite support from health care providers (Peeters, Brown, & Burton, 2015). Previous studies also found that once self-efficacy was achieved, social support was not important (Phillips & McAuley, 2013; Sniehotta et al., 2013), suggesting that long-term support may not be needed. However, social support in the form of an exercise partner provides a sense of security and safety (Lascar et al., 2014).

Environmental factors, such as lack of green space including safe streets and disagreeable weather, are barriers to physical activity for individuals with PAD, especially older adults with low income and <8 years of formal education (Barbosa et al., 2015; Cavalcante et al., 2015). Bad weather was echoed as a barrier to exercise by individuals with type 1 diabetes (Lascar et al., 2014). Likewise, individuals with chronic kidney disease found exercising outdoors was more rewarding, so bad weather was seen as a deterrent (Clarke et al., 2015). However, in older patients with good physical and mental health, and a higher economic status, safety and weather are not significant barriers once self-efficacy is achieved (Sniehotta et al., 2013). Findings of Gellert et al. (2015) support lack of access and safety as barriers to exercise.

An understanding of the motivators and barriers to walking in the population with PAD and placed within the context of social cognitive theory can help determine an appropriate intervention to enhance adherence to a walking program in older adults with PAD.

**NURSING IMPLICATIONS**

As suggested for the older population (White, Wojcicki, & McAuley, 2012), breast cancer survivors (Phillips & McAuley, 2013; Stacey, James, Chapman, & Lubans, 2016), and patients with chronic kidney disease (Clarke et al., 2015), taking into consideration the identified motivators and barriers, development of a walking intervention for individuals with PAD and IC using the social cognitive theory may be beneficial (McDermott et al., 2013). As many patients with PAD are not optimized on a medical regimen (Montiminy et al., 2016), a walking program’s framework should include education and treatment of PAD and risk factors (smoking cessation, medical treatment); control of comorbid factors and psychological issues such as depression, pain control, physical and psychosocial support.
(walking partner, treatment of depression); positive feedback; and accessible indoor/outdoor safe places to walk with access to rest areas. An interprofessional plan including medical management of the disease, education (Tew et al., 2015), and a nurse-led home/community walking program may be successful (Gardner, Parker, Montgomery, Scott, & Blevins, 2011; Mays et al., 2015). Nurses can assist in accessing a safe place to walk within the patient's community and provide social support and positive feedback communication. Once self-efficacy for walking has been achieved, nurses can continue to monitor individuals to ensure continued adherence to a walking program.

CONCLUSION

Although individuals with PAD are a diverse population with respect to physical activity, the use of social cognitive theory provided a context in which a better understanding of the barriers and motivators to walking, experienced by older adults, will inform nursing practice. Nurses caring for older adults with PAD may contribute to success with promotion of tailored education and problem-solving methods specific to aging in which motivational methods and social support may help improve adherence to a walking program and contribute to enhanced self-efficacy related to walking. Furthermore, using this supportive framework, nurses can impact prevention efforts to slow the progression of PAD to reduce symptoms and disability. Research is needed to assess how such nursing support can affect patient recovery and clinical outcomes in this patient population.

REFERENCES


ABOUT THE AUTHORS

Dr. Bentley is Assistant Professor, Millikin University, Decatur, Illinois; and Dr. Kelechi is David and Margaret Clare Endowed Chair and Professor, Medical University of South Carolina, School of Nursing, Charleston, South Carolina. The authors have disclosed no potential conflicts of interest, financial or otherwise.

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<table>
<thead>
<tr>
<th>Citation</th>
<th>Purpose/ Research Question</th>
<th>Research Design/Level of Evidence</th>
<th>Sample</th>
<th>Independent and Dependent Variable</th>
<th>Data Analysis</th>
<th>Results and Implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barbosa (2015)</td>
<td>Analyze barriers to exercise in patients with IC</td>
<td>Mixed Methods Descriptive Level of evidence: 3</td>
<td>n=150 -Age: 64 +/-9 years -BMI: 26.2 +/- 4.5 -ABI (0.59 +/- 0.14) -Male (63%) &lt; 8 years education (72%) -Low income (35%) -Diabetes (43%) -Hypertension (92%) -Cardiac disease (56%) -Smoker (23%) *Brazil</td>
<td>IV: Demographic characteristics, personal and environmental barriers to walking DV: physical activity</td>
<td>Personal Barriers: pain (75%), need to rest due to leg pain (64%), fatigue (59%), other disease (54%), fear of falling (54%), lack of energy (50%), lack of money (49%), lack of knowledge (37%), lack of monitoring (33%), lack of time (30%). Environmental barriers: obstacles that aggravate leg pain (75%), poor sidewalks (64%), streets not flat (61%), poor weather (54%), no place to sit (53%), no exercise site (51%), lack of security (50%), no crosswalks (44%), difficulty moving (42%), lack of green space (35%), traffic (30%). Physical activity is associated with: Age (r=-0.283, p=&lt;0.001), claudication onset distance (r=0.252, p=0.004), peak walking distance (r=0.372, p=&lt;0.001), metabolic syndrome components</td>
<td>Older patients with PAD and IC who have poor walking ability and lack of green areas to walk participate in less exercise.</td>
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</table>
| Barnes (2010) | Identify mediators of exercise in persons with asymptomatic PAD or disease risk factors | Survey study | n=56  
-Male (57%)  
-Age: 68 years  
-White (93%)  
-Married (61%)  
-Up to 11 years of school (9%)  
-Some college (30%)  
**PACE:** Patient-Centered Assessment and Counseling for Exercise:  
PACE 1 = pre-contemplation (n=5); PACE 2-4 = contemplation | Instruments:  
1) Processes of Change  
2) Self-Efficacy: Confidence  
3) Decisional Balance  
4) Social Support for Physical Activity  
5) Outcome Expectations for Exercise  
6) Physical Activity Enjoyment | **Substituting alternatives & Rewarding oneself:**  
PACE 1/PACE 2-4 both statistically significant difference from PACE 5-8  
(p=.001, p=.008)  
**Committing oneself:**  
all groups statistically significantly different  
(p=.003)  
**Decisional Balance & Physical Activity Enjoyment Scale:**  
PACE 1 different from Based on theories, progression in stages of change can lead to self-efficacy. Outcome expectations, decisional balance, and 3 interventions: Substituting alternatives & rewarding oneself (action group); & committing oneself (all groups) may lead to... |
| Cavalcante (2015) | Investigate sociodemographic comorbidities and clinical differences with barriers to activity in people with intermittent claudication | Cross-sectional study | Level of evidence: 3 | n=145  
- >65 years of age (55%)  
- Male (65%)  
- Nonwhite (39%)  
- Married (67%)  
- Primary education (8 years or less) (72%)  
- Low income (36%)  
- Hypertension (81%)  
- Dyslipidemia (72%)  
- Overweight (60%)  
- Heart disease (59%)  
- Diabetes (41%)  
- Smoker (24%)  
- 25% of sample demonstrated lowest ABI, claudication onset, and walking distance  
- Tertiary care center specializing in peripheral vascular disease  
- Brazil | n=29;  
PACE 5-8= action (n=22)  
*Minnesota | PACE 5-8 (p=.02,  
p=.05);  
**Outcome Expectations for Exercise:** PACE 1 not different than PACE 5-8; all others significantly different (p=.01) | Older patients with low education level, low socioeconomic status, diabetes, low ankle-brachial index, and those with a lower walking capacity are more likely to experience barriers to physical activity.  
Low socioeconomic status afraid of falling, needing to rest due to leg pain and lack of knowledge of benefits of walking.  
Diabetics reported lack of physical activity and not to behavior change in the person at risk for PAD. |
Collins (2006) | Exploration of patient perceptions of exercise to develop patient/physician intervention | Qualitative interview study (individual and focus group) | n= 35  White: 14  African American: 12  Hispanic white: 9  Gender: Men 19, women 16  ABI < 0.9  *Houston, TX  VA med center and county hospital | Having a place to sit while patients with more disease reported pain, need to rest due to leg pain, fatigue, no place to sit. |
| | | | |
| Egberg (2012) | Describe lived experiences of living with PAD and IC | Qualitative interview study | n=15  -diagnosis of PAD & IC  -7 women, 8 men  Age 64-81 years (mean 73 years)  *Sweden | Overall findings showed adjustments to a restricted life. Symptoms increase with activity and increases the sense of illness. Environment influenced where they walked: |
| | | | |

**Environmental Barriers** (73% with reliability coefficient > .50)
<table>
<thead>
<tr>
<th>Awareness of surroundings, transportation needs to be considered, feelings of vulnerability when needing to find a place to sit and rest;</th>
<th>Experiencing leg discomfort: Either slow creeping pain or quick pain leading to inability to walk, encouragement from healthcare professionals motivated them to walk despite the pain, pain wore them down and tired quickly, hills, stairs, or carrying something increased symptoms;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moving around in a new way: walking slower did not increase distance walked, needed to know where resting places were located, uneven ground was a barrier to walking, walking with partner was easier, needed aid to held onto while walking;</td>
<td>Feeling inconvenient when forced to stop: embarrassed when needed to rest; Missing previous life: sadness,</td>
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<tr>
<td>ground level, areas to rest Pain forced them to stop walking</td>
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<td>Study</td>
<td>Research Design and Sample Characteristics</td>
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<td>Farah (2013)</td>
<td>Estimate walking ability based on clinical characteristics and WIQ</td>
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<td></td>
<td>Nonexperimental Quantitative</td>
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<td></td>
<td>Level of evidence: 3</td>
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<tr>
<td>Galea (2007)</td>
<td>Examination of psychosocial influence on walking and examined pain as barrier to walking</td>
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<tr>
<td></td>
<td>Nonexperimental, prospective study (5 points of data collection and 4 weekly telephone interviews)</td>
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<td></td>
<td>*Ajzen’s theory of planned behavior</td>
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<td>Level of evidence: 3</td>
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<tr>
<td>Muller-Buhl (2012)</td>
<td>Determine participation in community-based walking program in patients with PAD and IC</td>
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