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The Association Between Discrimination and Depressive Symptoms among Older African Americans: The Role of Psychological and Social Factors

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Abstract

Background—Several studies have demonstrated a link between perceived discrimination and depression in ethnic minority groups, yet most have focused on younger or middle-aged African Americans and little is known about factors that may moderate the relationship.

Methods—Participants were 487 older African Americans (60–98) enrolled in the Minority Aging Research Study. Discrimination, depressive symptoms, and psychological and social resources were assessed via interview using validated measures. Ordinal logistic regression models were used to assess (1) the main relationship between discrimination and depression and (2) resilience, purpose in life, social isolation, and social networks as potential moderators of this relationship.

Results—In models adjusted for age, sex, education, and income, perceived discrimination was positively associated with depressive symptoms (OR, 1.20; 95% CI, 1.10 to 1.31, $p < .001$). However, there was no evidence of effect modification by resilience, purpose in life, social isolation, or social networks (all $ps > .05$).

Conclusion and Implications—Findings provide support for accumulating evidence on the adverse mental health effects of discrimination among older African Americans. Because the association was not modified by psychological or social factors, these findings do not support a role for a buffering effect of resources on discrimination and depressive symptoms. Further studies are needed to examine a wider range of coping resources among older adults.

Keywords

Older Adult; Psychological and Social Resources; Health Disparities; Mental Health

Objectives

A wide body of evidence demonstrates that inequalities in social and economic factors, such as education, income, and access to resources, result in health disparities between racial

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minorities living in the United States and the majority white population (Fiscella & Williams, 2004; Lantz et al., 2001; Williams, 2003). Discrimination is also increasingly being recognized as an important social determinant of health that may account for health disparities. Discrimination is defined as “a socially structured and sanctioned phenomenon, justified by ideology and expressed in interactions, among and between individuals and institutions, intended to maintain privileges for members of dominant groups at the cost of deprivation for others” (Krieger, 1999, 301). Perceived discrimination, the subjective perception that is commonly assessed as a predictor of poor health, refers to being the recipient of racial slurs, unfair treatment, harassment, or violence (Williams, Yu, Jackson, & Anderson, 1997). A growing body of literature has found that perceived discrimination is negatively associated with the health of several racial minority groups (Brondolo, Rieppi, Kelly, & Gerin, 2003; Flores et al., 2008; Gee, Spencer, Chen, & Takeuchi, 2007), but, the experience of discrimination is most frequently reported by African Americans (Avalon & Gum, 2011; Barnes et al., 2004a; Forman, Williams, & Jackson, 1997; Kessler, Mickelson, & Williams, 1999; Thompson, 2002). Within the past two decades, researchers from several disciplines including public health, neuropsychology, and epidemiology have published studies on how discrimination may be a harmful social determinant of health and promoter of health disparities for African Americans (Lewis, Aiello, Leurgans, Kelly, & Barnes, 2010; Suglia et al., 2010). In fact, several studies have demonstrated an empiric link between reports of perceived discrimination in African Americans and adverse mental and physical health outcomes including hypertension, depressive symptoms, elevated C-reactive protein, and diabetes (Barnes et al., 2004a; Heard, Whitfield, Edwards, Bruce, & Beech, 2011; Krieger & Sidney, 1996; Lewis et al., 2010; Piette, Bibbins-Domingo, & Schillinger, 2006). The most commonly reported relationship between perceived discrimination and health has been for mental health outcomes, including psychological distress, depressive symptoms, and PTSD (Banks, Kohn-Wood, & Spencer, 2006; Barnes et al., 2004a; Brondolo, Gallo, & Myers, 2009b; Kessler et al., 1999; Schulz et al., 2000). These relationships have been observed across generations, age groups, and geographical boundaries (Barnes et al., 2004a; Schulz, et al. 2006b). Although quite a few studies have examined the association of discrimination with mental health, particularly depressive symptoms, the majority has focused on younger or middle-aged African American adults (Clark & Gochett, 2006b; Cohen et al., 2006; Krieger & Sidney, 1996; Schulz et al., 2006a; Sellers, Caldwell, Schmeelk-Cone, & Zimmerman, 2003). For example, Schulz et al. (2006a) found a positive relationship between discrimination and depressive symptoms among primarily middle-aged African Americans living in Detroit. Watkins, Hudson, Caldwell, Siefert, and Jackson (2011) found a significant link between discrimination and depressive symptoms among an adult African American male cohort, although they found no significant link in the late adult (55 years and older) smaller subset of this cohort. Links between discrimination and depressive symptoms have been reported in several other studies of children and adolescents (Sellers et al., 2003; Simons et al., 2002) or young to midlife adults (Schulz et al., 2006a, Sellers et al., 2003; Watkins et al., 2011).

Less is known about the effects of discrimination on depressive symptoms in samples that focus specifically on older African Americans, a group that is arguably more prone to the effects of discrimination due to their historical legacy in the US (Barnes et al., 2004a,

Taylor, Kamarck, & Shiffman, 2004). Older African Americans born before 1940 came of age during the era of Jim Crow (1880s-1960s) which legalized segregation (Tischauser, 2012). From a life course perspective therefore, older African Americans who experienced these racist and discriminatory laws presumably experienced psychological and emotional distress that likely threatened not only their safety but may have affected their health as well (Gee, Walsemann, & Brondolo, 2012; Taylor et al., 2004; Tischauser, 2012). Despite the seemingly unique vulnerability of older African Americans to the effects of discrimination, only a few studies (e.g., Barnes et al., 2004a; Taylor et al., 2004) have examined the adverse effects of discrimination in this population. For example, it has been reported that discrimination contributes to chronic pain (Burgess et al., 2009) and impairs ego resilience (Baldwin, Jackson III, Okoh, & Cannon et al., 2011) in older African Americans. We are aware of only one study that reported higher levels of discrimination are associated with increased depressive symptoms in this population (Barnes et al., 2004a). In a population based study of older African Americans and whites, Barnes et al., (2004a) reported that higher levels of perceived discrimination were associated with higher levels of depressive symptoms after adjusting for age, sex, education, and income.

Another important gap in the literature is the extent to which the effect of discrimination on health may be buffered by psychological, social, or personal resources (Brondolo, Brady ver Halen, Pencille, Beatty, & Contrada, 2009a; Paradies, 2006; Roberts, Dunkle & Haug, 1994). Of existing studies, findings have been mixed and the types of personal characteristics or social resources that have been examined, vary widely (Brondolo et al., 2009a; Barnes & Lightsey, 2005). For example, there are inconsistent findings on whether having a strong racial identity exacerbates or ameliorates relationships between discrimination and health among minority groups (Lee, 2003; Utsey, Chae, Brown, & Kelly, 2002). In fact, in a recent review on this topic, only two of 12 studies (Fischer & Shaw, 1999; Mossakowski, 2003) demonstrated that racial identity attenuated associations between discrimination and distress (Brondolo et al., 2009a). Further, various forms of social support have been shown to lessen the effect of discrimination on health (Yoshikawa, Wilson, Chae, & Cheng, 2004), though others have found a null association (e.g., Finch & Vega, 2003). In Krieger and Sidney's (1996) study, active personal coping techniques, such as expressing anger and "doing something about it," were related to lower blood pressure in association with discrimination experienced among African American women, such that the relationship was weakened in women who used an "active" active coping method versus passive (i.e. "keeping it to myself"). All in all, it is clear that gaps remain in our understanding of the various factors that may influence the link between discrimination and mental health. However, as has been suggested by others, a better understanding of the personal and social factors that may alter relationships between discrimination and mental health outcomes like anxiety, depressive symptoms, or PTSD would advance the field (Gee, Ro, Shariff-Marco, & Chae, 2009; Paradies, 2006).

Role of psychological and social resources

There is a rich literature on the role of psychological and social resources in the general stress and health relationship. It has been theorized that having access to various personal resources may modify or lessen the impact of life stressors on mental health (Baldwin et al.,

2011; Heard et al., 2011; Roberts et al., 1994). Such resources may provide avenues for support, coping, and resilience when stressors are encountered. Inversely, a lack of access to personal and social resources has been theorized to exacerbate or worsen the influence of stressors on health. For example, personal resources such as resilience and social support have been found to lessen the impact of the relationship between *general* life stress and health (Ganellen & Blaney, 1984; Roberts et al., 1994). Although discrimination is often conceptualized as a life stressor for minority populations, particularly African Americans, there is a paucity of research on how personal resources may influence the perceived discrimination and health pathway for African Americans. It is plausible that particular coping mechanisms or resources may be brought to bear to reduce the negative effects of discrimination on mental health in this group. For example, a recent study by Chae, Lincoln, & Jackson, 2011 suggested that high racial group identification among Black Americans may mitigate the negative effects of discrimination on severe psychological distress. Within the discrimination and depressive symptoms literature among African Americans adults, there has been a dearth of data on factors that may buffer or exacerbate this deleterious pathway. In the few studies that have examined moderating factors between race-related stress and depressive symptoms among adult African Americans, only dispositional optimism and social support have been found to buffer the relationship (Baldwin et al., 2011; Heard et al., 2011). In an additional study of college age African Americans, it was found that social support as measured by domains of guidance, reassurance of worth, social integration, attachment, and reliable alliance, was found to buffer the discrimination and depression pathway (Prelow, Mosher, & Bowman, 2006).

Conceptual framework

To address existing gaps in our understanding of the discrimination and depressive symptoms pathway for older African Americans as well as to determine whether specific personal and social factors might ameliorate the link between discrimination and depressive symptoms, we used stress and stress-process (Dilworth-Anderson, Williams, & Gibson, 2002; McEwen, 2004; Thrasher, Clay, Ford, & Stewart, 2012) to inform this analysis. Broadly, stress has been defined as the conditions or events that tax one's resources and impair management of those stressors (Lazarus & Folkman, 1984). The underlying mechanisms between discrimination and poorer health have been largely attributed to physiological and psychological stress responses throughout the health literature (Gee et al., 2009; Paradies, 2006). The stress-process theory (Dilworth-Anderson et al., 2002 & Thrasher et al., 2012) corroborates stress theory in that stress is a chronic, health-harming process. However, stress-process theory specifically focuses on how those of various racial, socioeconomic, and certain age (particularly older age) groups may be uniquely vulnerable to discrimination and its stress-triggering characteristics which may lead to negative mental and physiological consequences over a period of time. Discrimination-mediated stress has been frequently posited to trigger physiological responses such as hypothalamic-pituitary adrenal (HPA) axis dis-regulation and cardiovascular burden which both lead to poorer health outcomes (King & Hegadorn, 2002; Lazarus & Folkman, 1984; McEwen, 2004). Psychological responses to discrimination have been theorized to promote maladaptive coping and thereby promote psychological distress responses (Clark, Anderson, Clark, & Williams, 1999). Stress-process theory supports that those who are of older age and black

are additionally vulnerable to potential health consequences related to discrimination (Thrasher et al., 2012).

Psychological and social factors may be conceptualized as personal resources that are likely to assist individuals in their ability to manage stress (Roberts et al., 1994). Psychological factors, such as resilience and purpose in life, have been conceptualized as personal strengths that may weaken the pathway between stressful life circumstances and poorer mental or physical health (Ganellen & Blaney, 1984; Ulmer, Range & Smith, 1991). Likewise, social resources such as social networks and lower levels of social isolation may also be conceptualized as resources (LaVeist, Sellers, Brown, & Nickerson, 1997; Roberts et al., 1994) that facilitate better management of the stress often associated with discrimination.

Purpose

The purpose of the present study was to assess the cross-sectional association between perceived discrimination and depressive symptoms, as well as the role of several potential moderating factors of this relationship in older African American adults living in an urban US city. Participants come from the Minority Aging Research Study (MARS), an epidemiological cohort study of risk factors for cognitive decline in older African Americans (Barnes et al., 2012). We hypothesized that there would be a positive association between discrimination and depressive symptoms. We also hypothesized that the association would be modified by psychological and social resources, such that the relationship would be exacerbated for those with fewer resources (i.e. those who are socially isolated). For persons with higher levels of resources, the relationship between discrimination and health would be lessened or buffered by these resources.

Methods

Participants

Participants in this study were older African Americans participating in The Minority Aging Research Study (MARS). MARS is a longitudinal cohort study with a rolling admission with participants enrolling each year. Recruitment began in 2004 and is ongoing. Recruitment presentations are regularly conducted at churches, senior organizations, and senior buildings and persons have the opportunity to volunteer for the study by signing an Institutional Review Board (IRB) approved interest form and obtaining information for consenting at a later date. Since 2004, the study has been presented to over 2,200 African Americans of whom about 1,700 expressed some interest and close to 600 have agreed to participate. Eligibility criteria include non-demented, African American, and at least 65 years of age, although persons as young as 60 have been enrolled. Only those persons who meet the eligibility criteria and express interest in participating are approached for enrollment, so it is difficult to determine the numbers of those ineligible with this recruitment method.

Participants were recruited for the study via convenience sampling methods from community organizations, churches, and senior subsidized housing facilities around the Chicago metropolitan area. Between August 2004 and February 2013, more than 500 non-

institutionalized seniors over 60 years of age completed annual clinical evaluations and cognitive testing. This study was approved by the IRB of Rush University Medical Center.

Data from the baseline interview were used for analyses in the current study. A total of 507 older African Americans without dementia comprised the sample for this study. The final sample size for persons with nonmissing values was 487 with the exception of social networks ($N = 485$) and resilience analyses ($N = 379$). The average age of participants was 73.5 years old ($SD=6.26$), their average level of education was 14.8 years ($SD = 3.55$), and 75.4% of participants were female.

Measures

Discrimination measure—In the current study, perceived discrimination was measured using Williams et al.'s (1997) 9-item “Everyday Discrimination Scale” (EDS) which evoked experiences of unfair treatment. Examples of items on the EDS are: “you are treated with less courtesy than other people” and “you are treated with less respect than other people.” The frequency of each type of discrimination was assessed with a four-point scale: 0 = never, 1 = rarely, 2 = sometimes, 3 = often. Following procedures established previously (Schulz et al., 2006), responses were recoded to a binary format (often or sometimes = 1, rarely or never = 0) and then summed to obtain a total score ranging from 0 to 9. This scale is widely cited throughout the health and discrimination literature and has achieved reliability and validity in a numbers of studies with African Americans (Barnes et al., 2004a; Barnes et al., 2008; Barnes et al., 2012; Taylor et al., 2004; Lewis et al., 2010). A Cronbach's alpha of .80 was reported for the EDS in the MARS cohort (Barnes et al., 2012), suggesting an adequate level of internal consistency. The scale was designed to uniformly assess experiences of unfair treatment across groups defined by different demographic characteristics (e.g., age, gender, race, etc), without reference to racism, discrimination, ageism, or prejudice (Williams et al., 1997).

Depressive symptoms: Depressive symptoms were measured with the Center for Epidemiological Studies Depression (CES-D) scale (Radloff, 1977), using a 10-item form shown to be similar to the original (Kohout, Berkman, Evans, & Cornoli-Huntley, 1993). The CES-D has been found to be a reliable and valid instrument for measuring depressive symptoms among older African Americans (Foley, Reed, Mutran, & DeVellis, 2002). Participants were asked if they had experienced each of 10 symptoms much of the time in the past week. The score is the number of symptoms experienced with a range of 0 - 10.

Other variables

Moderators—This study explored several potential sources of psychological and social resources including resilience, purpose in life, social isolation, and social networks.

Resilience was measured using a modified version of the Dispositional Resilience Scale (Bartone, Usaro, Wright, & Ingraham, 1989). This 12-item scale elicits responses in three main areas of resilience: levels of commitment, control, and challenge. An example item related to control is: “Most of what happens in life is just meant to be.” Participants rated how true each item was for them on a 4-point scale with response options that ranged from

“not true at all = 0” to “completely true = 3.” Scores range from 0 – 48, with higher scores indicating higher levels of resilience. The resilience scale was added to the interview in 2005 and so was missing for about 108 people who had not yet reached their first follow-up visit by the time of these analyses.

Purpose in life was measured with a 10-item modified version of Ryff's (1989) Purpose in Life scale, which elicited responses related to feeling good about past and future activities in life, living life in the present (e.g. one day at a time), and feeling as if there is a sense of direction and purpose in life. Participants rated their level of agreement with each item (e.g., I am an active person in carrying out the goals I set for myself) on a 5-point scale. Item scores were averaged to yield a total score, with higher scores indicating greater purpose in life. The range for this measure was 1 – 5.

Social isolation was measured using a modified version of the de Jong-Gierveld Loneliness Scale (de Jong-Gierveld & Kamphius, 1985). The purpose of the modified version was to assess emotional loneliness in old age. Participants used a 5-point Likert scale (strongly disagree – strongly agree) to rate agreement with the five items. Example questions are: I miss having people around, I experience a general sense of emptiness. Item scores were averaged to yield a total score, with higher scores indicating more social isolation, as previously described (Wilson et al., 2007). The range for this measure was 1-5.

To evaluate social network size, participants were asked how many children, relatives, and friends they had and how often they had seen them in the past month (Cornoni-Huntley, Brock, Ostfeld, Taylor, & Wallace, 1986). Social network size was the number of individuals seen at least once per month, as previously described, (Barnes, Mendes De Leon, Wilson, Bienias, & Evans, 2004b). The range of these scores spanned from 0 – 85.

Demographics—Demographic variables including age, education, and sex were measured using continuous and nominal scales. Income was assessed by having participants select 1 of 10 levels of total annual family income using the show-card method from the Established Populations for Epidemiologic Studies of the Elderly (Cornoni-Huntley et al., 1986). See descriptive statistics in Table 1.

Statistical methods

Correlations between variables were tested using Spearman Correlation coefficients. The raw correlations provided justification for exploring multivariate associations between discrimination, depressive symptoms, demographics, and potential buffers. We conducted ordinal logistic regression models given that depressive symptom scores were positively skewed reflecting generally low depressive symptoms, consistent with previous studies (Kessler et al., 1999; Watkins et al., 2011). On a scale of 0-10 (1 reflecting low symptoms; 10 reflecting high) average scores on the CES-D were 1.24 ($SD = 1.57$). Therefore, categorizing scores according to no (0 CES-D score), little (1-2 CES-D score), or some (3 or greater CES-D score) level of depressive symptoms provided a strong rationale for the use of logit regression analysis of the relationship between discrimination, depressive symptoms, and potential moderators in this study.

The first model tested the main effect of discrimination on depressive symptom scores. Next, we examined the modifying effect of demographic variables on the association of discrimination with depressive symptoms. Finally, we tested the interaction between social and psychological resources and discrimination in relationship to the main effect of discrimination on depressive symptoms. All models were adjusted for age, sex, income, and education.

Results

Table 1 shows the descriptive characteristics of the cohort. The mean score on the “Everyday Discrimination Scale” was 1.59 ($SD = 2.00$). In unadjusted correlational analyses, perceived discrimination was associated with being male ($r = .09, p = .05$), having lower education ($r = -.09, p = .03$), having less income ($r = -.12, p = .01$), being more socially isolated ($r = .23, p = .00$) having less resilience ($r = -.15, p = .00$), less purpose in life ($r = -.16, p = .00$) and having fewer social networks ($r = -.09$) (Table 2). In ordinal logistic models adjusted for age, sex, education, and income, we found a positive association between perceived discrimination and CES-D score ($OR = 1.20$ CI (1.10, 1.31) $p = .00$). That is, for every unit increase on the discrimination scale, the odds of reporting more depressive symptoms increased by 1.20. In subsequent models, we examined whether the association varied by demographic characteristics, but did not find that the association of discrimination and depressive symptoms varied as a function of age, sex, education, or income (all p values $= > .05$, data not shown).

Next, we examined whether the association between discrimination and depressive symptoms was modified by the psychological and social resource variables. In a crude analysis of the mean values of each resource by level of discrimination (Table 3), although subtle, higher levels of social isolation was associated with higher reports of perceived discrimination. In contrast, higher levels of resilience, purpose in life, and social networks were each associated with lower discrimination scores. In ordinal logistic models adjusted for age, sex, education, and income, there was no interaction between discrimination and social isolation ($OR = 1.03, p = .76$), resilience ($OR = 1.00, p = .89$), purpose in life ($OR = 1.12, p = .29$), nor social networks ($OR = 1.00, p = .92$) (See Table 4). We also conducted models with each of the moderator variables, but without the interaction terms to see whether the moderator variables would explain the relationship between discrimination and depressive symptoms (Table 5). Interestingly, although each of the moderator variables was associated with depressive symptoms independently of discrimination, the association between discrimination and depressive symptoms remained largely unchanged after adding each of the variables, suggesting that the association between discrimination and depressive symptoms is very robust and immune to these particular factors, in this sample. In other words, psychological and social resources did not alter the theorized stress-related pathway between discrimination and depressive symptoms. Results suggest that the relationship between discrimination and depressive symptoms is likely to have an association that exists independent of traditionally thought of stress-related buffers such as having high levels of resilience and having a high number of social networks.

Conclusion

In this study of older African Americans we found a cross-sectional association of discrimination with depressive symptoms, consistent with previous reports (Kessler et al., 1999; Watkins et al., 2011) and as hypothesized. However, we did not find that the association between discrimination and depressive symptoms was modified by any of the measured demographic factors. Thus, regardless of age, sex, income, or educational attainment, the relationship between discrimination and depressive symptoms was unchanged. Further, none of the personal and social resources - resilience, social isolation, purpose in life, or social networks - modified the robust association of discrimination and depressive symptoms. The results suggest that social and psychological resources, at least the ones measured in this study, do not influence the relationship between discrimination and depressive symptoms in older African Americans as previous studies have suggested (Baldwin et al., 2011; Roberts et al., 1994).

The current study's main finding between discrimination and depressive symptoms is consistent with previous findings (Barnes et al., 2004a; Taylor et al., 2004) and is consistent with the theory that discrimination is a stressor that is likely to worsen mental health as evidenced by higher depressive symptoms scores. The current study is supported by a commonly held theoretical belief that African Americans are at risk for poorer health given the combined effects of their minority and elderly statuses (Garstka, Schmitt, Branscombe, Hummert, & Lee, 2004). The health risks associated with occupying two stigmatized statuses have been described by Dowd & Bengtson (1978) as "double jeopardy." Therefore, African Americans who are both elderly and discriminated against are theoretically at risk for poorer health versus African Americans who are young and discriminated against. The data from the current study suggest the need for increased research, resources, and policy attention directed toward ameliorating or weakening the well-established link between discrimination and health.

The current study contributes to the literature on links between discrimination and depressive symptoms by testing potential psychological and social buffers that may interrupt this deleterious pathway. Despite previous literature indicating that psychological and social buffers are important in older African Americans, we did not find support for any of the buffers having an influence on the discrimination-depressive symptoms link in our cohort (Ganellen & Blaney, 1984; Roberts et al., 1994). Further, coping and mental health related factors that have been found to interrupt health-harming pathways in other studies (Baldwin et al., 2011; Roberts et al., 1994) did not modify the association between discrimination and depressive symptoms in the current study. A small yet growing line of reasoning may help explain why we did not find support for this hypothesis. Williams & Mohammed (2009) alluded to the fact that discrimination may not operate as a traditionally conceptualized stressor. Consistent with this idea, Stetler, Chen, and Miller (2006) examined whether discrimination negatively impacts immune function despite access to and utilization of coping resources. They found that despite using written disclosure, a well-developed stress management technique, their intervention did not interrupt links between discrimination and health as expected. Similar to Stetler's (2006) study, this study provides support for how well-studied stress-attenuating resources, such as resilience, do not alter robust and

pervasive links between discrimination and depressive symptoms. Williams & Mohammed (2009) further reasoned that the challenge in developing or uncovering buffers between discrimination and health may be related to the ubiquitous and pervasive nature of discrimination. Thus, because discrimination occurs on multiple levels (institutional, interpersonal, and internalized) and can manifest in several ways (discriminatory policies, ambiguous personal interactions, internalized stereotypes) it is difficult to pinpoint not only how discrimination may harm health but also what may buffer relationships between discrimination and health. Given such ambiguities, one may posit that the influence of discrimination may not respond to more traditionally studied coping resources. Another potential reason that we did not find that psychological/social resources modified the relationship is that the discrimination scores in our older adults were relatively low, consistent with previous reports in older African Americans (Barnes et al., 2004a; Barnes et al., 2008; Lewis et al., 2010). Despite the overall low levels however, it is interesting that the association with depressive symptoms was robust with the magnitude of the effect remaining essentially the same despite the inclusion of different moderating factors, supporting the notion that discrimination is a negative stressor that may adversely effect mental health. Nevertheless, it is plausible that a wider range of discrimination scores might have allowed us to see an effect of the potential buffers on the discrimination-depressive symptoms pathway.

The results of the moderation analysis in this study are not consistent with the notion that increased social and personal resources can have protective effects on the theoretically stressful discrimination and mental health pathway for African Americans (Prelow et al., 2006; Baldwin et al., 2011; Heard et al., 2011). Although older African Americans are lesser studied, findings from adolescent and middle age African American cohorts can provide further insight into the discrimination, health, and moderating factors literature. Among adolescent and adult African Americans, there have been mixed findings as to what buffers or exacerbates discrimination and health pathways. As previous discussed, active coping strategies (i.e. talking about discriminatory experiences with friends) have worked successfully for African American women who perceive discrimination (Krieger & Sidney, 1996). However, in this same cohort of African American women, passive coping strategies lead to exacerbating the association between discrimination and blood pressure. In Clark's (2006a) study of discrimination and vascular reactivity of African American college women, it was found that seeking social support attenuated the link between discrimination and vascular reactivity. The more social support sought, the weaker was the association between discrimination and vascular reactivity. Finally, Brody et al., (2006) found that among adolescent African Americans, associations between discrimination and psychological health was weaker for those participants who had been recipients of nurturant-involved parenting and friendships than for those who were prosocial. Perhaps certain types of psychological and social resources are more beneficial than others in interrupting discrimination and health pathways among various African American age groups.

Because so little is known about what may attenuate links between discrimination and health, the wider, multi-ethnic literature on discrimination, health, and moderating analyses may also be worthy to examine (Chae et al., 2011, Tummala-Narra, Alegria, & Chen, 2012). Currently, studies with several ethnic minority groups also present inconsistent findings on

what resources, attributes, and tools may consistently buffer the pernicious discrimination and depressive symptoms pathway (Chae, Lee, Lincoln, & Ihara, 2012; Gee et al., 2006; Tummala-Narra et al., 2012). For example, Tummala-Narra et al. (2012) found that family support lessened the link between discrimination and depression among South Asian Americans although peer support did not impact the relationship. In a Canadian study (Noh & Kaspar, 2003), Korean immigrants who used active, problem-focused coping styles were better able to mitigate relationships between perceived discrimination and depressive symptoms while more passive, emotion-focused coping styles exacerbated the relationship. The multi-ethnic discrimination, health, and moderating literature may also provide more support for how various psychological and social resources may operate differently, with some being more salient in comparison to others. Chae et al. (2012) offered a nuanced view of how various forms of social support may attenuate or exacerbate links between discrimination and health. Chae et al. points out that if the type of social support one receives is negative (i.e. stressful family interactions), it may have a worsening effect on discrimination and health pathways. Therefore, future studies should address quality of personal and social resources and whether they positively or negatively impact lives. Explicating positive/negative sources of support may assist in explaining what kinds of resources can be brought to bear to ameliorate links between discrimination and health among older African Americans as well.

Implications

Findings from this study provide support for an association between perceived discrimination and depressive symptoms in older minority adults. The current study does not provide support for a traditionally thought of stress-buffering hypothesis. However, findings from this study appear to be consistent with a provocative but lesser explored theory in that health consequences associated with discrimination are extremely difficult to buffer. As supported by the current study, theories that suggest discrimination may not be buffered through traditional methods lend support for the investigation of new and alternative ways in which the discrimination and health pathway can be interrupted. Therefore, further studies focusing on the buffers associated with the discrimination and depressive symptoms pathway among an older African American adult population are warranted given (1) the potential vulnerability of older African Americans to discrimination based on the historical context in which they lived their early lives, (2) increased health risks associated with the combined effect of being older and African American, and (3) the established links between perceived discrimination and mental health (depressive symptoms). Researchers and policy makers will need to investigate innovative solutions to ameliorate the damaging and unwieldy effects discrimination has on older African Americans as well as all racial minority groups. Further investigation into underexplored resources such as resiliency and specific kinds of social support (family versus peer) and their potential buffering effect on the discrimination and depressive symptoms pathway may also be useful. Other potential buffers to explore may be access to health services, participation in church services, or wider structural policies that promote and maintain social equality for African Americans.

Limitations

This study is limited by several factors. First, the cross-sectional design did not allow for assessment of changes in reports of discrimination and depressive symptoms over time and with this design it is impossible to determine whether depressive symptoms influenced higher reports of discrimination or discrimination influenced higher depressive symptoms, or both. Second, both discrimination and depressive symptoms scores were relatively low. Given the skewness of scores to the lower ends of both scales, it may have been difficult to detect a significant effect. Third, the Everyday Discrimination Scale does not assess attribution of perceived discrimination. Using the attributional approach, participants are able to identify the reason why they believe they have been discriminated against (race, age, socioeconomic status, etc.). It is possible that participants may have answered discrimination questions differently had they been required to state the reason why they believe they had experienced discrimination. Shariff-Marco et al. (2011) demonstrated the value and accuracy of both attributional and non-attributional approaches emphasizing that authors should be clear on the approach used. Fourth, we included a limited number of psychological and social moderators. It is possible that there are several other types of resources that might buffer the link between discrimination and depressive symptoms that we did not measure, like religiosity and John Henryism, cultural variables that have been shown to have an important influence in the mental health of African Americans. Fifth, the measurement of social support, whether one receives negative or positive sources of social support, or satisfaction with social support, was not available in this dataset. Our measure of social networks ascertained the number of children, relatives, and friends a person has as well as the frequency of interaction with each type of relationship, not how much support or the quality of support they received from the relationship. It is possible that social support, and satisfaction with such support, may modify the relationship between discrimination and depressive symptoms. Finally, it is also important to note that participants were from a volunteer cohort study in an urban area of the midwestern United States. Thus, results may not be generalizable to older African Americans in other parts of the country.

Strengths

The study also has a number of important strengths. We used well-validated discrimination and depressive symptoms measures that have been previously used among older African Americans. The study also reflected a fairly large sample of well-characterized African Americans with a range of socioeconomic status. We also included well-validated social and psychological resources that have been linked with both discrimination and depressive symptoms in previous studies (Baldwin et al., 2011; Ganellen & Blaney, 1984; Roberts et al., 1994).

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Table 1

Demographics of sample ($n=487$)*

Variable	Values			
	<i>M</i>	<i>SD</i>	Range	<i>n</i> %
Age	73.6	6.27	60-97.60	
Education (Total years)	14.8	3.55	3.0-30.0	
Discrimination	1.61	2.00	0-9	
Depressive symptoms	1.24	1.56	0-9	
Social isolation	3.07	.57	1-3.80	
Resilience	29.19	.57	1-3.80	
Purpose in life	3.85	2.4	2.4-5	
Social networks	6.61	6.63	0-85.0	
Income				
<\$14,999				95 19.51
\$15K-\$34,999				190 39.01
\$35K-\$74,999				137 28.13
>\$75,000				65 13.35
Sex				
Female				364 74.7
Male				123 25.3

* *Note:* The sample size for the social networks variable and subsequent analysis = 485; $n = 379$ for resilience variable and subsequent analysis.

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Table 2
Spearman's Correlations between moderators and discrimination

Variable	<i>r</i>	<i>P</i> Value
Age	.00	.93
Men	.09	.06
Education	-.09	.03
Income	-.12	.01
Social isolation	.23	<.001
Resilience	-.15	<.01
Purpose in life	-.16	<.001
Social networks	-.09	.05

Table 3
Means (SD) of moderating factors by discrimination levels in the Minority Aging Research Study

Discrimination	Social isolation		Resilience		Purpose in life		Social networks	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Low	1.93	.53	24.75	4.21	3.92	.40	7.05	7.22
Moderate	2.13	.57	23.96	4.00	3.82	.46	6.33	6.47
High	2.30	.55	23.41	4.17	3.72	.40	6.18	5.29

Note: A low discrimination score corresponds to 0 on the Everyday Discrimination Scale (EDS); a moderate discrimination score corresponds to scores between 1-3 on the EDS; a high discrimination score corresponds to an EDS score ≥ 3 .

Table 4
Summary of associations of social and psychological resources with discrimination

Variable	Model 1 OR (CI)	Model 2 OR (CI)	Model 3 OR (CI)	Model 4 OR (CI)	Model 5 OR (CI)
Age	1.00 (0.98, 1.04)	1.00 (0.97, 1.03)	1.01 (0.98, 1.04)	1.00 (0.97, 1.02)	1.01 (0.98, 1.03)
Sex	.65* (0.43, 0.97)	.62** (0.41, .94)	.69 (0.44, 1.08)	.60** (0.40, 0.90)	.68* (0.45, 1.02)
Education	1.00 (0.94, 1.05)	1.03 (0.97, 1.09)	1.01 (0.94, 1.08)	1.02 (0.96, 1.08)	1.00 (0.94, 1.05)
Income	.87** (0.80, 0.94)	.91** (0.84, 0.98)	.87** (0.79, 0.95)	.92** (0.85, 0.99)	.87** (0.81, 0.94)
PD	1.20** (1.10, 1.31) .00	1.13** (1.03, 1.24)	1.18** (1.08, 1.30)	1.21** (1.09, 1.34)	1.20** (1.10, 1.30)
Social isolation		3.58** (2.50, 5.14)			
Social isolation × discrimination		1.03 (0.87, 1.21)			
Resilience			.94** (0.89, .99)		
Resilience × discrimination			1.00 (0.98, 1.02)		
Purpose in life				.30 (0.19, 0.48)**	
Purpose in life × Discrimination				1.12 (0.91, 1.39)	
Social network					.96 (0.93, 0.99)*
Social network × discrimination					1.00 (0.98, 1.02)

Note:

* p .05.

** p 0.01.

Table 5
Summary of independent effects of moderators and discrimination on depressive symptoms

Variable	Model 1	Model 2	Model 3	Model 4
Age	OR (CI) 1.00 (.97, 1.03)	OR (CI) 1.01* (.98, 1.04)	OR (CI) 1.00 (.97, 1.02)	OR (CI) 1.01 (.98, 1.03)
Sex	.62* (.41, 0.94)	.69 (.44, 1.08)	.60* (.40, 0.90)	.68* (.45, 1.02)
Education	1.03* (.97, 1.09)	1.01 (.94, 1.08)	1.02 (.96, 1.01)	1.00 (.094, 1.05)
Income	.91* (.84, 0.98)	.87** (.79, 0.95)	.92* (.85, 1.00)	.87* (.81, .94)
PD	1.14** (1.04, 1.24)	1.18** (1.08, 1.30)	1.17** (1.07, 1.28)	1.20* (1.10, 1.30)
Social isolation	3.56** (2.49, 5.09)			
Resilience		.94* (.89, .99)		
Purpose in life			.30** (.18, .46)	
Social network				.96* (.93, .99)

Note:

* *p* .05.

** *p* .01.