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Barriers to Physical Activity Among African American Women: An Integrative Review of the Literature

Rodney P. Joseph, PhD,

College of Nursing and Health Innovation, Arizona State University, Phoenix, Arizona, USA

Barbara E. Ainsworth, PhD, MPH,

School of Nutrition and Health Promotion, Arizona State University, Phoenix, Arizona, USA

Colleen Keller, PhD, and

College of Nursing and Health Innovation, Arizona State University, Phoenix, Arizona, USA

Joan E Dodgson, PhD, MPH

College of Nursing and Health Innovation, Arizona State University, Phoenix, Arizona, USA

Abstract

A key aspect for researchers to consider when developing culturally appropriate physical activity (PA) interventions for African American (AA) women are the specific barriers AA women face that limit their participation in PA. Identification and critical examination of these barriers is the first step in developing comprehensive culturally relevant approaches to promote PA and help resolve PA-related health disparities in this underserved population. We conducted a systematic integrative literature review to identify barriers to PA among AA women. Five electronic databases were searched, and 42 studies (27 qualitative, 14, quantitative, 1 mixed method) published since 1990 (Range 1998–2013) in English language journals met inclusion criteria for review. Barriers were classified as intrapersonal, interpersonal, or environment/community according to their respective level of influence within our social ecological framework. Intrapersonal barriers included: lack of time, knowledge, and motivation; physical appearance concerns; health concerns; monetary cost of exercise facilities; and tiredness/fatigue. Interpersonal barriers included: family/caregiving responsibilities; lack of social support; and lack of a PA partner. Environmental barriers included: safety concerns; lack of facilities; weather concerns; lack of sidewalks; and lack of physically active AA role models. Results provide key leverage points for researchers to consider when developing culturally relevant PA interventions for AA women.

Keywords

African American; physical activity; behavior

Address correspondence to Rodney P. Joseph, PhD, College of Nursing and Health Innovation, Arizona State University, 500 N. 3rd Street, MC 3020, Phoenix, AZ 85004, USA. Rodney.Joseph@asu.edu.

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Introduction

While physical activity has defined health benefits (American College of Sports Medicine, 2007; U.S. Department of Health and Human Services, 2008), national data indicate that only 48% of Americans achieve recommended physical activity (PA) levels (Centers for Disease Control and Prevention [CDC], 2014). Of concern, only 34% of African American (AA) women achieve recommended PA levels, representing the lowest prevalence for any race and sex demographic group (CDC, 2014). Given the low PA levels of AA women, it is not surprising that this population is disproportionately burdened by a myriad of health conditions associated with insufficient PA; including colon cancer, type II diabetes, obesity, and cardiovascular disease (U.S. Cancer Statistics Working Group, 2010).

PA-related health disparities among AA women indicate the need for innovative and culturally relevant approaches to promote PA in this high-risk, underserved population. The problem is, however, that many PA interventions are ineffective and unsustainable. Moreover, while responsible attention may be paid to cultural relevance in intervention design, effective lifestyle change interventions require a deep understanding of the values and beliefs of women as well as the particular race or ethnicity with which they affiliate. Accordingly, interventions that “work” are developed with a clear explanation of the “problem” and include deep involvement of stakeholders in defining the problem as well as the construction of approaches to fix such problems (Kelly et al. 2010).

A key aspect for researchers to consider when designing culturally relevant PA interventions for AA women is the specific barriers these women face that limit their participation in PA. Identification and critical examination of these barriers is the first step in developing comprehensive, culturally relevant intervention approaches to promote PA and help resolve PA-related health disparities in this population. The purpose of this article is to review and synthesize the available literature on barriers to PA among AA women and identify potential strategies to overcome these barriers. Findings of this review provide a comprehensive overview of prevalent barriers to PA among AA women and illustrate key factors for researchers to consider and leverage when developing culturally relevant PA interventions in this underserved population.

We framed this review using a social ecological perspective (McLeroy et al. 1988), as this perspective allowed us to examine how multiple levels of influence interact and affect PA engagement among AA women. Social ecological perspectives emphasize that behavior is influenced by multiple levels of influence and that the interaction between, and interdependence of, factors within and across various levels of influence affect behavior. Borrowing from frameworks proposed by McLeroy et al. (1988), *Healthy People 2020* (U.S. Department of Health and Human Services 2010), and the Institute of Medicine (2001), we organized barriers and constraints to PA into the following three levels of influence: intrapersonal, interpersonal, and community/environmental. As depicted in Figure 1, *intrapersonal barriers* refer to individual characteristics that influence PA (i.e. attitudes, beliefs, knowledge, and personality traits), *interpersonal barriers* are those related social influences (family, friends) and cultural norms, and *community/environmental barriers* refer

to public policy and both physical and social environmental characteristics (i.e. physical/social environment, community structures, weather).

Methods

A systematic integrative literature review was conducted. Five electronic databases were searched to identify relevant articles: PubMed, CINAHL, Web of Science, JSTOR, and PsycINFO. Search terms were: “physical activity”, “exercise”, “African American”, “Black”, “women”, and “barriers”. Selection criteria included: a) data-based evaluations of barriers or constraints to PA among adult African American women, and b) published after 1990 in English language professional journals. Articles were excluded if they focused exclusively on: a) child or adolescent populations (defined as mean age < 18 years), b) elderly populations (defined as a mean age > 70 years), or c) women with specifically defined health conditions (i.e. type II diabetes, hypertension, pregnancy), as these women likely experience different barriers to PA than the general population of AA women.

Search procedures and article abstraction were conducted by the first author of this review (RJ). Electronic database searches retrieved a total of 16,581 articles. After duplicates were removed and each article had its title and abstract reviewed, 157 articles were identified as potentially relevant and received a full-text review. The full-text review was also conducted by RJ using an extensive checklist to determine article eligibility. Articles not clearly meeting inclusion/exclusion criteria were reviewed by the co-authors (BA, CK, JD), and eligibility was determined by these researchers reaching a consensus. Following the full-text review, 42 articles met inclusion criteria and were subsequently included in the review.

Articles meeting selection criteria were carefully reviewed, and a series of matrices were developed to examine all articles critically. The formats of these matrices were based on a framework proposed by Miles and Huberman (1994) (see below) and were modified to fit the scope and context of the current study. The structure of these matrices clearly delineated integral methodological components of each study, including: the study design, methodology, operational definitions, and outcomes.

Analysis of matrices was conducted by two authors (RJ and JD). In the first level of analysis, each article was carefully reviewed, and all pertinent data were independently abstracted and placed into the review matrices. Then, in a second level of analysis, data for each category of analysis (i.e. study design, methodology, study outcomes) were reviewed, compared, contrasted, and synthesized through an iterative process. In the final phase of study analysis, similar barriers and constraints to PA across studies were grouped into “themes”. “Themes” were then classified into one of the following three levels of influence: intrapersonal, interpersonal, and community/environmental. Not every barrier or constraint clearly aligned with only one level of influence; however, to avoid repetition, each barrier was placed into only one level of influence based on our interpretation of the literature and how it aligned with our framework.

Results

Study and Sample Characteristics

The majority of studies were descriptive or exploratory in nature (see Tables 1 and 2). Year of study publication ranged from 1998 to 2013, with 2008 being the modal year of publication. Most (n=27, 66%) studies used a qualitative study design, and most used focus groups; 14 (33%) were quantitative, most of which were cross-sectional designs, and one (2%) was a mix-methods design. Sample characteristics of study participants varied. Most (n=22, 52%) included AA women living the southern U.S., nine (21%) with women in the Midwest, four (10%) with women in the Northeast, and one (2%) with women living in either Missouri or California. Four studies (10%) had nationally representative samples (all quantitative) and two (5%) did not include sufficient information to determine the geographic location of participants. The mean age of participants among the 26 studies providing sufficient data for calculation was 47.9 years (encompassing a total of 4188 participants). Additionally, five studies had samples comprised of mostly low-income women (Evans, 2011; Hoebeke, 2008; Kirchoff et al. 2008; Lee et al. 2011; Wilbur et al. 2002; Wilcox et al. 2005) and the remainder of studies included women with diverse income levels (n=28) or lacked sufficient information to determine the income levels of participants (n=9; Bopp et al. 2004; Bopp et al. 2006; Dunn 2008; Eyler et al. 1998; Wilcox et al. 2002; Im et al. 2012; Sanderson, Littleton and Pully 2002; D'Alonzo and Fischetti 2008; Richter et al. 2002). Only one study (Doldren and Webb 2013) provided information the regarding the ancestry or ethnic background of AA women enrolled in the study.

Barriers to Physical Activity

Intrapersonal Barriers

Lack of time: Lack of time to participate in PA was the most frequently identified barrier among studies. This barrier was reported by researchers of 15 (56%) qualitative studies (Bopp et al. 2004; Bopp et al. 2007; Dunn 2008; Eyler et al. 1998; Henderson and Ainsworth 2000; Hoebeke 2008; Ingram et al. 2011; James et al. 2012; Pekmezi et al. 2013; Richter et al. 2002; Walcott-McQuigg et al. 2001; Walcott-McQuigg and Prohaska 2001; Wilcox et al. 2002; Wilcox et al. 2005; Jefferson et al. 2010) and examined as a potential barrier by researchers in three (23%) quantitative studies. The two primary reasons reported for lack of time to engage in PA were associated work schedules (Bopp et al. 2007; Richter et al. 2002; Walcott-McQuigg et al. 2001; Pekmezi et al. 2013; Eyler et al. 1998; Hoebeke 2008; Ingram et al. 2011) and family/caretaking responsibilities (Dunn 2008; Bopp et al. 2007; Walcott-McQuigg et al. 2001; Pekmezi et al. 2013; Walcott-McQuigg and Prohaska 2001; Eyler et al. 1998; James et al. 2012; Hoebeke 2008; Ingram et al. 2011).

The three quantitative studies examined associations between lack of time for PA (assessed by a questionnaire) and self-report PA levels. Genkinger et al. (2006) reported time constraints were significantly associated with walking behavior (however, the direction of association was not reported). Conversely, King et al. (2000) and Heesch and colleagues (2000) reported no association between time constraints and self-reported PA.

Lack of motivation: Lack of motivation (also termed as “laziness” by researchers) was another frequently identified barrier among AA women in qualitative studies (Bopp et al. 2004; Bopp et al. 2007; Doldren and Webb 2013; Evans 2011; Hoebeke 2008; Nies, Vollman, and Cook 1999; Wilcox et al. 2002; Henderson and Ainsworth 2000). Only one quantitative study (Genkinger et al. 2006) examined lack of motivation as a barrier to PA. Results of this study showed that lack of motivation for PA was the #1 ranked barrier among overweight participants and the #4 ranked barrier for normal weight participants. However, quantitative analysis revealed that lack of motivation was not significantly associated with PA behavior.

Tiredness/Fatigue: Qualitative and quantitative studies reported “tiredness” or fatigue as a barrier. Reasons for tiredness and fatigue were generally homogenous across qualitative study populations and associated with participant efforts to balance both work and household/caregiving responsibilities (Richter et al. 2002; Pekmezi et al. 2013; Evans 2011; Bopp et al. 2007; Sanderson, Littleton, and Pulley 2002; Hoebeke 2008; Zunker et al. 2008). Among the three quantitative studies in which tiredness/fatigue were measured, Heesch and colleagues (2000) reported a significant association between tiredness and physically inactive participants thinking about starting a PA program (identified as “contemplators” using the Transtheoretical Model); in the other two studies, non-significant associations between tiredness/fatigue and PA were reported (King et al. 2000; Genkinger et al. 2006).

Lack of knowledge: Two main themes associated with lack of knowledge were identified by qualitative studies. The first theme was that participants did not engage in PA because they thought they received sufficient PA through their daily activities (Pekmezi et al. 2013; Walcott-McQuigg and Prohaska 2001) or because they were unaware how much PA should be performed to achieve positive health benefits (Wilcox et al. 2005; Pekmezi et al. 2013). The second theme was that participants lacked knowledge on what constituted PA (Nies, Vollman, and Cook 1999; Wilcox et al. 2002) or how to use exercise equipment/machines at the gym, which resulted in not attempting to engage in PA (Im et al. 2012; Bopp et al. 2007; Wilcox et al. 2005; Harley et al. 2009; D’Alonzo and Fischetti 2008). Interestingly, lack of knowledge as a barrier to PA was not explored as a potential barrier among any quantitative studies.

Health conditions and PA-related health concerns: Health conditions and PA-related health concerns were reported barriers among nine qualitative studies with samples of middle-aged and older AA women. Participants across these studies reported various pre-existing medical conditions (i.e., arthritis, diabetes, overweight/obesity, and cardiovascular conditions) as barriers to PA (Eyler et al. 1998; Evans 2011; Hoebeke 2008; Bopp et al. 2007; Walcott-McQuigg and Prohaska 2001; Ingram et al. 2011; Dunn 2008; Wilcox et al. 2002; Zunker et al. 2008). Participants of several studies also reported avoiding PA for fear of inducing fatigue, muscle soreness, injury, or other adverse health conditions (Pekmezi et al. 2013; Evans 2011; Wilcox et al. 2005; Eyler et al. 1998).

Quantitative studies did not examine health concerns as a barrier in the same context as qualitative studies. Bopp et al. (2006) explored the relation of chronic health conditions to PA among participants, showing that as the number of chronic health conditions increased,

PA decreased. Two quantitative studies examined the association between general self-reported health status and PA levels and found them not to be significantly related (Heesch, Brown, and Blanton 2000; King et al. 2000). Four studies examined body weight in relation to PA. Three reported an inverse relationship between body weight and aerobic PA (Affuso, Cox, Durant, and Allison 2010; Genkinger et al. 2006; Lee and Im 2010) and one (Bopp et al. 2004) reported no association between body weight and aerobic PA, but an inverse relationship between body weight and engaging in strength training.

Physical appearance concerns: Hair care maintenance was the most frequently identified physical appearance concern (Harley et al. 2009; Im et al. 2012; Pekmezi et al. 2013; Price, Greer, and Tucker 2013; Hall et al. 2013; Henderson and Ainsworth 2000). Participants reported that they did not engage in PA because they did not want to “sweat out” their hair style or because they perceived sweat as an irritant to their head/scalp. The cost and time associated with maintaining many AA hairstyles when being physically active appeared to compound this issue as study participants reported not having the time or monetary resources to have their hair professionally maintained on a more frequent basis (Harley et al. 2009; Im et al. 2012; Pekmezi et al. 2013). Hall et al. (2013) conducted the only quantitative study that explored hair concerns as a barrier to PA. The two most frequently reported hair-related barriers to PA were “sweating-out” their hairstyle and the time required to wash, dry, and style hair after performing PA.

Other physical appearance-related barriers to PA included body shape preferences and skin-related health issues. Participants in qualitative studies reported a preference for a fuller, more curvaceous body shape, and as a result, had no desire to engage in PA for fear of losing their current body shape (Im et al. 2012; Harley et al. 2009; Young et al. 2002; Sanderson, Littleton, and Pulley 2002). Women in several qualitative studies also reported avoiding outdoor PA because of skin allergies and/or discoloration (Wilcox et al. 2005; Richter et al. 2002). Body shape preferences and skin-related health concerns were not examined by quantitative studies.

Cost of facilities: A number of researchers reported that the cost associated with purchasing gym or recreational center membership was a barrier among AA participants (Kirchhoff et al. 2008; Pekmezi et al. 2013; Sanderson, Littleton, and Pulley 2002; Walcott-McQuigg et al. 2001; Young et al. 2002; Eyler et al. 1998; Im et al. 2013; Schuler et al. 2006; Hoebeke 2008; Bopp et al. 2007). No quantitative studies included the cost of facilities as a barrier.

Interpersonal Barriers to PA

Role of family and gender: Participants frequently reported their role as a wife, mother, and caregiver as a barrier to PA (Bopp et al. 2004; Bopp et al. 2007; Dunn 2008; Evans 2011; Eyler et al. 1998; Harley et al. 2009; Henderson and Ainsworth 2000; Im et al. 2012; Kirchhoff et al. 2008; Nies, Vollman, and Cook 1999; Pekmezi et al. 2013; Sanderson, Littleton, and Pulley 2002; Walcott-McQuigg et al. 2001; Young et al. 2002; Zunker et al. 2008). In qualitative studies, participants expressed that they were often viewed as the primary caretaker of the household and were responsible for a variety of household tasks (e.g., childcare, meal preparation, laundry, and cleaning); which ultimately limited their time

to engage in PA. Further, some AA women perceived PA as a “selfish” or “self-indulgent” behavior and felt taking time to engage in PA limited the time they could spend with their families (Im et al. 2012; Harley et al. 2009; Sanderson et al. 2002). Two quantitative studies corroborated the role of caregiving responsibilities as barriers to PA by reporting that caregiving responsibilities were inversely associated with PA levels (King et al. 2000; Heesch, Brown, and Blanton 2000). Five qualitative studies also examined the association between marital status and PA engagement, all reported no association between the two variables (Ainsworth et al. 2003; Bopp et al. 2006; Lee and Im 2010; Sanderson et al. 2003; Wilbur et al. 2003). Additionally, four quantitative studies examined the association between having children and PA levels among AA women. Three reported that women with children were more likely to meet the national PA recommendations than those without children (Ainsworth et al. 2003; Sanderson et al. 2003; Wilbur et al. 2003), and one reported no association between having children and PA levels (Lee and Im 2010).

Lack of social support: Lack of social support for PA was identified as a barrier by researchers of six (22%) qualitative studies (Bopp et al. 2004; Bopp et al. 2007; Im et al. 2012; Walcott-McQuigg et al. 2001; Wilcox et al. 2005; Harley et al. 2009). This lack of social support came from a variety of sources; ranging from specific family members (i.e. spouses, husbands) (Walcott-McQuigg et al. 2001; Harley et al. 2009; Pekmezi et al., 2013) to the general lack of a supportive social network (Evans 2011). The concept of lack of social support as a barrier to PA was not explicitly examined in any quantitative studies. However, Sanderson et al. (2003) and Wilbur and colleagues (2003) explored whether participants who knew other people that exercised were more likely to meet the national PA recommendations. Both studies reported similar findings: participants who knew others who exercised were more likely to engage in some PA (rather than being inactive), but not more likely to meet the national PA recommendations.

Lack of a PA partner: Lack of a partner with whom to engage in PA was a barrier reported by participants in multiple studies. This was noted as a specific barrier to PA by researchers of nine (33%) qualitative studies (Bopp et al. 2004; Bopp et al. 2007; Im et al. 2012; Pekmezi et al. 2013; Walcott-McQuigg et al. 2001; Wilcox et al. 2005; Nies, Vollman, and Cook 1999; Harley et al. 2009; Henderson and Ainsworth 2000; Evans 2011; Richter et al. 2002) but was not examined in any quantitative studies.

Community/Environmental Barriers to PA

Lack of physically active role models: A key barrier that emerged among participants in seven (26%) qualitative studies was the lack of physically active AA female role models (Harley et al. 2009; Henderson and Ainsworth 2000; Sanderson, Littleton, and Pulley 2002; Wilbur et al. 2002; Ingram et al. 2011; Richter et al. 2002; Doldren and Webb 2013). Participants in these studies indicated that the lack of a physically active AA female role model (e.g., celebrity or family/community member) negatively influenced their exposure to and participation in PA. Interestingly, this variable was not included in any of the quantitative studies included in the review.

Neighborhood/community safety concerns: Researchers of 14 (52%) qualitative and one (8%) quantitative study identified neighborhood/community safety concerns as barriers (Bopp et al. 2007; Henderson and Ainsworth 2000; Hoebeke 2008; Im et al. 2013; Ingram et al. 2011; Price, Greer, and Tucker 2013; Richter et al. 2002; Sanderson, Littleton, and Pulley 2002; Walcott-McQuigg et al. 2001; Wilbur et al. 2002; Wilcox et al. 2005; Young et al. 2002; Nies, Vollman, and Cook 1999; Eyer et al. 1998). Five of these studies reported general safety concerns (i.e. did not provide specific examples of safety concerns) as a barrier to PA (Im et al. 2013; Nies, Vollman, and Cook 1999; Richter et al. 2002; Walcott-McQuigg et al. 2001; Wilcox et al. 2005). Others identified specific safety concerns, including: verbal harassment (Hoebeke 2008; Sanderson, Littleton, and Pulley 2002), physical harm (i.e. having objects thrown at them while walking or being physically assaulted) (Bopp et al. 2007; Hoebeke 2008), gun violence and/or gang-related activity (Ingram et al. 2011; Wilbur et al. 2002; Wilcox et al. 2005), living in neighborhoods perceived as unsafe to walk outside after dark (Henderson and Ainsworth 2000; Eyer et al. 1998), and stray dogs (Richter et al. 2002; Wilcox et al. 2005; Bopp et al. 2007; Evans 2011). Four quantitative studies also examined stray dogs as a barrier (Wilbur et al. 2003; Sanderson et al. 2003; Strong et al. 2013; King et al. 2000) and reported no significant association between this barrier and engagement in PA.

Lack of sidewalks: Lack of sidewalks or poorly maintained sidewalks were reported barriers to PA in several qualitative studies (Bopp et al. 2007; Eyer et al. 1998; Hoebeke 2008; Richter et al. 2002; Wilcox et al. 2005; Ainsworth et al. 2003). Two quantitative studies also reported significant positive associations between the presence of sidewalks and PA levels (i.e., lack of sidewalks was associated with less PA) (Ainsworth et al. 2003; Lee et al. 2011), while two reported non-significant associations between the presence of sidewalks and PA levels (King et al. 2000; Lee et al. 2012).

Lack of neighborhood/local facilities to engage in PA: The lack of neighborhood or local facilities to engage in PA (i.e., recreation centers, gyms, parks) was another frequently identified barrier to PA among participants in qualitative studies (Bopp et al. 2004; Bopp et al. 2007; Eyer et al. 1998; Hoebeke 2008; Im et al. 2013; Pekmezi et al. 2013; Richter et al. 2002; Sanderson, Littleton, and Pulley 2002; Wilcox et al. 2005; Young et al. 2002). Two quantitative studies also reported lack of neighborhood facilities as a barrier to PA (Heesch, Brown, and Blanton 2000; Zenk et al. 2009).

Weather conditions: Outdoor weather conditions (i.e. extreme temperatures, wind, precipitation) emerged as a barrier to PA among participants in several qualitative studies (Evans 2011; Henderson and Ainsworth 2000; Hoebeke 2008; Kirchhoff et al. 2008; Richter et al. 2002; Sanderson, Littleton, and Pulley 2002). Three quantitative studies examined weather conditions as potential barriers (Heesch, Brown, and Blanton 2000; King et al. 2000; Genkinger et al. 2006). Results indicated that weather concerns were not a highly ranked barrier when compared to other barriers (e.g., lack of time, family responsibilities), and no significant relationships between weather barriers and PA levels were reported.

Discussion

A substantial body of research has been conducted on the identification of barriers and constraints to PA among AA women. The purpose of the current review was to analyze systematically this body of research and to provide a comprehensive overview of prevalent barriers and constraints to PA among AA women. Results of the review showed that the majority of the studies evaluating barriers to PA among AA women were qualitative (N=27 vs. N= 14 quantitative, n=1 mixed-method), highlighting the need for more quantitative research on this topic. An apparent inconsistency also was observed in the existing literature between barriers reported in qualitative studies and those examined in quantitative studies. For example, seven qualitative studies identified the “lack of physically active role models” as a barrier to PA; however, this specific barrier was not examined in any quantitative studies. Comparable findings were also observed for the themes of: lack of motivation, physical appearance concerns, cost of PA facilities, role of family and gender, and lack of PA partner. In addition, some barriers reported by qualitative studies were not corroborated by results of quantitative studies. For instance, six qualitative studies reported “lack of sidewalks” as a primary barrier to PA (Bopp et al. 2007; Eyer et al. 1998; Hoebeke 2008; Richter et al. 2002; Wilcox et al. 2005; Ainsworth et al. 2003); however, out of the four quantitative studies that examined this barrier (Ainsworth et al. 2003; King et al 2000; Lee et al. 2011; Lee et al. 2012), only two reported significant associations between the lack of sidewalks and PA levels (King et al 2000; Lee et al. 2012). Similar inconsistencies were also observed for themes of lack of time, fatigue, and perceived health status. These discrepancies in the literature indicate the need for additional quantitative research to evaluate comparable barriers as those reported by qualitative studies.

Some barriers identified in this review were uniquely specific to AA women, while others were not. Intrapersonal barriers of lack of time, lack of motivation, and lack of knowledge are often identified barriers to PA among individuals of all races and demographic characteristics (Bopp et al. 2007; Heesch, Brown, and Blanton 2000; Hoebeke 2008; Walcott-McQuigg et al. 2001). Conversely, barriers associated with hair care maintenance and the preference for a more full-figured body shape appeared to be specific to AA women, representing key leverage points for researchers to target with culturally-relevant PA interventions. Including intervention components that promote or glamorize natural hair styles (as opposed to chemically relaxed or straightened hair) and/or providing examples of methods that AA women can use to help protect hair from the negative effects of sweating (e.g., wrap hair in a cotton scarf, wear hair in a ponytail) may be advantageous in promoting PA among AA women. To address body shape concerns, researchers could emphasize that engagement in PA at nationally recommended levels will not significantly alter body shape (in most cases) unless dietary changes are also made. Similarly, focusing intervention materials on the health benefits of PA independent of weight loss (e.g., decreased risk for chronic disease, stress management) may be helpful in promoting PA in this group.

At the interpersonal level, several barriers appeared to be uniquely tied with cultural norms in the AA community. Qualitative study participants emphasized the importance of family and caretaking roles as barriers to PA. Similarly, lack of social support from family members (e.g., husband, mothers, etc.) and the perception that PA is a selfish or self-

indulgent behavior were also often reported barriers. Historically and sociologically speaking, women of all racial/ethnic backgrounds have an established ethic of care that places the needs of others (i.e., the needs of family and friends) ahead of their own (Henderson and Allen 1991; Gilligan 1982). However, these barriers may be more accentuated in the AA community, given the collective societal viewpoint emphasized in AA cultures (as opposed to an individualistic or autonomous viewpoint of predominately White cultures) (Coon and Kimmelmeier 2001; Oyserman, Coon, and Kimmelmeier 2002). Intervention strategies to overcome these interpersonal barriers will likely require multi-level approaches. For instance, to harness the sociocultural norm of collectivism, intervention materials could emphasize that physically active AA women have a reduced risk for chronic disease, morbidity, and mortality, which in return, allows them to perform their family, household, and caretaking responsibilities more efficiently and with more longevity across the lifespan. Similarly, family-based intervention components (i.e. activities that focus on spouse and child perceptions of PA) may also be necessary to foster social support and help shift familial norms associated with women and PA.

Structural barriers identified at the community/environmental level of influence will also likely need to be addressed to promote and sustain long-term PA adoption among AA women. Barriers at this level are potentially the most difficult to address because policy level changes will likely be necessary to address these barriers. For example, installing and/or repairing neighborhood sidewalks will require city leaders and policy-makers to acknowledge and identify this as a priority and allocate funding to install/repair sidewalks in a community. Likewise, overcoming safety barriers, such as crime and stray dogs, will require collaborative efforts between law enforcement agencies and community members.

The current review had several strengths. To our knowledge, this is the only review on the topic to use a systematic, integrative approach. An integrative review includes studies of all design types (Whittemore and Knafl 2005), which in this case provided a complete picture of the published literature on barriers and constraints to PA among studied AA women. Another key strength of this review was the rigor of the cross-case data analysis. This type of analysis increases scientific rigor and allows for conceptualization of higher level of abstraction and development of common themes across studies (Whittemore and Knafl 2005); thus, creating an evidence-base from which interventions tailored to this population could be created.

Several limitations must also be noted. The integrative review process requires extensive attention to detail throughout the literature search, study identification, and review process. Accordingly, the possibility exists that some studies that focused on barriers and constraints to PA among AA women were inadvertently excluded. We also excluded studies targeting older AA women (mean age > 70 years) and those exclusively focused on women with defined health conditions (i.e., type II diabetes, hypertension, pregnancy); limiting generalization of our findings to these groups. Another limitation involved the placement of barriers within the levels of influence in our social ecological framework. Some barriers did not clearly fit within only one level of influence; however, to avoid redundancy, we ultimately categorized barriers into only one level of influence based on our interpretation of the literature. It is also possible that the participants in the reviewed studies were not

representative of the whole population of AA women, as most studies included in the review were conducted with participants residing in the southern or eastern portions of the United States. Moreover, only one study (Doldren and Webb 2013) provided information regarding the ancestry or ethnic subcategories of women (i.e., Caribbean American and/or Black women who immigrated to the US from other countries), and few studies (n=5) had samples comprised of mostly low-income women. Given that barriers (and motivators) to PA may differ according to ethnic or cultural background and/or income level, further research examining these topics is needed.

Conclusions

A considerable amount research has been conducted on identifying barriers and constraints to PA among AA women. This review provides a comprehensive overview of these barriers and identifies key leverage points for researchers to address when designing culturally relevant PA interventions for this underserved population. Consistent with a social ecological perspective, successful interventions would likely need to incorporate strategies to overcome barriers at all levels of influence (i.e. intrapersonal, interpersonal, community/environmental) to successfully promote PA among AA women. Likewise, we acknowledge that focusing intervention activities solely on overcoming barriers may not be sufficient to promote sustained PA in this underserved population. Equal attention must be paid to motivational aspects associated with PA engagement as well.

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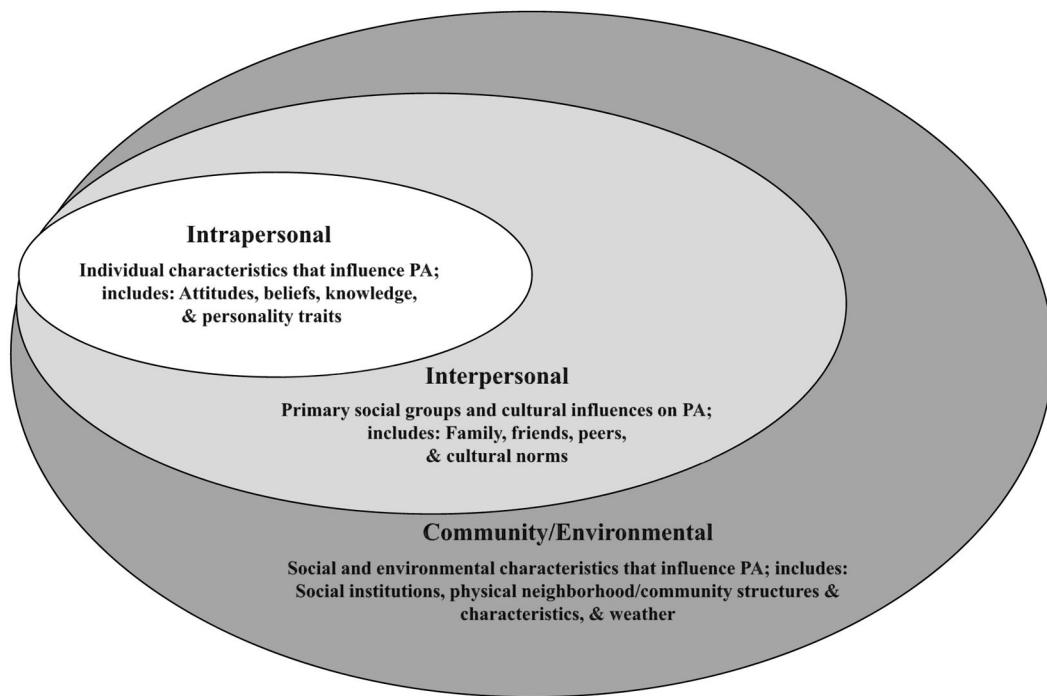


Figure 1.
Social ecological framework used to classify barriers to physical activity.

Table 1

Design and sample characteristics of qualitative studies (n=27).

Data Collection Method	Author(s)	Year Published	Sample Characteristics
Traditional Focus Groups	Bopp et al.	2007	N = 20 AA women living Charleston or Columbia, South Carolina; <i>M</i> age = 57.45 years.
	D'Alonzo & Fischetti	2008	N = 11 AA women living in the northeastern region of the U.S.; participants were aged 19 to 31 years, <i>M</i> age not reported.
	Doldren & Webb	2013	N = 40 AA women living in Broward County, FL; participants were aged 18–45 years, <i>M</i> age not reported.
	Dunn	2008	N = 14 AA women living in San Antonio, TX and surrounding areas, <i>M</i> age = 60.1 years.
	Eyler et al.	1998	Minority women from 5 different ethnic backgrounds living in California and Missouri, N of AA women not reported; participants were aged 40 years or older; <i>M</i> age not reported.
	Hoebeke	2008	N = 5 AA women living in Evansville, IN; <i>M</i> age = 32.2 years.
	Ingram et al.	2011	N = 33 AA women living in Chicago, IL; <i>M</i> age = 54 years.
	James et al.	2012	N = 50 AA women living in Florida; participants were aged 18 to 64 years, <i>M</i> age not reported.
	Young et al.	2002	N = 39 AA women living in Baltimore, MD and surrounding areas; participants were aged 20–50 years, <i>M</i> age not reported.
	Pekmezi et al.	2013	N = 54 AA women living in Alabama and Mississippi, <i>M</i> age = 46 years.
	Richter et al.	2002	N = 42 AA women living in Sumter County, South Carolina; <i>M</i> age = 31.8 years.
	Sanderson et al.	2002	N = 61 AA living in Wilcox County, Alabama; <i>M</i> age = 35.6 years.
	Walcott-McQuigg & Prochaska 2001	2001	N = 57 AA women living in Chicago, IL; participants were aged 55 years or older, <i>M</i> age not reported.
	Walcott-McQuigg et al.	2001	N = 33 AA women living in Chicago, IL; participants were aged 40–78 years, <i>M</i> age not reported.
	Wilbur et al.	2002	N = 48 AA women living in Chicago, IL; participants were aged 20–50 years, <i>M</i> age not reported.
	Wilcox et al.	2002	N = 42 AA women living Sumter County, South Carolina; participants were aged 19–51 years, <i>M</i> age not reported.
Wilcox et al.	2005	N = 16 AA women living in Fairfield County, South Carolina; <i>M</i> age = 67.5 years	
Nies et al.	1999	N = 16 AA women living in western Tennessee; participants were aged 35–50 years, <i>M</i> age not reported.	
One-on-on Interviews	Evans	2011	N = 20 AA women living in rural Arkansas; <i>M</i> age = 48.9 years.
	Henderson & Ainsworth	2000a	N = 30 AA women living in Columbia, South Carolina; <i>M</i> age = 57 years (<i>Note</i> : study comprised of same sample as Henderson & Ainsworth 2000b).
	Henderson & Ainsworth	2000b	N = 30 AA women living in Columbia, South Carolina; <i>M</i> age = 57 years (<i>Note</i> : study comprised of same sample as Henderson & Ainsworth 2000a).
	Kirchhoff et al.	2008	N = 19 AA women living in Chicago, IL; <i>M</i> age = 40.7 years.
	Price et al.	2013	N = 15 AA women living in the Eastern Coast of the U.S.; <i>M</i> age = 66.7 years.

Data Collection Method	Author(s)	Year Published	Sample Characteristics
Traditional Focus Groups and One-on-one Interviews	Harley et al.	2009	N = 15 AA women living in a Midwestern urban setting; participants were aged 25–45 with a median age of 33 years, <i>M</i> age not reported.
Online Focus Groups	Im et al.	2012	N = 21 AA women recruited through an online forum (geographic information of participants not provided); <i>M</i> age = 51.1 years (<i>Note</i> : study comprised of same sample as Im et al. 2013).
	Im et al.	2013	N = 21 AA women recruited through an online forum (geographic information of participants not provided); <i>M</i> age = 51.1 years (<i>Note</i> : study comprised of same sample as Im et al. 2012).
Nominal Group Technique	Zunker et al.	2008	N = 14 AA women living in the metro area of Birmingham, AL; <i>M</i> age = 44 years.

Note: Data was abstracted using information provided by authors in study publications. Description of sample characteristics is limited to the quality of description provided by study authors. Some studies included non-AA women in their samples. Data presented refers to only AA women included in studies unless otherwise noted. *Abbreviations*: AA= African American, *M* = mean.

Table 2

Design and sample characteristics of quantitative (n=14) and mixed method (n=1) studies.

Study Design	Data Collection Method	Author(s)	Year Published	Sample Characteristics
Cross Sectional	Examined associations between self-reported PA levels and self-reported questionnaire data	Ainsworth et al.	2003	N = 934 AA women living in Sumter and Orangeburg County, South Carolina; age range of participants 20–50 years, <i>M</i> age not reported.
		Hall et al.	2013	N = 103 AA women living in North Carolina; <i>M</i> age = 42.3 years.
		Heesch et al.	2000	N = 745 AA women living throughout the U.S.; <i>M</i> age = 57 years
		Affuso et al.	2011	N = 510 AA women living throughout the U.S.; <i>M</i> age = 48.9 years
		Bopp et al.	2006	N = 407 AA women living South Carolina; <i>M</i> age 53.53.
		Genkinger et al.	2006	N = 120 AA women living in Baltimore County, MD; <i>M</i> age = 48 years
		King et al.	2000	N = 745 AA women living throughout the U.S.; participants were aged 40 years or older, <i>M</i> age not reported.
		Lee & Im	2010	N = 47 AA women living throughout the U.S.; <i>M</i> age = 48.9 years
		Sanderson et al.	2003	N = 577 AA women living in rural Alabama; age range of participants 20–50 years; <i>M</i> age not reported.
		Strong et al.	2013	N = 1025 AA women living in Houston, TX; <i>M</i> age = 45.4 years
		Wilbur et al.	2003	N = 399 AA women living in Chicago, IL; <i>M</i> age = 33.69
		Lee et al.	2011	N = 139 AA women living in Houston, TX; <i>M</i> age = 43.3 years
		Lee et al.	2012	N = 202 AA women living in Harris or Travis County, TX; <i>M</i> age 45.3 years for all women (study also included Latinas, <i>M</i> age for AA women not reported).
		Longitudinal	Compared attendance to a walking intervention with objective measure environmental characteristics	Zenk et al.
Mixed-Method	Traditional Focus Groups and self-report questionnaire	Bopp et a.	2004	N=58 AA women living in Fairfield County, South Carolina; <i>M</i> age = 67.5 years for all women included in the study (study also included 83 White women, <i>M</i> age for AA women not reported).

Note: Data was abstracted using information provided by authors in study publications. Description of sample characteristics is limited to the quality of description provided by study authors. Some studies included non-AA women in their samples. Data presented refers to only AA women included in studies unless otherwise noted. *Abbreviations:* AA= African American, *M* = mean.

Table 3

Barriers to physical activity classified according to level of influence within the social ecological model level.

Level	Definition	Barrier	n (%) [*]
Intrapersonal	Individual characteristics that influence PA; includes attitudes, belief, knowledge, and personality traits	Lack of time	16 (38)
		Physical Appearance Concerns	16 (38)
		Health conditions that limit PA/health concerns	14 (33)
		Lack of knowledge	10 (24)
		Cost of exercise facilities	10 (24)
		Lack of motivation	9 (21)
		Tiredness/fatigue	8 (19)
Interpersonal	Primary social groups and cultural influences on PA; includes family, friends, peers, and cultural norms	Family/caregiver roles and responsibilities	16 (38)
		Lack of someone to exercise with	11 (26)
		General lack of social support	8 (19)
Community/ Environmental	Social structures and environment characteristics that influence PA; includes social institutions, physical neighborhood/ community structures and characteristics, and weather	Neighborhood safety	14 (33)
		Lack of local facilities to perform PA	12 (29)
		Weather concerns	9 (21)
		Lack of sidewalks	8 (19)
		Lack of AA women as PA role models	7 (17)

* Includes number of qualitative studies that identified the barrier and number of quantitative demonstrating a significant association with PA. PA = physical activity, AA = African American.