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Research Paper

Factors associated with disability among middle-aged and older African American women with osteoarthritis

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Abstract

Background: Middle-aged and older African American women experience disproportionate rates of functional limitations and disability from osteoarthritis (OA) compared to other racial ethnic groups; however, little is known about what factors contribute to this disparity within African American women.

Objective: To examine factors associated with physical function and disability among African American women ages 50–80 with OA using the disablement process model.

Methods: This descriptive study included 120 African American women with OA from the Southwestern region of the United States. Regression techniques were used to model the correlates of physical function and disability and to test a mediation model.

Results: BMI and pain severity were significantly related to functional limitations. Depressive symptoms mediated the relationship between racial discrimination and disability.

Conclusion: Biological, intra-individual, and extra-individual factors are related to disablement outcomes in this sample of African American women, which is consistent with theory suggesting the need for treatment coupled with environmental modifications. This study can inform the development of future bio-behavioral interventions.

Keywords: Older African Americans; Functional limitations; Disability; Osteoarthritis

Osteoarthritis (OA) is a serious condition that can lead to mobility impairment, functional limitations and disabilities in older adults[1–3] and affects 33% (12.4 million) of all adults over the age of 65.[1] Approximately 80% of adults who have OA experience some level of mobility impairment, and 25% have disabilities.[1] Osteoarthritis can be particularly disabling in older minorities.

Middle-aged and older African American women in particular experience disproportionate rates of functional limitations and disabilities from OA in comparison to other older racial/ethnic groups.[4–9] Specifically, African American women with arthritis experience disability at almost twice the rate of their non-Hispanic White counterparts.[10] Although researchers have suggested that these disproportionate rates of functional limitations in African American women may be due to biological factors such as age, BMI, and pain,[8,11,12] it remains unclear what other factors may be related to disability in these women.[13,14]

Researchers examining factors related to functional limitations and disability in African Americans have examined between-group differences in African Americans and non-Hispanic Whites; however, little has been done examining these outcomes within samples of African American women. The researchers reported mixed findings in these studies. For example, after controlling for body mass index (BMI) and depressive symptoms, researchers reported no significant differences in functional limitations between African Americans and non-Hispanic Whites with knee OA.[4] Yet in another study, African Americans were more

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likely to have activity and functional limitations than non-Hispanic Whites, after controlling for age and BMI.[13] Researchers have also reported that African Americans with OA have more pain and disability than non-Hispanic Whites with OA; however, these differences were no longer present after controlling for age and education.[15] Knee pain has been significantly associated with difficulty in performing functional tasks among African Americans and non-Hispanic Whites with OA.[16] When looking at depressive symptoms among African Americans researchers have reported both non-significant[15] and significant relationships between more depressive symptoms and disability.[17,18]

In addition to looking at factors that have a relationship with physical function and disability outcomes, we have chosen three variables that are not routinely examined to explain these outcomes in African American women with OA. These include perceived racial discrimination, number of physician visits, and trust in health care providers. These three variables are both intra-individual and extra-individual factors and have used to explain health outcomes among this population[19–27]; however, little work has examined if these factors are related to functional limitations and disability outcomes among African American women with OA. Previous work examining different stages of the disablement process among African American women has not focused on intra and extra-individual factors that might explain the within-group differences.

The disablement process model was used as a theoretical framework for this study.[28] The disablement process represents a four stage pathway that begins with pathology, followed by impairments, functional limitations, and ends with disability. A functional limitation is defined as an alteration in the use of the body that restricts engaging in specific activities. Disability is the inability to perform social roles or engage in activities of daily life (i.e. household activities, work, socialize). According to the disablement model,[28] both of these outcomes can be affected by biological (age, BMI), intra-individual (pain, depressive symptoms, trust in health care providers, number of physician visits), and/or extra-individual factors (racial discrimination).[28]

The purpose of this study was to examine factors associated with physical function and disability among African American women ages 50–80 with OA using the disablement process model. We specifically sought to determine if pain severity, and/or depressive symptoms were correlates of functional limitations within a group of African American women. We also sought to determine if trust in health care providers was related to functional limitations and if this relationship was mediated by the number of physician visits, and lastly if racial discrimination was related to disability in the women and if the relationship was mediated by depressive symptoms.

Methods

Participants

The participants for this study were a convenience sample of 120 African American women ages 50–80 years of age with a diagnosis of OA and functional limitations. The inclusion criteria for this study included women who reported having 2 of 4 functional limitations derived from the National Health Interview Survey (unable to stand for 20 min, bend from a standing position, walk a quarter of a mile, or walk 10 steps without resting; CDC, 2009).[29]

Measures

Age, BMI

Self-reported age was used as both a continuous variable in regression models and a dichotomous variable (middle-aged [50–65], and older [66–80]) in describing the sample. The women reported their weight and height. BMI was calculated using the following formula: BMI = weight (in pounds)/[height (in inches)]^2 × 703.[30]

Functional limitations

Functional limitations were measured with the revised version of the Health Assessment Questionnaire Disability Index (HAQ-DI), which is used to measure functional ability across 8 activities including: dressing and grooming, arising, eating, walking, hygiene, reaching, gripping, and errands/chores.[31] The HAQ-DI has previously been used to measure physical function limitations in people with arthritis and women aging with paralytic polio.[32,33] Total scores on the HAQ-DI can range from 0 to 3, with 3 indicating severe limitations. Function was measured as a continuous variable and the Cronbach's alpha for the HAQ-DI in this study was 0.93.

Disability

Disability was measured using the Craig Handicap Assessment and Reporting Technique (CHART).[34,35] The Chart contains 32 items across six dimensions including physical independence, mobility, occupation, social integration, economic self-sufficiency, and cognitive independence. The total index score could range from 0 to 600 and a total index score of less than 450 indicated the presence of disability.[35,36] Researchers have reported the CHART to be a reliable instrument in samples that included African Americans and have reported a test–retest reliability of 0.93.[37]

Number of physician visits

The number of physician visits was measured using the Stanford Health Care Utilization Survey (HCU).[38,39] For