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Selected socio-cultural correlates of physical activity among African American adults

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Abstract

Objective—Previous studies have identified several factors to be associated with physical activity (PA) among African Americans, e.g., demographic and health-related characteristics. Formative studies suggest a link between socio-cultural factors and PA among ethnic minorities; yet, it is unclear whether these factors play a role in PA among African Americans. This paper explores the association of selected socio-cultural characteristics with self-reported PA by gender among African American adults, taking into account demographic and health-related characteristics.

Design—Data from the baseline survey of a colorectal cancer communication intervention trial was used. Participants included 446 African American men and women, aged 45 – 75 years. Self-report data was collected on demographics, health-related characteristics, selected socio-cultural constructs (e.g., ethnic identity, religiosity, collectivism, and medical mistrust), and PA. PA was categorized as meeting or not meeting recommended levels; recommended levels was defined as participating in vigorous PA for 20 minutes/day for at least three days/week or moderate PA for 30 minutes/day for at least five days/week or a minimum of 600 MET-minutes/week in at least five days. Chi-square and multivariate logistic regression models were used to characterize the association between the selected socio-cultural constructs and PA among men and women, after adjusting for demographic and health-related characteristics.

Results—Most participants reported some PA but only 59% were found to be meeting recommended levels. Univariate analyses revealed that high collectivist attitudes was associated with meeting recommended PA (OR=1.74), particularly for women (OR=1.81). In multivariate analyses, high collectivist attitudes was significantly associated with meeting PA recommendations among men (OR=1.87); while high religiosity and high collectivism were significant among women (OR=1.87 and 1.85, respectively).

Conclusions—Few of the selected socio-cultural characteristics were found to be associated with meeting recommended PA levels. Further study is needed to understand the association of these characteristics with PA among African Americans.

Keywords

African American; physical activity; socio-cultural; ethnic/racial identity

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Introduction

In recent years, there has been an increased emphasis on the importance of achieving recommended levels of physical activity (PA). Much of this interest can be contributed to the rise in morbidity and mortality associated with chronic disease (e.g., cardiovascular disease, diabetes), for which the lack of sufficient PA is a common risk factor (U.S. Department of Health & Human Services [USDHHS] 2009). Participation in regular PA among adults has been associated with decreased all-cause mortality and health promoting benefits such as decreased risk for developing chronic conditions; the maintenance of a healthy weight; increased health of bones, muscles, and joints; and good mental health (USDHHS 2009).

In order to preserve improvements in life expectancy and quality of life, increased participation in PA has become an integral part of public health interventions (Seefeldt *et al.* 2002). To achieve health benefits from PA, the American College of Sports Medicine (ACSM) and the American Heart Association (AHA) recommended adults participate in 20 minutes of vigorous PA (e.g., running, participation in active sports) on at least three days/week or 30 minutes of moderate PA (e.g., brisk walking for at least 10 minutes at a time) on at least five days/week, as well as performing muscle strengthening exercises on two or more days/week (Haskell *et al.* 2007). In 2008, the USDHHS developed PA guidelines for the nation, in which it adopted the ACSM and AHA guidelines but increased the vigorous PA recommendation from 60 to 75 minutes/week (Haskell *et al.* 2007, USDHHS 2008). It is important to understand and consider each set of guidelines when assessing PA participation and adherence, as individuals may fail to meet one standard while meeting guidelines when alternative standards are used.

Although the health benefits of regular PA are known, national data indicate that the prevalence of moderate/vigorous PA at recommended levels is less than ideal. The 2007 Behavioral Risk Factor Surveillance System (BRFSS) reported that only half of the overall adult US population reported meeting recommended PA guidelines; while 41% of African Americans reported meeting recommended levels, the lowest rate among all racial groups (Centers for Disease Control and Prevention [CDC] 2008). Due to the high rates of African American morbidity and mortality from chronic diseases, more public health efforts to increase PA participation to recommended levels are needed (USDHHS 2009). This is particularly an issue for African American men, whose mortality rates from chronic diseases are higher than other racial groups (USDHHS 2009).

Several factors have been shown to be associated with PA among African Americans such as demographic characteristics (e.g., marital status, education, income) and health status (Lockery and Stanford 1996, Seefeldt *et al.* 2002, Ainsworth *et al.* 2003, Egede 2003, Wilbur *et al.* 2003, Fontaine *et al.* 2005). Studies have shown that those who are more educated and have higher family incomes are more likely to engage in PA; whereas, the relationship between marital status and PA is less clear (Lockery and Stanford 1996, Ainsworth *et al.* 2003, Wilbur *et al.* 2003). Some have found that PA is more likely among married persons; while others have found the opposite (Lockery and Stanford 1996, Ainsworth *et al.* 2003, Wilbur *et al.* 2003). Having a history of co-morbid conditions has also been found to be associated with PA (Seefeldt *et al.* 2002, Egede 2003, Fontaine *et al.* 2005).

Although it is important to examine the association between demographic characteristics and PA in order to understand participation among African Americans, these characteristics are generally immutable. In order to increase PA, more relevant modifiable characteristics should be examined. Several formative studies have suggested that examining PA from a

socio-cultural perspective could provide an avenue for increasing PA among African Americans.

Betancourt and Lopez (1997) proposed that a socio-cultural perspective suggests how membership in a specific group influences an aspect of life. This socio-cultural perspective involves the consideration of a wide range of constructs. As applied to understandings of African American attitudes and behaviors (particularly health attitudes and behaviors), the study of socio-cultural constructs may include ethnic identity, religiosity, collectivism, medical mistrust, and other factors (e.g., body image and hair maintenance issues) (Triandis *et al.* 1986, Grills and Longshore 1996, Sanderson *et al.* 2002, Harley *et al.* 2009).

Ethnic identity can be defined as the regard that one accords the cultural traditions, values, and beliefs of one's ethnic group (Grills and Longshore 1996). An examination of several studies suggests that the impact of ethnic identity on PA among African Americans is unclear, particularly among women. In focus group studies, some African American women believed that racial/ethnic identity had nothing to do with their PA participation; while other women suggested that the lack of norms around PA in the African American community contributed to their lack of participation because they did not feel they had many examples of PA participation in their communities (Henderson and Ainsworth 2000, Sanderson *et al.* 2002, Harley *et al.* 2009).

In developing a way to measure ethnic identity, Sellers *et al.* (1997) described several characteristics they found to be important to African Americans, two of which (i.e., humanism and nationalism) may be a factor in PA. A nationalist philosophy is the ideology that emphasizes the importance and uniqueness of African heritage and descent, whereas a humanist ideology emphasizes the relationship and similarities among humankind (Sellers *et al.* 1997). These characteristics represent opposite ideological attitudes and might shed light on how these differing views among African Americans may affect PA, particularly African American women.

Additionally, others have suggested that other cultural norms such as body image and issues surrounding hair maintenance may present barriers to PA participation, particularly for African American women (Sanderson *et al.* 2002, Harley *et al.* 2009). In focus groups, some African American women suggested that the need for PA was associated with body size; women with smaller body sizes are not perceived as needing PA and may even receive negative feedback for participating in PA; whereas, women with larger, more curvy body shapes and sizes are more culturally accepted and appreciated and therefore PA is not encouraged (Sanderson *et al.* 2002, Harley *et al.* 2009). It was also suggested that the sweating that occurs during PA participation makes it more difficult for some African American women to maintain their hairstyles. Due to the expensive cost and different requirements to maintain their hair (as opposed to White women), this issue can present a barrier to PA among some African women (Harley *et al.* 2009).

Religiosity is defined as one's adherence to doctrines, beliefs, and ritual practices of religious institutions as well as the level of organizational religious involvement (Mattis 2000). Religiosity has been shown to be particularly high among older African American women and formative studies conducted among this population found that participants identified their spirituality as having an influence on their thoughts about and/or their participation in PA (Ferraro and Koch 1994, Chatters *et al.* 1999, Pittman 2003, Bopp *et al.* 2007).

Collectivism is the tendency to subordinate personal goals to those of the group. In this strategy, the basic unit of society is the family, community, or tribe, and not the individual (Triandis *et al.* 1986). Both positive and negative associations between collectivist attitudes

and PA have been suggested among African American women. Several studies found that African American women identified social support from members of their families or communities as a way to improve their PA participation; conversely, others suggested that the lack of social support for PA in their communities contributed to their lack of motivation to become more physically active (Henderson and Ainsworth 2000, Sanderson *et al.* 2002, Van Duyn *et al.* 2007, Bopp *et al.* 2007, Harley *et al.* 2009). Additionally, it has been suggested that African American women feel that societal expectations and obligations to care for the family discourage PA (Henderson and Ainsworth 2000, Pittman 2003, Harley *et al.* 2009).

Trust of the medical profession involves the belief that individuals and institutions will act appropriately and perform competently, responsibly, and in a manner consistent with patients' interests (LaVeist *et al.* 2000). There is considerable evidence that many African Americans feel this standard is not met when it comes to their care (LaVeist *et al.* 2000). This mistrust has been linked to a variety of health-related decisions, behaviors, and interactions (Ridley 1984). This can be important to PA among this population since it has been demonstrated that African Americans are more likely to receive a physician recommendation to exercise than Whites, particularly if they have been diagnosed with a chronic condition (Fontaine *et al.* 2005, Martin *et al.* 2006). Additionally, receiving a physician's recommendation to exercise was associated with PA (Fontaine *et al.* 2005). Medical mistrust could affect adherence to a physician's recommendation to exercise.

There are few studies that have focused on the factors that may be important to PA among African American men, particularly as it relates to demographic and socio-cultural factors. Additionally, it may not be safe to assume that the factors that have been identified as possible indicators of PA among African American women will have any or the same effect on PA levels among African American men. The association between socio-cultural characteristics and PA may vary by gender as suggested by the intersectional framework, which notes that social constructions (e.g., ethnicity, socioeconomic status) may impact gender groups differently and may have different implications for health behaviors and outcomes (Schulz and Mullings 2006). Understanding socio-cultural and demographic factors relevant to PA among African American men may provide strategies for increasing PA in an effort to reduce the high rates of chronic disease mortality observed in this population (USDHHS 2009).

Although socio-cultural characteristics have been identified in qualitative studies as being important to PA in African American women, it is unclear whether socio-cultural factors are associated with participation in recommended levels of PA, at statistically significant levels, among African Americans and if there are gender differences in these associations. Thus, in gender stratified analyses, this paper examines: 1) whether selected socio-cultural attitudes are associated with self-reported PA among African Americans and 2) the contribution of these selected socio-cultural attitudes to PA, taking account of demographic and health-related characteristics.

Methods

This study is based on the analysis of baseline data from the Elimika project, a randomized colorectal cancer communication intervention trial. The Saint Louis University Institutional Review Board approved the study and the consent procedures used with final data collection approved by the Washington University in St. Louis Institutional Review Board. Study recruitment took place from September 2006 to May 2008. Participants were recruited from residences located in randomly selected census blocks in urban and suburban segments of a large Midwestern city. To facilitate this community recruitment strategy, only census tracts

that were at least 70% African American and had at least 50 residential houses were included. Individuals answering their door were queried to determine their eligibility or the presence of another household member who might be eligible for participation. Only one person per household was permitted to participate. Methods for recruitment and data collection are described in more detail elsewhere (Hood *et al.* 2010).

Sample

The intervention trial included 771 US-born African American men and women, between the ages of 45 to 75 years. For the current analysis, participants with missing data on self-reported PA were excluded. The additional exclusion of participants with missing data for the potential confounding variables reduced the final sample to 446 participants (58% response rate).

Outcome Measure

The International Physical Activity Questionnaire (IPAQ) short form was used to collect participants' self-reported PA (IPAQ 2005). Participants were asked to indicate how many days of the week and how much time (in hours and minutes) per day they participated in walking, moderate PA, and vigorous PA. In accordance with IPAQ recommendations for data management, participants whose total time of participation in all three categories of PA exceeded 960 minutes (16 hours) per day were excluded as outliers, assuming that individuals spend eight hours a day sleeping (IPAQ 2005).

According to IPAQ guidelines, participants were categorized as meeting recommended PA levels if they reported their PA participation in the following ways: participation in vigorous PA for 20 minutes/day for at least three days/week **OR** any combination of walking or moderate PA for 30 minutes/day for at least five days a week **OR** a minimum of 600 MET-minutes/week in at least five days of any combination of the three PA categories (IPAQ 2005). Total MET-minutes/week were calculated from the sum of MET-minutes/week for walking ($3.3 \times \text{total walking time/week}$), moderate PA ($4.0 \times \text{total moderate PA time/week}$), and vigorous PA ($8.0 \times \text{total vigorous PA time/week}$).

Selected socio-cultural constructs

Information on selected socio-cultural constructs was collected using a self-administered questionnaire at baseline (Table 1). The constructs of ethnic identity, religiosity, collectivism, and medical mistrust were measured; however, subscales of ethnic identity and medical mistrust were included in the analyses as described below.

Ethnic identity was measured using an adaptation of the ideology dimension of the Multidimensional Model of Racial Identity (MMRI). Evidence for the construct validity of the MMRI was found in an investigation of its corresponding measure, the Multidimensional Inventory of Black Identity (MIBI) (Sellers *et al.* 1997, 1998). Other researchers have provided support for the validity of the model and the measure (Cokley and Helm 2001). Factor analysis of the items used yielded four components similar to the original measure (Sellers *et al.* 1997, 1998, Cokley and Helm 2001, Lukwago *et al.* 2001). Of these, the nationalist subscale (Cronbach's $\alpha=0.75$) and the humanist subscale ($\alpha=0.71$) were used in the analyses. The remaining two subscales - the oppressed minority subscale (ideology addressing the commonalities among oppressed groups; $\alpha=0.65$) and the assimilationist subscale (philosophy stressing the links between African Americans and the larger American society; $\alpha=0.77$) - were not used due to the lack of a theoretical rationale for the association between PA and oppressed minority identity and concerns about multicollinearity between assimilationist and humanist identities.

Religiosity was defined as the internal manifestation of belief in a higher power, and the genuine, consistent commitment to its attendant values. This construct was measured using five items (alpha coefficient=0.94; Table 1) based on previous work with African American females (Lukwago *et al.* 2001).

Collectivism was defined as the belief and tendency to subordinate personal goals to those of the group (Triandis 1994). Three items previously used to measure this construct among African American females (Cokley and Helm 2001) were modified for this study. The alpha coefficient for the scale in this study was 0.77 (Table 1).

Group disparities in healthcare and suspicion of the healthcare system were also measured at baseline. Items assessed the belief that individuals and institutions will act appropriately and perform competently, responsibly, and in a manner consistent with patients' interests. This subscale was measured using two items from the Group Based Medical Mistrust Scale (alpha =0.83), developed on a sample that included African American participants (Thompson *et al.* 2004). The alpha coefficient for the group disparities in healthcare scale was 0.73. Suspicion of modern medicine was measured by a single item.

Item response for each construct was based on a Likert scale, coded as follows: humanism and nationalism (1-strongly disagree, 2-disagree, 3-moderately disagree, 4-neither agree nor disagree, 5-moderately agree, 6-agree, 7-strongly agree); collectivism (1-not at all important, 2-somewhat unimportant, 3-somewhat important, 4-very important); religiosity (1-strongly disagree, 2-disagree, 3-agree, 4-strongly agree); and inequity in healthcare and suspicion of the healthcare system (1-strongly disagree, 2-disagree, 3-neither agree nor disagree, 4-agree, 5-strongly agree) (Table 1). For each construct, the scale score was the average of the total points from the questions related to that variable.

All selected socio-cultural constructs, except collectivism and suspicion, were dichotomized at the median to create "high" and "low" categories due to the skewed nature of the constructs. As more than half of participants reported having high collectivist attitudes (reported very important (4) to all of the questions), those participants whose scale score was four were classified in the high collectivism category. All other participants were classified in the low to moderate collectivism category. Suspicion of modern medicine was categorized into three categories (i.e., 1-disagree to strongly disagree, 2-neither disagree nor agree, 3-agree to strongly agree).

Potential Confounding Variables

The questionnaire also included self-reported demographic and health-related questions including gender, age on last birthday, highest level of school completed, marital status (categorized as single, married or living with a partner, or divorced/separated/widowed), current employment status (e.g., employed or unemployed), and family income (recoded into three categories: < \$20,000, \$20,000 to < \$40,000, and ≥ \$40,000). Participants reported whether they had received a physician recommendation to exercise more in the last year. Participants who responded "yes" to having been diagnosed with at least one of four chronic conditions (heart disease, high blood pressure, diabetes, and cancer) or who reported another chronic condition (other) was categorized as having a personal history of chronic disease.

Statistical Analyses

All analyses were stratified by gender to identify any differences in the association between PA and the selected socio-cultural or potential confounding factors by gender. Descriptive statistics were generated to describe the sample. Chi-square tests identified the unadjusted associations between PA and the selected socio-cultural and potential confounding factors;

univariate logistic regression identified the associations with PA for covariates with more than two categories. Age-adjusted multivariate logistic regression models were generated to understand the associations between the selected socio-cultural factors and meeting the recommended PA levels for men and women, as well as the associations after adjusting for potential confounders. All analyses were generated using SPSS software, version 17.0 (SPSS, Chicago, IL).

Results

Excluded participants ($n=325$) were more likely to be older, less educated, unemployed, low income, more suspicious of modern medicine, as well as having a low perception that there are group disparities in healthcare when compared to participants included in this analysis. The characteristics of the sample are presented in Table 2.

There were more women (55%) than men (45%) in the sample. Most participants were between the ages of 50 and 64 years and unmarried; however, men were more likely to be married than women. About 64% of participants reported receiving more than a high school education and over half were employed. Men in this sample were more likely to have an annual household income that was greater than \$40,000. The majority of the sample reported having been diagnosed with at least one chronic disease but women were more likely to have received a physician recommendation to exercise in the last year compared to men (OR=1.64, $p<0.05$).

With regard to the selected socio-cultural characteristics, the majority of the sample had low humanist attitudes, low perception of group disparities in healthcare, and did not feel that African Americans should be suspicious of modern medicine (Table 2). Women were more likely to report low nationalistic attitudes than men (although this did not reach statistical significance). Religiosity tended to be low, while collectivism tended to be high for this group. Women were more likely to report high religiosity and high collectivist attitudes as compared to men (OR=1.67 [95% CI: 1.14, 2.45], OR=1.62 [95% CI: 1.11, 2.36], respectively; not shown in Table).

Most participants reported some participation in PA but less than 60% were found to be meeting recommended PA levels. The unadjusted associations between PA and the selected socio-cultural and demographic characteristics are presented in Table 3. Collectivism was the only selected socio-cultural construct that was significantly associated with PA; those who held high collectivist attitudes were 74% more likely to report meeting PA recommendations compared to those with low to moderate collectivist attitudes. There was also a positive trend between high collectivist attitudes and meeting recommended levels of PA for both men and women but the trend was only significant for women. Religiosity followed this same pattern, although results were not significant.

When examining the associations of PA with the other selected socio-cultural constructs by gender, high humanist attitudes and a high perception of group disparities in medicine were both positively associated with meeting recommended levels of PA for men and negatively associated with meeting recommended PA levels for women. In the association between meeting recommended PA levels and high nationalist attitudes, the trend was positive for women and negative for men. Additionally, participants who were married/living with a partner or employed were more likely to be meeting recommended PA levels, while participants with an annual family income of less than \$20,000 were less likely to be meeting recommendations (OR=1.67, OR=1.60, and OR=0.60, respectively).

Table 4 shows the gender stratified associations between meeting recommended PA levels and the selected socio-cultural constructs, after adjusting for potential confounders. Only

those variables shown to be significant at $\alpha=0.05$ in the unadjusted analyses were included (Table 3). Age of participants was also included because it was found to be correlated with PA (results not shown). After adjusting for confounders, men who reported high collectivist attitudes were 1.87 times as likely to be meeting PA recommendation levels as compared to men who had low collectivist attitudes (1.02, 3.43). High religiosity and collectivism was significantly associated with meeting PA recommendations in the age-adjusted and full models for women. Women with high religiosity and high collectivism were more than 80% more likely to be meeting recommended PA levels than women categorized as low collectivism or religiosity (OR=1.87 and 1.85, respectively). Employment status was also positively associated with PA for women (OR=1.98 [1.07, 3.67]).

Discussion

Collectivism was robustly associated with PA reporting in this sample. Participants with strong concerns for and ties to family and community were more likely to report meeting recommended levels of PA. This may be related to an attempt to assure the well-being of the group by maintaining one's own health, as well as supporting positive health behaviors among others. This association was found to be significant for women, a finding previously suggested in qualitative studies (Sanderson *et al.* 2002, Pittman 2003, Van Duyn *et al.* 2007, Harley *et al.* 2009). In several studies, African American women expressed that the lack of social support and having to be the sole provider and maintainer of the home were barriers to PA (Henderson and Ainsworth 2000, Sanderson *et al.* 2002, Bopp *et al.* 2007, Van Duyn *et al.* 2007). These findings suggest, however, that a strong tie to family and the community could also positively influence PA among African American women (Pittman 2003, Harley *et al.* 2009). Additionally, this association was found to be significant among men in these analyses (Bopp *et al.* 2007). Further work is needed to understand the mechanisms by which collectivist attitudes among both men and women influence PA levels in this population.

Religiosity was also associated with PA in women. Women for whom religiosity was high were more likely to report meeting recommended levels of PA. This may be due to actions related to religious values that suggest protection of the physical body as a place for the spiritual body as noted in other studies (Lukwago *et al.* 2001, Pittman 2003, Bopp *et al.* 2007). Interestingly, men who were highly religious were less likely to be adherent. Men were also significantly lower in religiosity than women. Bopp *et al.* 2007 found that the link between religion and health was a more prominent theme among women than men in their focus group. Thus these findings may suggest that encouraging PA using spirituality or through religious institutions may have more of an impact on women than men in this population.

The differences between men and women in the associations between the selected socio-cultural constructs and PA in this study warrant further exploration. Although many of the results were not significant (this could be due to small sample sizes), some interesting trends arose. Interestingly, the selected socio-cultural constructs that were positively associated with PA among African American men were negatively associated with PA among African American women and vice versa. It may be important for future research to explore the factors that may support positive health behaviors, including PA, for African American men and how those factors may be similar to or different from African American women. An intersectional approach may help facilitate an understanding of how gender may differentially influence the impact of socio-cultural attitudes on health behaviors such as PA (Schulz and Mullings 2006).

The associations observed between the demographic, health-related variables, and PA was consistent with the existing literature (Lockery and Stanford 1996, Seefeldt *et al.* 2002, Ainsworth *et al.* 2003, Wilbur *et al.* 2003, Fontaine *et al.* 2005). Employment status appeared to be the most significant and robust of these variables, particularly for women; however, this should be interpreted with caution. Wilbur *et al.* (2003) found being employed was negatively associated with leisure time PA adherence in a cohort of African American women. The IPAQ short form only asks about overall PA participation without distinguishing between leisure time activities vs. other ways of obtaining of PA (e.g., work-related, household duties). After examining PA reporting patterns in this cohort, it is suspected that many participants' reported activity related to other activities besides leisure time, including employment, which may account for the positive association.

In this study, controlling for employment, marital status, income, and age strengthened the associations between collectivism and religiosity and PA. This negative confounding effect suggests some interesting possibilities. It is plausible that women who are married are more religious and may follow religious tenets more closely; marital status and employment may provide opportunities for social relationships where collectivist influences (social support, efforts to support family and community health) can be enacted. Future research should seek to clarify the associations between the selected socio-cultural variables, PA, and these potential confounding variables.

Limitations

These findings must be interpreted with caution due to study limitations which warrant mentioning. Participants excluded from the analysis due to missing data or extreme responses in the outcome variable were significantly different from included participants with regard to age, education, employment status, income, suspicion of modern medicine, and perceptions of group disparities in medicine. These differences could potentially affect the generalizability of the results.

This study relies on self-report of PA; thus the findings may be subject to reporting bias. The percentage of participants who were found to be meeting recommended PA levels in this sample is higher than the national rate for African Americans (59% vs. 41%, respectively) (CDC 2008). However, the higher level of education (i.e., 64% reporting some college or greater) noted in this sample could be contributing to the higher rate, since increased education has been associated with increased PA (Lockery and Stanford 1996, Ainsworth *et al.* 2003, Wilbur *et al.* 2003). The lack of differentiation between leisure-time and other forms of PA (particularly work-related) may account for the higher prevalence of PA and thus, may not be comparable to rates found in other studies (Wilbur *et al.* 2003). Additionally, there are other variables that are associated with PA that were not measured such as BMI, which could be contributing to the variation in PA reporting in this sample.

Finally, the effect of the demographic and the selected socio-cultural characteristics on PA should not be over-stated. For example, women who were highly religious and collectivist were over 80% more likely to report meeting recommended levels of PA (OR=1.87 and 1.85, respectively); yet, the covariates used in this analysis explained very little of the variance in PA ($r^2 = 0.07$). Therefore, taking account of the selected socio-cultural and demographic characteristics alone in communication and intervention planning may not significantly increase PA in this population.

Practical Implications

This study explored the impact of selected socio-cultural attitudes on PA among African Americans. Formative studies have explored links between culture and PA but this study

was able to identify how these factors may be statistically related to meeting recommended levels of PA. Although making causal inferences based on these results would be inappropriate due to the study's cross-sectional design, it does suggest that the selected socio-cultural attitudes should be explored with respect to PA in African Americans. These findings may inform future interventions aimed at increasing PA in this population. For example, campaigns based on family or group wellness may have greater appeal to those who need motivation to sustain regular PA.

Further, this analysis used only a few constructs that may measure aspects of African American culture. Other aspects of culture not examined here (e.g., body image and weight, hair maintenance, as well as socio-cultural norms around PA) may play a role in PA among African Americans and warrants further investigation (Sanderson *et al.* 2002, Wilbur *et al.* 2003, Harley *et al.* 2009).

Conclusion

This study was able to demonstrate that the selected socio-cultural attitudes were associated with PA, potentially paving the way for further exploration of the impact of socio-cultural characteristics on health promoting behaviors such as PA. Additionally, the associations found between demographic characteristics and PA identified among African Americans in other studies was consistent for PA among this cohort.

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Key Messages

- Demographic and health-related characteristics have been previously associated with PA among African Americans; however, few have identified statistically significant associations between socio-cultural attitudes and PA for this group.
- In this analysis, collectivism and religiosity were associated with PA. High collectivist attitudes were positively associated with PA for African American men and women. However, high religiosity was positively associated with PA for women but negatively associated with PA for men.
- Research is needed to further understand the associations between the selected socio-cultural variables and PA among African American adults, of diverse nationalities and socio-economic backgrounds.

Table 1

Selected socio-cultural constructs.

Multidimensional Inventory of Black Identity Measure*Nationalist*

- Blacks would be better off if they adopted Afrocentric values.
- Black people must organize themselves into a separate Black political force.
- Blacks and Whites can never live in true harmony.
- Whites can never be trusted where Blacks are concerned.

Humanist

- Blacks should not consider race when buying art or selecting a book.
- Blacks would be better off if they were more concerned with the problems facing all people rather than just focusing on Black issues.
- Being an individual is more important than identifying oneself as Black.
- We are all children of a higher being; therefore we should love people of all races.
- Blacks should judge Whites as individuals and not as members of the White race.

Selected socio-cultural factors*Religiosity*

- I am often aware of the presence of God in my life.
- When I am ill, I pray for healing.
- I pray often.
- My spiritual beliefs are the foundation of my whole approach to life.
- I rely on God to keep me in good health.

Collectivism

- How important is it that you and your family call, write, or see each other often?
- How important is it that you and your family raise each other's children whenever there is a need?
- How important is it that you and your family let relatives stay with you when they need some help?

Group Based Medical Mistrust Scale*Group disparities in healthcare*

- People of my ethnic group receive the same medical care from doctors and health care workers as people from other groups.
- In most hospitals, people of different ethnic groups receive the same kind of care.

Suspicion

- People of my ethnic group should be suspicious of modern medicine.
-

Table 2Characteristics of African American sample by gender ($N=446$).

Characteristic	Overall (%)	Men (%; $N=203$)	Women (%; $N=243$)	<i>p</i> -value
Age				0.43
45 – 49 years	28.7	31.5	26.3	
50 – 64 years	59.2	57.6	60.5	
65 – 75 years	12.1	10.8	13.2	
Marital status				0.00^a
Single	26.2	27.6	25.1	
Married or Living with partner	39.0	53.2	27.2	
Divorced/Separated/Widowed	34.8	19.2	47.7	
Education				0.19
Some high school (HS) or less	9.0	10.3	7.8	
HS graduate or GED	26.7	29.1	24.7	
Some college	37.9	32.5	42.4	
At least college degree	26.5	28.1	25.1	
Income				0.00^a
< \$20,000	32.3	29.1	35.0	
\$20,000 – < \$40,000	29.4	23.6	34.2	
> \$40,000	38.3	47.3	30.9	
Employed				0.97
Yes	53.6	53.7	53.5	
Physician recommendation to exercise				0.02^a
Yes	71.1	65.5	75.7	
Personal history of chronic disease				0.42
Yes	73.8	71.9	75.3	
Nationalism				0.06
Low	54.0	49.3	58.0	
High	46.0	50.7	42.0	
Humanism				0.88
Low	53.8	54.2	53.5	
High	46.2	45.8	46.5	
Religiosity				0.01^a
Low	56.7	63.5	51.0	
High	43.3	36.5	49.0	
Collectivism				0.01^a
Low to moderate	45.7	52.2	40.3	
High	54.3	47.8	59.7	
Perceived group disparities in healthcare				0.45
Low	58.1	56.2	59.7	
High	41.9	43.8	40.3	
Suspicion of modern medicine				0.28

Characteristic	Overall (%)	Men (%; N=203)	Women (%; N=243)	p-value
Disagree or strongly disagree	63.9	61.6	65.8	
Neither disagree or agree	22.2	21.7	22.6	
Agree or strongly agree	13.9	16.7	11.5	
Meeting recommended PA levels	58.7	60.1	57.6	0.60

^a significant values ($p < 0.05$)

Table 3

Unadjusted association of demographic and selected socio-cultural factors with meeting recommended physical activity levels ($N=446$).

Characteristic	Overall cOR (95% CI) ^{a+}	Men cOR (95% CI) ^{a+}	Women cOR (95% CI) ^{a+}
Age			
45 – 49 years	1.00	1.00	1.00
50 – 64 years	0.94 (0.61, 1.45)	0.86 (0.46, 1.61)	1.03 (0.56, 1.87)
65 – 75 years	0.83 (0.44, 1.58)	0.87 (0.32, 2.33)	0.83 (0.35, 1.94)
Marital status			
Single	1.00	1.00	1.00
Married or Living with partner	1.67 (1.04, 2.70)^b	0.86 (0.46, 1.61)	1.03 (0.57, 1.87)
Divorced/Separated/Widowed	1.35 (0.83, 2.19)	0.87 (0.32, 2.33)	0.83 (0.35, 1.94)
Education			
Some high school (HS) or less	0.49 (0.24, 1.01)	0.51 (0.18, 1.40)	0.47 (0.17, 1.34)
HS graduate or GED	0.91 (0.54, 1.53)	0.86 (0.41, 1.80)	0.97 (0.47, 2.02)
Some college	1.09 (0.67, 1.76)	1.48 (0.74, 3.28)	0.87 (0.46, 1.66)
At least college degree	1.00	1.00	1.00
Income			
< \$20,000	0.60 (0.38, 0.95)^b	0.50 (0.26, 0.96)^b	0.70 (0.37, 1.32)
\$20,000 – < \$40,000	0.86 (0.54, 1.38)	1.10 (0.53, 2.28)	0.78 (0.41, 1.47)
> \$40,000	1.00	1.00	1.00
Employment status			
Unemployed	1.00	1.00	1.00
Employed	1.60 (1.09, 2.34)^b	1.45 (0.82, 2.55)	1.74 (1.04, 2.90)^b
Physician recommendation to exercise			
No	1.00	1.00	1.00
Yes	0.83 (0.54, 1.26)	0.76 (0.42, 1.39)	0.91 (0.50, 1.65)
Personal history of chronic disease			
No	1.00	1.00	1.00
Yes	0.74 (0.48, 1.41)	0.84 (0.44, 1.57)	0.66 (0.36, 1.22)
Nationalism ^c			
High	0.91 (0.63, 1.33)	0.73 (0.41, 1.28)	1.09 (0.65, 1.83)
Humanism ^c			
High	1.04 (0.71, 1.51)	1.53 (0.87, 2.71)	0.76 (0.45, 1.26)
Religiosity ^c			
High	1.39 (0.95, 2.04)	1.15 (0.64, 2.06)	1.66 (0.99, 2.77)
Collectivism ^d			
High	1.74 (1.19, 2.55)^b	1.75 (0.99, 3.09)	1.81 (1.07, 3.04)^b
Perceived group disparities in healthcare ^c			
High	1.09 (0.74, 1.59)	1.23 (0.70, 2.18)	0.97 (0.58, 1.63)
Suspicion of modern medicine			

Characteristic	Overall cOR (95% CI) ^{a+}	Men cOR (95% CI) ^{a+}	Women cOR (95% CI) ^{a+}
Disagree or strongly disagree	1.00	1.00	1.00
Neither disagree or agree	0.77 (0.49, 1.22)	0.94 (0.47, 1.88)	0.66 (0.35, 1.22)
Agree or strongly agree	1.46 (0.82, 2.62)	1.71 (0.75, 3.88)	1.23 (0.53, 2.84)

^a referent group: not meeting recommended PA levels;

^b $p < 0.05$;

^c referent group: low;

^d referent group: low to moderate;

⁺ cOR: crude odds ratio, CI: confidence interval.

Table 4

Adjusted associations between selected socio-cultural factors and meeting recommended levels of physical activity among an African American cohort ($N=446$).

Characteristic	Men ^a		Women ^a	
	Age-adjusted Model (OR ⁺)	Full adjusted model (OR ⁺)	Age-adjusted model (OR ⁺)	Full adjusted model (OR ⁺)
Nationalism ^c	0.66	0.63	1.28	1.35
Humanism ^c	1.45	1.48	0.67	0.72
Religiosity ^c	1.04	0.91	1.76^b	1.87^b
Collectivism ^d	1.69	1.87^b	1.80^b	1.85^b
Group disparities in healthcare ^c	1.37	1.24	0.92	0.89
Suspicious of modern medicine				
Strongly disagree or disagree	1.00	1.00	1.00	1.00
Neither disagree nor agree	1.05	1.27	0.60	0.64
Agree or strongly agree	1.85	2.17	1.07	1.09
Age				
45 – 49 years	1.00	1.00	1.00	1.00
50 – 64 years	0.86	0.76	1.08	1.21
65 – 75 years	0.88	0.75	0.95	1.35
Marital status				
Single		1.00		1.00
Married/Living with partner		0.46		0.74
Divorced/Separated/Widowed		0.75		1.19
Income				
< \$20,000		0.52		1.05
\$20,000 – < \$40,000		1.05		0.92
> \$40,000		1.00		1.00
Employment status				
Unemployed		1.00		1.00
Employed		1.22		1.98^b

^a referent group: not meeting recommended PA levels;

^b $p < 0.05$;

^c referent group: low;

^d referent group: low to moderate;

⁺ cOR: crude odds ratio, CI: confidence interval.