The Effects of Social Support on Physical Functioning in Older African Americans: Longitudinal Results from the Baltimore Study of Black Aging

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Abstract: Introduction: Compared with other racial/ethnic groups, African Americans have higher rates of chronic conditions and suffer a disproportionate burden of disability. We aimed to examine the effects of social support on physical functioning among older African Americans.

Methods: We analyzed a sample of 448 urban, community-dwelling, older African Americans (aged 48–98 years) from the Baltimore Study of Black Aging. Baseline physical functioning was collected between 2006 and 2008 (wave 1), and change in physical functioning was collected between 2009 and 2011 (wave 2), physical functioning was assessed by self-reported limitations in 7 activities of daily living—eating, dressing, grooming, walking, bathing, using the toilet, and transferring in and out of bed—using a binary variable to indicate whether the individual had difficulty performing each specific activity. Social support was measured by how frequently participants provided/received goods and services, financial assistance, transportation, companionship, advice, or encouragement (never [0], rarely [1], sometimes [2], frequently [3]). Negative binomial regression models were used to test the effects of social support given, received, and a ratio (support received/support given) on physical functioning for those who improved and those who declined in physical functioning.

Results: Participants reported physical functioning at wave 1 (1.24, standard deviation [SD] = 1.98) and at wave 2 (0.34, SD = 0.83). Average social support given was 7.49 (SD = 3.26), and average social support received was 7.81 (SD = 3.17). Those who improved in physical function gave less social support and had lower social support ratios; social support received had no effect. Those who remained stable or declined in physical function gave more social support; neither social support received nor social ratio had an effect.

Conclusion: Social support given and social support received as well as the ratio should be considered when seeking to understand how physical functioning changes over time among older African Americans.

Keywords: Disability■Functional limitations■Older African Americans■Social support

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INTRODUCTION

African Americans have higher rates of chronic conditions and suffer a disproportionate burden of disability compared with other racial/ethnic groups.[1,2] Research suggests that race and socioeconomic status account for much of this variation in disability.[3] Furthermore, psychosocial factors—such as social support—have been found to slow the disablement process among older adults.[4] However, little research examining social support and disability among older African Americans has been reported.

In the few studies that have explored this topic,[5–7] only two examined physical functioning over time.[5,7] The first study, which investigated the association of structural and functional aspects of social support and change in physical function after adjusting for education and income, found no differential race effects with one exception: receipt of support (providing transportation, fixing things around the house, preparing meals) was inversely associated with physical functioning.[7] In the second study, researchers examined the relationship between social support and onset and progression of physical disability over time.[5] Social network presence (number of relationships and frequency of interactions with kids, relatives, or friends) was inversely associated with physical disability onset but was not associated with progression. After controlling for health status, this relationship was no longer significant; however, social engagement remained inversely associated with onset and progression of physical disability.

We sought to build on past research in two distinct ways. First, as past studies examining minority populations emphasize the importance of characterizing both giving and receiving social support as unique constructs,[8–11] we also analyzed the exchange of these concepts as a ratio. Second, as Whitfield and colleagues argue that inadequate attention has been directed to within-group examinations when studying racial and ethnic minorities,[12] we explored the association between social support and physical functioning within groups (black participants only), whereas past studies

examined this relationship between groups (non-white vs. blacks). In addition, we included the Disablement Process model,[13] to help 1) identify the magnitude of heterogeneity within a group (e.g., older African Americans; 2) explain how meaningful social support variables contribute to the variability among older African Americans; and 3) further advance our understanding of the psychosocial aspects of aging among older African Americans and its relationship to the disablement process. Therefore, we sought to answer the following questions: To what extent does giving social support improve physical functioning over time among older African Americans? To what extent does receiving social support worsen physical functioning over time among older African Americans? To what extent does using the social support ratio, compared with social support given and social support received, help to explain more of the variance in physical functioning over time? Lastly, using all measures of social support, is there a differential effect among older African Americans who experience improved or worsened physical functioning over time?

MATERIALS AND METHODS

Design

We conducted a retrospective longitudinal study of older African Americans and risk factors (social, demographic, medical, and economic) associated with physical functioning over time.

Study population and participants

This study used data from the Baltimore Study of Black Aging (BSBA), which examined cognition, health, and personality in community-dwelling older African Americans. Data were collected from 2006 to 2008 (wave 1) and from 2009 to 2011 (wave 2). At wave 1, the convenience sample included 602 community-dwelling African Americans in Baltimore, MD. At wave 2, 448 participants were still living, agreed to participate, and provided complete data. Exclusion criteria included a Mini-Mental State Examination (MMSE) score of $\geq$20 or an inability to communicate with an interviewer. All participants gave their written consent prior to enrollment. Each member received $35 for participation. Face-to-face interviews between participants and trained investigators lasted 2.5 h on average. Institutional review board approval was obtained from Duke University for this study.

Measures

Intra-individual factors. Three measures of social support were constructed: social support given, social support received, and ratio of social support given to received. Social support given was measured by how frequently participants provided goods and services, financial assistance, transportation, companionship, advice, or encouragement to their family, friends, and others (usually church members) (never [0], rarely [1], sometimes [2], frequently [3]).[14] Social support received measured the frequency and type of support received using the same wording and scale. A social support ratio was calculated by dividing the measurements of social support received by social support given, with higher scores reflecting an excess in support received relative to support given.

Risk factors. Demographic variables included age and education in years. Chronic conditions were recorded as a sum of 8 conditions—angina, asthma, arthritis, cardiovascular disease, diabetes, stroke, heart attack, or high blood pressure—measured as ever (1) versus never (0) based on the participant having ever been told that she or he had the condition (range 0−8). Self-reported family income was based on participants' selection of 1 of 23 categories ranging from $100 to $2300 per month, in $100 increments.

Physical functioning. Physical functioning was assessed by self-reported limitations in activities of daily living (ADLs). Physical functioning was assessed using a composite of 7 ADLs: eating, dressing, grooming, walking, bathing, using the toilet, and transferring in and out of bed.[15] The response categories included: a) I never need help, b) I have difficulty but can do without help, c) I have difficulty and need help, and d) I never do the activity. A binary variable was created for each ADL to indicate whether the individual had difficulty performing each specific activity. After summing these 7 binary variables, a dichotomous variable for disability was created to identify those individuals who had difficulty in a least one activity.

Analysis

Means, standard deviations (SDs), and frequencies were calculated. The sample was subdivided according to change in physical functioning, calculated by subtracting wave 1 ADL scores from wave 2 ADL scores. Those whose physical functioning improved ($n = 266$, change scores = 1 to 4) were compared with those whose physical functioning remained stable or declined ($n = 182$, change scores = −4 to 0) in bivariate analyses with independent variables and covariates. Next, a 2-stage series of negative binomial regression analyses was conducted by subgroup to estimate the significance of social support received and given and the ratio of social support at wave 1 as predictors of physical functioning at wave 2, accounting for physical functioning, demographic factors, and health conditions at wave 1. Negative binomial regression was