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Social Network Characteristics and Cognitive Functioning in Ethnically Diverse Older Adults: The Role of Network Size and Composition

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Abstract

Objectives.—Social engagement has been linked to preserved cognitive functioning in later life. While social engagement is often operationalized as social network size, social networks can vary not only in size, but also in composition. Previous work has found that having a greater proportion of family in a network is associated with worse socioemotional and cognitive outcomes compared to having a greater proportion of friends. In addition, social resources may differentially affect cognition in minority groups at higher risk of cognitive impairment. Therefore, the current study aimed to examine racial/ethnic differences in the relationship between network characteristics and cognition.

Method.—Ethnically and racially diverse older adults from the Washington Heights-Inwood Columbia Aging Project (n=548, 60–93 years) were used. Multiple regressions were conducted to examine the effects of ethnicity/race, size, composition and their interaction on global cognition.

Results.—Analyses revealed that networks with a greater proportion of friends were associated with better global cognition than networks with a greater proportion of family. Additionally, larger social network size was only associated with better global cognition among individuals who had a greater proportion of friends in their networks. Race further moderated this effect, as it was limited to African Americans.

Discussion.—Overall, these findings highlight the importance of looking at both composition and size when examining the relationship between social network characteristics and global cognition. These findings suggest that friendships may be especially important and further suggest that social network characteristics and cognitive aging may be more strongly related among African Americans.

Keywords

Network Characteristics; Cognition; Ethnic/Race Inequalities

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Social engagement has been linked to preserved cognitive functioning in later life (see review, Hertzog, Kramer, Lindenberger & Wilson, 2009). Often, social engagement is operationalized as social network size when estimating its relation to cognitive outcomes in older adulthood (i.e., Sörman, Rönnlund, Sundström, Norberg & Nilsson, 2017). For example, Bassuk, Glass and Berkman (1999) found that older adults who had 5–6 social ties (i.e., marriage, group membership, social activities, etc.) had reduced risk of incident cognitive decline compared to those with no social ties. Larger social network size has also been found to buffer age-related declines in cognitive functioning over time (Barnes, Mendes de Leon, Wilson, Bienias & Evans, 2004; Crooks, Lubben, Petitti, Little & Chu, 2008) and attenuate the relationship between Alzheimer's disease (AD) pathology and cognition (Bennett, Schneider, Tang, Arnold & Wilson, 2006). That is, among older adults with high levels of AD pathology at autopsy, those who had larger social network sizes were less likely to demonstrate impaired cognitive performance during life (Bennett et al., 2006).

Social networks, however, can vary not only in size but also in composition. Composition is defined by the distribution of family and friends within one's network (regardless of size) and may be quantified as the proportion of one's network that is family (% kin; see Li & Dong, 2017). Previous work on social network composition has distinguished that not all social relationships influence cognitive functioning in the same way (Adam & Blieszner, 1995). Specifically, some evidence suggests that individuals with a greater proportion of family within their network have worse emotional (Fiori, Antonucci, & Cortina, 2006; Fuller-Iglesias, Webster, & Antonucci, 2015), health-related (Shiovitz-Ezra & Litwin, 2012) and cognitive outcomes (Li & Dong, 2017) compared to those with a greater proportion of friends within their social network. For example, a greater proportion of family within one's network has been associated with lower cognitive performance in Chinese older adults (Li & Dong, 2017), and greater contact with family has also been associated with lower cognitive performance (La Fleur & Salthouse, 2017). When looking at engagement in health-related behaviors, having a greater proportion of friends in one's network was associated with more engagement in medical help seeking and physical activities, and less alcohol abuse, compared to having a greater proportion of family (Shiovitz-Ezra & Litwin, 2012).

Social network composition may be particularly relevant to cognitive functioning in older adults due to age-related changes in social networks. With increasing age, it is theorized that older adults increase high-quality relationships with friends through adaptive social pruning of peripheral social partners (English & Carstensen, 2014). That is, older adults may disconnect from suboptimal or less meaningful social relationships in order to maximize well-being in later life. In contrast, older adults may find that disengagement from unsatisfactory family relationships can be difficult, and these relationships may foster ambivalent feelings (Fingerman, Hay & Birditt, 2004; Fingerman, Pitzer, Lefkowitz, Birditt & Mroczek, 2008). Although family members can be a source of joy and support, social exchanges with family members can also be negative and lead to unwanted stress (Taylor, Chae, Lincoln & Chatters, 2015), which could negatively influence cognitive functioning.

In addition to fewer negative social exchanges, friendships may also be associated with better cognition due to the requirement of more active maintenance. Prior research has found that friendships require more communication and more active engagement in informal

activities to sustain emotional closeness (Roberts & Dunbar, 2011). Further, active engagement in social and leisure activities has been associated with preserved cognitive functioning (Jonaitis et al., 2013; Verghese et al., 2003; 2006). Therefore, older adults with a greater proportion of friends within their networks may have better cognitive functioning because they engage in more activities that are beneficial for cognition.

While prior research has examined the relationship between network characteristics and cognition in later life, this work has been done on predominantly highly-educated, non-Hispanic white samples. Size and composition of social networks have been found to differ based on race (Ajrouch, Antonucci, & Janevic, 2001). For example, African Americans have previously been found to have smaller networks (Barnes et al., 2004; Mendes de Leon, Gold, Glass, Kaplan & George, 2001) relative to non-Hispanics Whites. Previous research also found that African Americans are more likely to have a higher proportion of family members than friends in their social networks (Ajrouch et al., 2001; Nguyen, 2017).

Despite initial findings examining racial differences in network characteristics, little work has examined how social networks may relate to cognition within ethnic/racial groups. Prior work has demonstrated that the effectiveness of psychosocial resources varies based on race/ethnicity (Zahodne, Watson, Seehra, & Martinez, 2017a). For instance, higher perceived emotional support was found to be related to worse working memory performance among Caribbean Hispanic older adults, whereas perceived emotional support was not related to working memory among non-Hispanic Whites and African Americans (Zahodne et al., 2017a). Barnes and colleagues (Barnes et al., 2004) found a stronger buffering effect of social engagement on cognitive functioning for non-Hispanic Whites compared to African Americans. These findings suggest that the utility of social resources for cognitive functioning in later life may not be equivalent across ethnic/racial groups.

Thus, the goal of the current study was two-fold. First, we aimed to examine the crosssectional association of network characteristics, specifically size and composition, with cognitive functioning among older adults (see Figure 1 for conceptual depiction). We hypothesized that persons with larger social networks would have better cognition than persons with smaller networks. We also hypothesized that persons with a greater proportion of friends in their network would have better cognition than persons with greater proportion of family in their networks. Finally, we hypothesized that composition of one's network (family vs. friends) would moderate the impact of social network size on cognition. Specifically, larger network size would be associated with higher cognitive functioning among individuals whose networks comprise a greater proportion of friends. In contrast, larger network size would be associated with lower cognitive functioning among individuals whose networks comprise a greater proportion of family. While the current study is cross-sectional and cannot assess the directional relationship between social network characteristics and cognition, prior longitudinal evidence support the proposed directionality of our hypotheses (i.e., Barnes et al., 2004; Bennett et al., 2006).

Second, we aimed to characterize relationships between network characteristics and cognitive functioning in later life across specific ethnic/racial groups. Because research examining psychosocial influences on cognitive disparities have predominantly focused on

comparing African American and non-Hispanic White populations, less is known about the role of psychosocial resources in cognitive aging among Hispanic populations. Like African Americans, Hispanic populations also show higher rates of cognitive impairment (Brewster et al., 2014; Zahodne, Sol, & Kraal, 2017b) and incident dementia (Tang et al., 2001). Thus, the current study examined how social network characteristics are associated with cognition in three distinct racial/ethnic groups: non-Hispanic Whites, African Americans and Caribbean Hispanics. Based on the findings of Barnes et al. (2004), we hypothesized that social network size, composition of one's networks, and their interaction would each have a greater effect on cognition in non-Hispanic Whites than African Americans. Due to scant empirical research examining associations between psychosocial resources and cognitive functioning in Hispanic older adults, we made no a-priori hypotheses regarding associations in that population.

Methods

Participants and Procedure.

The current sample was derived from an ancillary psychosocial study of 548 participants in the Washington Heights-Inwood Columbia Aging Project (WHICAP; Zahodne et al., 2017a). WHICAP is a prospective, community-based, longitudinal study of aging and dementia in northern Manhattan that has previously been described (see Tang et al., 2001; Manly et al., 2005). All participants from the current sample were recruited from the newest wave of the WHICAP (recruitment started in 2009) and did not have a consensus diagnosis of dementia according to DSM-III criteria. Participants within the sample were distributed across three ethnic/racial groups: non-Hispanic White (n = 170), African American (n = 225), and Caribbean Hispanic (n = 153). In this study, all African Americans and Whites were non-Hispanic, and Caribbean Hispanics could have identified as any race.

Measures.

Cognition.—Cognitive functioning was assessed with a comprehensive neuropsychological battery as previously described (i.e., Siedlecki, Manly, Brickman, Schupf, Tang, & Stern, 2010; Stern et al., 1992). Participants were tested in their preferred language (i.e. English or Spanish) and these cognitive measures have previously been found to be invariant across English and Spanish speakers (Siedlecki et al., 2010). The neuropsychological battery can be summarized into four cognitive domains: episodic memory, language, visuospatial and speed/executive functioning. Episodic memory composite scores included immediate, delayed and recognition trials from the Selective Reminding Test (Buschke & Fuld, 1974). Language scores included measures of naming, letter and category fluency, verbal abstract reasoning, repetition, and comprehension. Visuospatial scores included recognition and matching trials from the Benton Visual Retention Test (Benton, 1955), the Rosen Drawing Test (Rosen, 1981), and the identities and Oddities subtest of the Dementia Rating Scale (Mattis, 1976). Speed/Executive Functioning scores included both trials of the Color Trails test. Composite scores were derived by converting cognitive variables into Z-scores and averaging them for domain in the larger WHICAP sample. The four cognitive domains were highly correlated ($.45 < r < .63$). Consistent with previous research (see Gu et al., 2014; Wilson, Boyle, James, Buchman &

Bennett, 2015; Wilson, Rajan, Barnes, Weuve & Evans, 2016), a composite across all 4 domains was created by averaging the four domain scores to represent global cognition (α = .81).

Social Networks.—Social networks were characterized using three previously-established items (see Cornoni-Huntley, Brock, Ostfeld, Taylor & Wallace, 1986) asking about the number of living children, relatives other than children, and friends that participants felt close with. Scores across the three items were summed and represented social network size. Composition was calculated by computing the ratio of family members identified (i.e., living children & other relatives) to the total network size. Thus, higher scores on composition represented a greater proportion of family members, whereas lower scores represented a greater proportion of friends. Initial correlations between network characteristics were conducted across within ethnic/racial groups. For non-Hispanic Whites, size and composition were negatively correlated ($r = -.21$, $p = .009$) whereas in African Americans, size and composition were positively correlated ($r = .18$, $p = .014$). Size and composition were not significantly correlated within Caribbean Hispanic participants ($p = .36$)

Covariates.—All analyses were controlled for main effects of age, sex, education, ethnicity/race, marital status, and physical illness burden. Date of birth and gender were self-reported at the time of study enrollment. Education was self-reported number of years of school (0 – 20). Physical illness burden was represented by the number of self-reported chronic conditions out of a list of 10 potential conditions.

Statistical Analysis

Univariate ANOVAs with Bonferroni post hoc analyses were conducted to examine whether there were ethnic/racial differences in network size, composition and global cognition. Multiple regression analyses were conducted to examine associations between network size, composition, their interaction and global cognition. Analyses were conducted using SPSS (Version.24 IBM Corp, USA) and the PROCESS macro (Hayes, 2012). All subsequent significant interactions were decomposed by graphing the mean, one standard deviation above and below the mean. The mean of social network composition corresponded to a network that was roughly equal proportions friends and family (55.85% family). One standard deviation above the mean corresponded to networks that were comprised of more family than friends (80.38% family) and one standard deviation below the mean corresponded to networks that were comprised of more friends than family (30.36% family). Therefore, decomposed interactions visually represented in figures, the mean was labeled as “equally friends and family’, +1SD was labeled as ‘Mostly Family” and −1SD was labeled as “Mostly Friends”.

Within the model, cognition was regressed on network size, network composition, and their interaction, controlling for age, gender, ethnicity, race, education, marital status, and physical illness burden. Ethnicity and race variables were dummy coded in the models with non-Hispanic Whites as the reference group. Initially, a hierarchical regression model entered covariates in the first step, followed by main effects in the second step, and the interaction within the third step. Subsequently, an additional hierarchical linear regression

model was conducted to assess whether ethnicity and/or race moderated network effects of size and composition.

Results

Racial Differences in Network Characteristics

Means and standard deviations across the variables of interest across all participants and within each ethnic/racial group are listed in Table 1. No significant effect of ethnicity/race was found for network size, $F(1, 486) = .96$, $p = .327$, $\eta^2 = .01$. Composition, however, did vary across the three groups, $F(1, 485) = 9.45$, $p = .002$, $\eta^2 = .06$. African Americans ($t = 9.21$, $p < .001$) and Caribbean Hispanics ($t = 14.77$, $p < .001$) had greater proportions of family in their networks than non-Hispanic Whites. Caribbean Hispanics also had significantly greater proportions of family in their networks compared to African Americans ($t = 5.57$, $p = .038$).

A significant effect of ethnicity/race was found for global cognition, $F(1, 566) = 65.19$, $p < .001$, $\eta^2 = .26$. Non-Hispanic Whites had higher global cognition than African Americans ($t = .40$, $p < .001$) and Caribbean Hispanics (t = .69, p < .001) African Americans also had significantly better global cognition than Caribbean Hispanics ($t = .30$, $p < .001$).

Network Characteristics and Cognition

Whole Sample.—Coefficients and statistics across the regression model are listed in Table 2. Main effects of age, gender, education, chronic illness burden, ethnicity and race emerged. Older age and higher chronic illness burden were associated with lower global cognition. Higher education and being female was associated with higher global cognition. Consistent with unadjusted analyses, African Americans and Caribbean Hispanics had significantly lower global cognition relative to non-Hispanic Whites.

Further, a significant main effect of composition emerged. Individuals with a greater proportion of family in their networks had lower global cognition. This main effect was qualified by a size × composition two-way interaction. In general, a larger network was associated with better global cognition for networks comprised of a greater proportion of friends, however, did not reach significance ($p = .131$). Further, individuals with larger social networks comprised of a greater proportion of friends had better global cognition than those whose networks comprised a greater proportion of family ($t = 3.05$, $p = .020$). This model accounted for 51% of the variance in global cognition with covariates accounting for 49% and social network characteristics accounting for 2% of the explained variance.

Variation across Ethnicity/Race.—A subsequent regression model was conducted with the inclusion of ethnicity and race as a moderators, and statistics for this model are listed in Table 3. Consistent with previous analyses, main effects of age, gender, education, ethnicity and race emerged. In addition, a Size × Composition × African American 3-way interaction was found and is depicted in Figure 2. For African Americans whose networks comprised a greater proportion of friends, a larger network size was associated with better global cognition ($t = 2.05$, $p = .041$). However, for African Americans whose networks were comprised of a greater proportion of family, social network size was not associated with

global cognition ($t = -.22$, $p = .819$). There were no significant effects of size or composition for non-Hispanics Whites, and effects did not significantly differ between non-Hispanic Whites and Caribbean Hispanics. This model accounted for 52% of the variance in global cognition with covariates accounting for 49% of the variance and social network characteristics and their interactions accounting for 3% of the explained variance.

As the presence of mild cognitive impairment may affect individuals' ability to self-report their social network characteristics, a sensitivity analysis was conducted excluding participants who met the criteria for MCI (Manly et al., 2005). Effect sizes were equivalent across the models with and without MCI participants.

Discussion

The goal of this study was to examine how social network characteristics were associated with cognitive functioning in older adulthood within three ethnic/racial groups. Two major findings emerged. First, we found that social network characteristics were significantly associated with global cognition. Specifically, individuals whose networks comprised a greater proportion of friends had significantly better cognition than those whose networks comprised a greater proportion of family and this association was strongest among individuals with large social networks. Second, associations between network characteristics and global cognition were significantly moderated by race. That is, these associations were significant only among African Americans.

Network Characteristics and Cognitive Functioning

In the current study, we found that the composition of one's social network was associated with global cognition. Older adults with a greater proportion of family in their networks had worse global cognition than those with a greater proportion of friends. This coincides with our original hypothesis and is in line with previous evidence that greater social engagement with friends is associated with better cognitive functioning in later life (Béland, Zunzunegui, Alvarado, Otero & de Ser, 2005; Windsor, Gerstof, Pearson, Ryan & Anstey, 2014). These findings are also consistent with previous research that found that family-focused networks were associated with worse health outcomes than friend-focused networks (Shiovitz-Ezra & Litwin, 2012). Prior research has demonstrated that older adults often prune suboptimal friends from their networks as they age, whereas suboptimal family members remain within social networks (English & Carstensen, 2014). Relationships with family members may be viewed as more of an obligation whereas friendship are voluntary in nature. Prior research has found that interactions with friends are a greater source of immediate joy (Larson, Mannell & Zuzanek, 1986) and provide greater companionship through informal social activities compared to family members (Huxhold, Miche & Schüz, 2013). The data in our study, however, are cross-sectional and thus cannot directly examine the influence of adaptive social pruning.

Further, having a greater proportion of family members in one's network may negatively influence cognition by restricting the number of friendships one can actively maintain. Prior research has found that the number of friendships a person has is dependent on the number of family members and vice versa (Wrzus, Wagner & Neyer, 2012). This is because there is

an absolute limit to the number of social relationships a person can actively maintain, and having a large family constricts the number of friendships an individual is able to preserve (Roberts et al., 2009). Compared to family relationships, friendships require more active maintenance, including shared activities and communication (Roberts & Dunbar, 2011), and this active engagement may be beneficial for cognitive functioning in later life (Brewster et al., 2014; Jonaitis et al., 2013; Verghese et al., 2003; 2006). Thus, individuals with a greater proportion of family in their networks may engage in fewer of these beneficial activities than those with a greater proportion of friends.

Further, composition was found to moderate the effects of social network size. Specifically, a large network size was only associated with better cognition among individuals whose networks comprised of a greater proportion of friends compared to large networks comprised of a greater proportion of family. This positive association between size and cognition is consistent with prior research that found that having a larger social network was associated with better cognitive outcomes compared to those with small networks (Barnes et al., 2004; Bennett et al., 2006; Crooks et al., 2008). These findings additionally extend past research by demonstrating that not only the size of the network matters, but the individuals who compose the network also matter. Thus, larger networks are only associated with better cognition when they include a greater proportion of friends, but not family.

Future research should further investigate the underlying mechanisms that drive these differences between older adults with different social network compositions. In particular, the current study can only speculate on social pruning mechanisms and maintenance behaviors to preserve friendships as underlying mechanisms that may drive the positive association between having a large network comprising more friends than family members and cognitive functioning. Specifically, future research should directly examine whether social engagement and/or relationship satisfaction mediates this relationship.

Associations within Ethnic/Racial Groups

We did not find a significant difference in network size across the three ethnic/racial groups, inconsistent with prior research (Ajrouch et al., 2001). We did, however, find that network composition varied based on ethnicity/race. African Americans and Caribbean Hispanics reported greater proportions of family in their social networks compared to nonHispanic Whites, which coincides with previous findings (Ajrouch et al., 2001; Nguyen, 2017). In addition, we found that Caribbean Hispanics reported more family in their networks compared to African Americans. We also found ethnic and racial differences in global cognition such that non-Hispanic Whites had higher scores than African Americans and Caribbean Hispanics, consistent with previous literature on ethnic/racial inequalities in cognitive aging (Brewster et al., 2014; Wilson et al., 2016)

While previous research has examined ethnic/racial differences in the structure of older adult's social networks, little work has investigated how network characteristics may operate differently within ethnic/racial groups to influence cognitive outcomes. Prior research found social engagement had a stronger impact on cognition in non-Hispanic Whites compared to African Americans (Barnes et al., 2004). In another cross-sectional study, social resources in non-Hispanic Whites and African Americans was positively associated with global cognition

outcomes in both groups (Kats et al., 2016). In contrast, our findings suggest that social network size and composition were only significantly associated with cognition among African Americans. In particular, we found that African Americans with large networks comprising a greater proportion of friends had better global cognition than those with large networks comprising a greater proportion of family and those with small networks, regardless of composition.

Our finding of associations between social network characteristics and cognition among African Americans, but not non-Hispanic Whites, may be due to relatively higher levels of cognitive functioning in non-Hispanic Whites compared to African-Americans in the current sample, suggesting that non-Hispanic Whites have access to other resources to maintain cognitive health that overshadow inter-individual variability in psychosocial factors. African American-White inequalities in cognitive aging have been partly attributed to disparities in exposure to adversity, such as segregation, discrimination, and lower social status (Zhang, Hayward & Yu, 2016) and these disadvantages widen across the life course (Shuey & Willson, 2008). Our results suggest that social networks may play a role in maintaining cognitive functioning among African Americans and highlight a potential modifiable social factor to reduce racial disparities.

We, however, did not find a significant association between social network characteristics and cognition in Caribbean Hispanics, who also obtained lower cognitive scores than non-Hispanic Whites. This finding is partially consistent with previous research that found that other psychosocial factors differentially impact cognition across African American and Hispanic groups (see Zahodne et al, 2017a; Zahodne et al., 2017b). Of note, Hispanics in this study reported the lowest proportion of friends in their social networks, and there was less variability in both social network size and composition compared with the other two groups (see Table 1). Future research is necessary to understand what underlying factors, such as residence in an ethnic enclave, immigrant status, acculturation stress or cultural beliefs, influence the utility of social resources on cognitive functioning in this ethnic group.

Limitations and Future Directions

Although the current study sheds light on the relationship between cognitive functioning and network characteristics in later life, there are some notable limitations. First, the current study was cross-sectional and therefore the direction of the association is unknown. That is, those who have better cognitive functioning may, in turn, be able to have or maintain larger social networks as well as more connections with friends rather than family members. Conversely, individuals with cognitive decline may experience a mobilization of family networks but not a similar mobilization among friends. Caretakers are often comprised mostly of family members (see Family Caregiver Alliance, 2016). While prior research has found that social network size influences subsequent longitudinal trajectories of cognition, controlling for baseline cognitive performance (see Sörman et al., 2017), we were unable to draw this conclusion in the current study. Future research is necessary to examine the longitudinal relationship between network characteristics and cognitive functioning in later life.

Second, a measure of cultural values or beliefs was not available in the current study. Therefore, we can only speculate regarding underlying cultural differences that may be driving our findings on ethnic/racial variation. Prior work has suggested that African American and Caribbean Hispanic cultures are more collectivistic, whereas non-Hispanic Whites tend to be more individualistic (Patterson, 2004; Torelli & Shavitt, 2010), which may impact the relative importance of network size and composition. Third, more detailed information on the characteristics of social network members would further clarify the link between social networks and cognition. Previous research looking at social network characteristics have often constructed specific network typologies by conducting cluster analyses on an expansive set of social network variables, such as size, composition, frequency of contact, positive and negative interactions, and social support. Fourth, some evidence suggests that not all members of one's social network are beneficial. Interactions with network members may be positive and/or negative, and subsequently lead to either increase or decreases in cognition (i.e., Windsor et al., 2014). Fifth, social network characteristics in the current study were self-reported and may therefore be influenced by bias (i.e., social desirability, recall bias). It may additionally be the case that those with worse cognitive functioning may be less capable of accurately recalling the size and composition of their social network. However, it is noted that a sensitivity analysis excluding participants with MCI revealed identical effect sizes. Sixth, although the current study had a diverse, community-based sample of older adults, future studies could replicate the current findings in larger samples as well as explore the intersectionality of race and gender in relation to cognitive aging.

Finally, although a significant 3-way interaction between race, size and composition was found, the effect size was small, explaining only an additional 3% of the variance in global cognition. Of note, the effects of social network characteristics and their interactions were larger than the effects of health (i.e., physical illness burden accounted for 2% of the variance in global cognition), which has been demonstrated in prior research to be an important contributor to cognitive aging (Gunstad, Paul, Cohen, Tate & Gorden, 2006). As there is no effective treatment for dementia, we believe that research on all potential modifiable protective resources is worthwhile. Prior research has suggested, via simulation models, that delaying dementia by 5 years will reduce the prevalence of dementia by 41% (Zissimpoulos, Crimmins & St. Clair, 2014). Therefore, future research should investigate the role that social resources, such as the size and composition of one's social network, may play for cognitive aging.

Conclusions

In conclusion, the current study helped to shed light on ethnic and racial differences in the relationship between social network characteristics and cognitive functioning in later life. Specifically, we found that larger social networks comprising a greater proportion of friends were only associated with better cognitive performance among African Americans, but not non-Hispanic White or Caribbean Hispanic participants. Future longitudinal research is needed to examine the potential relevance of racially-patterned structural advantages and disadvantages, as well as cultural values, in determining the cognitive effects of social resources.

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Public Significance Statement

The current study's findings suggest that social network characteristics may be a potentially relevant and modifiable social resource for reducing racial disparities in cognitive aging. These findings specifically emphasize that friendships may be particularly important for maintaining cognitive functioning for African American older adults.

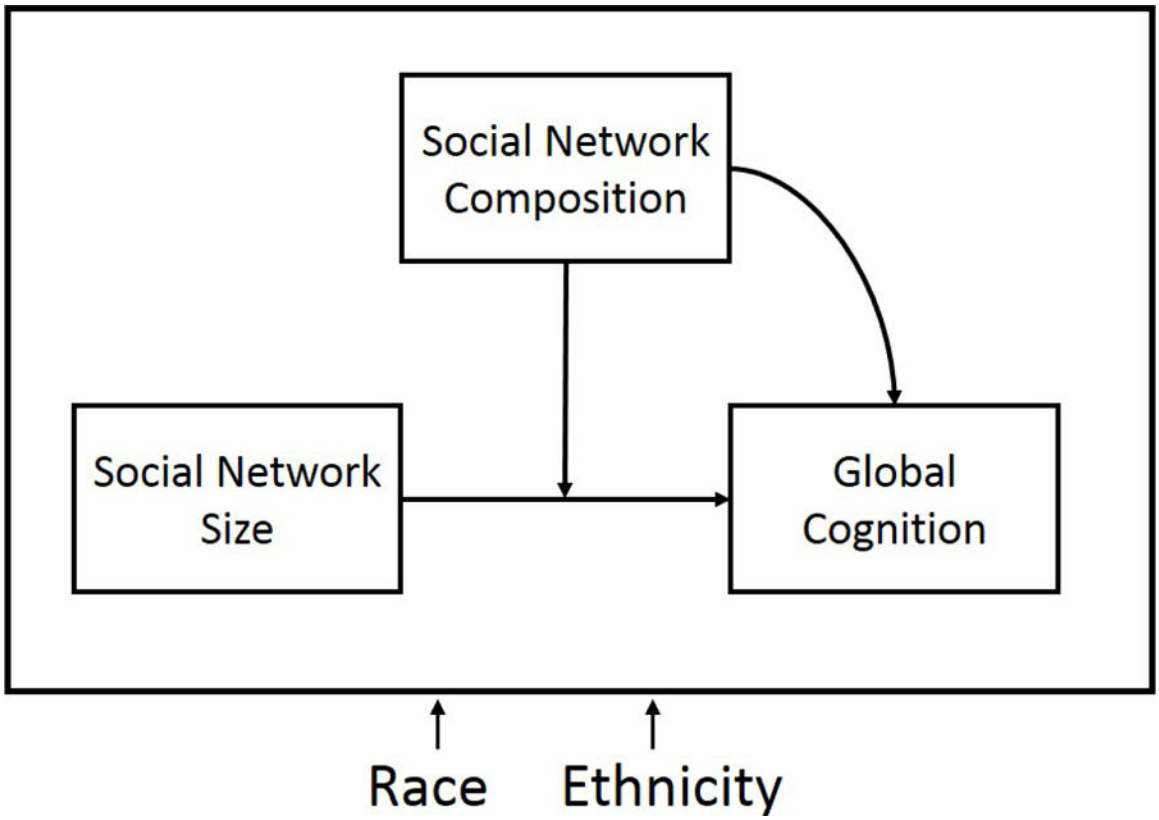

Figure 1.
Conceptual Figure of relationship between Social Network Characteristics, Race/Ethnicity and Global Cognition.

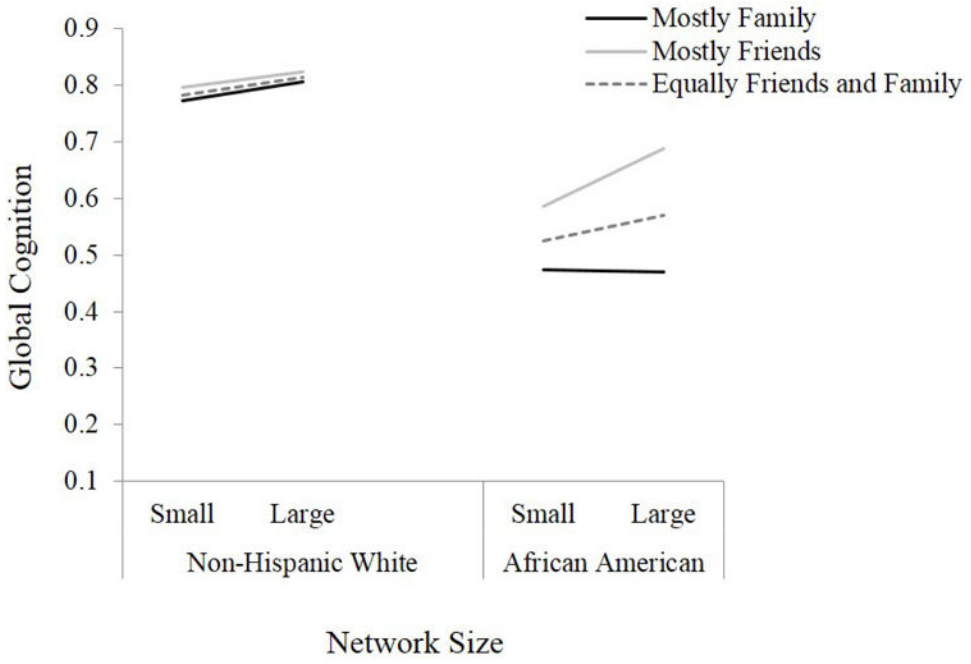

Figure 2. African American × Size × Composition Interaction for Cognitive Functioning.

When decomposing this interaction, the mean and −/+ 1 SD were graphed. In this figure, the mean of the network composition variable corresponds to networks that comprised roughly equal proportions of friends and family (i.e., 55.85% family). One standard deviation above this mean corresponds to networks that comprised more family than friends (i.e., 80.38% family), and one standard deviation below this mean corresponds to networks that comprised more friends than family (i.e., 30.36% family).

Table 1.

Means and Standard Deviations on Social Network Characteristics and Cognitive Outcomes across Ethnic/Racial Groups.

	Whole Sample		Non-Hispanic White		African American		Caribbean Hispanic	
	(*n* = 548)		(*n* = 170)		(*n* = 225)		(*n* = 153)	
Age	74.45	(6.20)	74.01	(5.98)	74.45	(6.33)	75.69	(6.12)
Female (%)	63.50		54.90		68.50		64.90	
Education (years)	13.17	(4.45)	16.01	(3.14)	13.82	(2.90)	9.05	(4.63)
Burden	2.66	(1.47)	2.26	(1.27)	3.00	(1.48)	2.58	2.58
CESD	1.27	(1.76)	1.10	(1.51)	1.27	(1.80)	1.49	1.95)
Social Network Size	11.12	(12.22)	1.10	(11.82)	12.20	(16.55)	10.65	(6.71)
Composition (% family)	55.95	(24.41)	47.41	(25.28)	56.61	(22.99)	62.18	(22.96)
Global Cognition	0.67	(0.53)	1.03	(0.38)	0.63	(0.45)	0.33	(0.54)

Table 2

Global Cognition regressed on Network Size and Composition Across Whole Sample

	B	SE	β
Age	−.12	.02	−.23***
Female	.09	.04	.08*
Education	.05	.01	.40***
Married	.01	.04	.01
Burden	−.03	.01	−.09**
Black	−.22	.04	−.22***
Hispanic	−.30	.05	−.27***
Size	.01	.02	.02
Composition	−.04	.02	−.08*
Size × Composition	−.03	.01	−.09*
R^2	.51		

Note.

* = $p < .05$

** = $p < .01$

*** = $p < .001$

Table 3

Global Cognition regressed on Network Size, Composition and Ethnicity/Race

	B	SE	β
Age	−.12	.02	−.22***
Female	.08	.04	.08*
Education	.05	.01	.40***
Married	.00	.04	.00
Burden	−.03	.01	−.08*
Black	−.24	.05	−.24***
Hispanic	−.33	.06	−.30***
Size	.07	.05	.15
Composition	−.01	.03	−.02
Size × Composition	.02	.03	.06
Size × Black	−.02	.06	−.03
Size × Hispanic	−.07	.08	−.04
Composition × Black	−.07	.04	−.09
Composition × Hispanic	−.02	.05	−.02
Size × Composition × Black	−.08	.04	−.21*
Size × Composition × Hispanic	−.03	.07	−.02
R^2	.52		

Note.

* = $p < .05$

** = $p < .01$

*** = $p < .001$