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Perceived Cognitive Impairment among African American elders: health and functional impairments in daily life

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Abstract

Objectives—The Center for Disease Control began to assess Perceived Cognitive Impairment in 2009, yet there has been no in-depth study of how perceived decline in thinking or memory skills may be associated to the health and lifestyle of an independent community-dwelling older person. Among urban-dwelling older African Americans who are at elevated risk for cognitive impairment and dementia, we know even less regarding the interaction of these risk factors.

Method—Five hundred and one African American elders ($n = 501$) between the ages of 55 and 95 with an average age of 70.73 years ($SD = 8.6$ years) participated in telephone interviews.

Results—Approximately one-third of the elders reported that their memory, thinking skills, or ability to reason was worse than a year ago ($n = 150$; 29.9%) and 25% of this group ($n = 38$) reported that this Perceived Cognitive Impairment impacted their daily activities and/or warranted a consultation with their doctor. Bivariate analyses indicated that Perceived Cognitive Impairment was associated with increased health problems, mobility limitations, depressed mood, and lower social functioning.

Conclusion—Elders who reported that cognitive problems impacted their daily functioning reported the greatest health and mental health problems. Perceived Cognitive Impairment is an important health variable with implications for an older adult's overall health, mobility, and mental health.

Keywords

African American; mild cognitive impairment; psychological and social aspects of dementia; age associated memory problems; physical health status; functional status

The Center for Disease Control (CDC) has recently proposed a focus on cognitive health with a major push towards preventative efforts aimed at Alzheimer's disease and other dementias and in 2005, Congress allocated funds to the CDC to launch the Healthy Brain

Initiative, a part of its Healthy Aging Program in the National Center for Chronic Disease Prevention and Health Promotion (Anderson & McConnell, 2007; Labarthe, 2007). These efforts are reflective of the growing awareness among the public that the risk of Alzheimer's disease and other dementias, though common among the elderly, are not necessarily inevitable (*The CDC Healthy Brain Initiative Progress*, 2011). Moreover, Alzheimer's dementia rarely emerges as a full-blown disorder of rapid onset, but rather is usually part of a gradual decline that is associated with declines in cardiovascular health (Grodstein, 2007), activity limitations (Rockwood & Middleton, 2007), and increased social isolation (Bassuk, Glass, & Berkman, 1999; Fratiglioni, Paillard-Borg, & Winblad, 2004). It is unknown at this time how Perceived Cognitive Impairment is related to these risk factors and whether or not it is possible to measure such decline among the primary prevention target: healthy and independent community-dwelling older adults (Prohaska & Peters, 2007). Minorities and seniors with less education appear to be at increased risk for Alzheimer's dementia, and thus it makes sense to begin a study of Perceived Cognitive Impairment in this population (Cherry & Reed, 2007).

The public's perception of cognition in old age is focused on Alzheimer's disease and lacks awareness of scientific developments in cognitive health, such as the importance of specific risk factors, e.g., cardiovascular risk factors (CVRFs) and cognitive function (Anderson, Day, Beard, Reed & Wu, 2009; Lichtenberg, 2009). Viewing Alzheimer's disease as a chronic condition such as cancer, diabetes, and hypertension makes early detection and treatment a critical objective. During the past decade, there have been several attempts to create new early detection markers. The focus on mild cognitive impairment (MCI) is one such successful strategy. The measurement of Perceived Cognitive Impairment is another.

In an effort to promote awareness of cognitive health, the CDC launched *The Healthy Brain Initiative: A National Public Health Road Map to Maintaining Cognitive Health* in 2007. Within the public health sector, there is a dearth of information regarding the experience of cognitive decline. The goal was to measure the number of persons experiencing Perceived Cognitive Impairment at the state and local levels. To address this, five states included questions assessing Perceived Cognitive Impairment into the state data collection of the Behavior Risk Factor Surveillance System (BRFSS) in 2009. The BRFSS obtains information regarding health risk behaviors, clinical preventive health practices, and health-care access, primarily related to chronic disease and injury, from a representative sample of adults in each state. The results for Perceived Cognitive Impairment were startling.

According to the CDC, more than 16 million adults aged 18 years and older in the United States are estimated to be living with Perceived Cognitive Impairment (*The CDC Healthy Brain Initiative Progress*, 2011). Most of these are older adults who report a decline in their thinking skills (e.g., memory loss, frequently forgetting appointments, difficulties with judgment, and trouble coming up with the right words to name objects, etc.) and that confusion or memory loss is happening more frequently or has grown worse over the past 12 months. It is expected that the number of people experiencing Perceived Cognitive Impairment will likely double over the next two decades, precipitating a public health crisis for which many states are largely unprepared (*The CDC Healthy Brain Initiative Progress*, 2011) although the rates vary across states. For example, the percentage of adults aged 50

and older who endorsed a survey item indicating cognitive decline in the past year ranged from 6.0% in Florida to 14.9% in Michigan. The numbers were even higher among the African American (AA) population in Michigan (21.9%).

Why Perceived Cognitive Impairment vs. objective memory performance?

A parallel may be drawn between the studies of cognitive complaints to research on social support. Blazer, Hays, Fillenbaum, & Gold (1997) make this argument in their article on self-reported memory complaints. Social support is a multifaceted construct that includes emotional aspects and instrumental or tangible aspects. For example, an elder may be surrounded by potentially supportive persons who offer assistance, a listening ear, occasional transportation, etc., yet, the perception of the support may be that the support is inadequate. This could be due to a mismatch between the amount of support available and the amount of support needed or it could be reflective of discomfort with receiving help and accessing support. Therefore the perception of adequacy of social support, which takes the context of an elder and his or her perspective into account, has largely replaced more detailed evaluations of social networks and frequency of social contact in many studies. Moreover, adequacy of social support has been shown to be associated with mortality in older adults (Berkman, Glass, Brisette, & Seeman, 2000), something that objective measures of social support do not necessarily predict. Perceived health is a similar concept and has substantial predictive value for mortality, even after accounting for demographic and medical risk factors (Benjamins, Hummer, Eberstein, & Nam, 2004).

Cognition may be a similar variable. A perceived decline in thinking skills that interferes in everyday functioning is perhaps indicative of a larger picture of vulnerability, which may or may not include objective memory impairment. Perceived Cognitive Impairment may be a faster, simpler, and cheaper method of evaluating adequacy of memory. It is not meant to replace diagnosis, for which neuropsychological evaluation of memory and other potential causes (depression) must be assessed to determine potential etiology and whether diagnostic criteria are met. Rather, Perceived Cognitive Impairment, if it is shown to be a meaningful measure, increases reach and efficacy for public health agencies to measure cognitive health, increased awareness about the importance of cognitive health, and can facilitate a discussion about changes in lifestyle that could decrease risk for developing dementia, such as increasing physical activity and exploring barriers to exercise (e.g., chronic pain). Such a discussion would also be appropriate and useful for depressed elders because exercise has been identified as an effective intervention for depression (Dunn, Trivedi, Kampert, Clark, & Chambliss, 2005).

Subjective memory complaints vs. Perceived Cognitive Impairment

Seniors generally accept that certain cognitive changes occur, such as memory problems or slower cognitive processing, with increasing age. There is a research literature focused on measuring the experience of such cognitive changes, often referred to 'subjective memory complaints' (SMCs), although there is a widespread disagreement about what this dissatisfaction means. The focus of this research has been on determining whether an elder has 'actual' or objective cognitive difficulties (Jessen et al., 2007) or whether the memory

complaints are emotionally based and a sign of distress (Bazargan & Barbre, 1994; Doaga & Lee, 2008).

In the past 15 years, the study of such SMC has focused on examining the relationship between subjective and objective cognitive problems in both cross-sectional and longitudinal studies and identifying its correlates, notably depression (Bazargan & Barbre, 1994; Blazer et al., 1997; Minett, Da Silva, Ortiz, & Bartolucci, 2008; Zandi, 2004). This has led to an underlying assumption that some elders' cognitive complaints are indicative of distress rather than verifiable cognitive difficulties. Yet, other researchers have found that elders who complain about their memory are at increased risk for 'actual cognitive decline' when the follow-up period for the study includes longitudinal follow-up (Comijs, Deeg, Dik, Twisk, & Jonker, 2002) or assessment using neuropsychological tests (Jessen et al., 2007). Meanwhile, other researchers have focused on geriatric depression as 'the canary in the coal mine' that appears to be part of the dementing process (Alexopoulos, Young, & Meyers, 1993) and point out that depression is often comorbid with other medical diseases signaling a change in health status and lifestyle (Krishnan et al., 2002).

Indeed, one consistent finding is that elders who endorse SMC have lower global quality of life, even on a single-item measure (Mol et al., 2007), and that this relationship persists over time (Mol, van Boxtel, Willems, & Jolles, 2006). Recent studies have attempted to understand how this global rating of quality of life may translate into specific lifestyle differences between elders who endorse SMC and those who do not. A large German study of 2389 unimpaired elders used cluster analysis to identify three distinct groups of elders: one with no memory complaints, another group with memory complaints but no impairment in daily life, and the last group, which had both memory complaints and impairment on individual tasks of daily living (Jessen et al., 2007). Another recent European study of adults over age 65 found that SMCs were associated with every measure of quality of life, global and specific (e.g., poor perceived health, difficulties in daily living, emotional problems such as depression/anxiety, chronic pain, activity/fitness level, and social support) (Montejo, Montenegro, Fernández, & Maestú, 2012).

One weakness in this literature is the fact that many studies of SMC have failed to include, or did not document, the inclusion of ethnic minorities (e.g., Pearman & Storandt, 2004; Hertzog, Park, Morrell, & Martin, 2000; Snitz, Morrow, Rodriguez, Huber, & Saxton, 2008; Zandi, 2004). Yet older African Americans are at increased risk for reporting cognitive decline and for developing Alzheimer's disease (Lichtenberg et al., 2009; Tang et al., 1998). One exception is the work of Bazargan and Barbre in the early 1990s (1992, 1994) which examined self-reported memory problems among a large sample of AA elders ($n = 1250$). Consistent with other studies, they found that depression was the strongest predictor of memory complaints, as well as stressful life events and poor health, in this population. It is noteworthy that while 18% of elderly Black women reported clinically significant depressive symptoms, only 3.2% admitted that they needed any help. This indicates a hesitation to seek professional assistance that may be part of the larger picture for health disparities among African Americans.

Little is known regarding how perceived decline in thinking or memory skills may be reflected in the broader health, mental health, and lifestyle of an independent community-dwelling older person and this is one focus of the current study. In a separate but related literature, objective measures of cognition suggest that factors such as depression and low social support are associated with poor cognitive skills (Ficker, MacNeill, Bank, & Lichtenberg, 2002; Fishbain, Cutler, Rosomoff, & Rosomoff, 1997). One study focused on how health and chronic pain impact cognition and found that mental flexibility is particularly vulnerable, a skill that is vital for elders to maintain independence (Karp et al., 2006). Among African Americans, less is known regarding the interaction of risk factors such as Perceived Cognitive Impairment, health problems, chronic pain, mobility limitations, and living in often economically vulnerable circumstances and whether or not these complaints would also be associated with objectively measured cognitive difficulties. Although it is beyond the scope of this study to measure objective cognitive difficulties, we hope to assess the relationships between the other study variables using the questions designed by the CDC to measure Perceived Cognitive Impairment, in an effort to establish the utility of this construct and measure.

The specific aims of our research are to document various aspects of Perceived Cognitive Impairment (e.g., cognitive decline over the past 12 months, cognitive problems that interfere with everyday activities or prompt one to speak to a healthcare professional). We will explore demographic and health factors associated with the continuum of Perceived Cognitive Impairment in a specific cultural ethnic group: African Americans living in and around the city of Detroit. The present study seeks to answer the following research questions to establish construct validity for Perceived Cognitive Impairment:

1. Is the measure of Perceived Cognitive Impairment sensitive to perceived memory/thinking skills decline in the past year as evidenced by a higher prevalence among a group of older African Americans?
2. What portion of the elders who report cognitive decline report that their cognition also interferes with their daily functioning or leads them to consult with a doctor about the problem?
3. Is the Perceived Cognitive Impairment measure sensitive to differences in health and lifestyle (e.g., number of health conditions, mental health, mobility limitations, and social functioning) between three groups of elders: 1) those who report no decline in their memory/thinking skills, 2) those who report decline with no functional impairment, and 3) those whose daily functioning is being affected by cognitive difficulties?

Method

Participants

Sample sociodemographic characteristics are found in Table 1 (see the first column for the entire sample). Five hundred and one participants ($n = 501$) were recruited from a Participant Registry of African American (AA) elders (Chadiha et al., 2011) who were willing to take part in research studies (see Procedure for details). The elders were all

between the ages of 55 and 95 with an average age of 70.73 years ($SD = 8.6$ years). Lichtenberg (2011) compared the overall demographic characteristics of the Participant Registry to those who took part in a population-based randomly sampled health survey and found that the Participant Registry individuals had the same prevalence of chronic diseases, but had somewhat greater functional abilities than the random sample. The current sample was 86.2% female, which reflects a slightly greater proportion of females than in a previous Detroit Central City Survey which found that 70% of the older adult cohort in the city was female (Chapleski, 2002), but it is not inconsistent with other studies of older AA adults (e.g., Dennis & Neese, 2000; Manly, Byrd, Touradji, & Stern, 2004). The majority of the sample (82.6%) lived in the city of Detroit and the remainder resided in the larger metropolitan area. Approximately one-quarter were married (24.6%) and roughly one-third were widowed (30.3%) or divorced (29.9%). More than half of the sample lived alone (53.9%), and 100% of the elders lived independently in the community either in single family dwellings (65.8%), apartments or condominiums (18.9%), specialized housing for seniors (e.g., senior apartment buildings or independent living facility) (10.9%), or a split-house or duplex (4.4%).

Education ranged from less than nine years to postgraduate. Most of the participants had graduated from high school (24.6%) or had some college experience (41.2%), and a substantial subset had college degrees or post-graduate degrees (28.6%). Only 28 of the elders (5.6%) had less than a high school education and this number included five elders (1.0%) who had less than a 9th grade education. Despite being a fairly well-educated sample, most of the sample (66.5%, $n = 333$) received at least half of their income from Social Security (SS), which includes Social Security Disability and Supplemental Security Income payments. The breakdown of percentage of income from SS is as follows: 136 elders (22.4%) receive 50%–74% of income from SS, 85 elders (17.1%) receive 75%–99% of income from SS, and 112 elders (22.4%) receive 100% of their income from SS. These figures are roughly equivalent to national data: 71.0% African Americans aged 65 and above receiving 50% or more of their income from SS (Leigh, 2011). In terms of actual dollars, the average monthly SS retirement benefit received by AA women in 2012 was \$1,014.42 and AA men's benefits were only slightly higher at \$1,121.50 (Social Security Administration, 2013). This means that in terms of education, this sample could be considered middle class, but in terms of income level, the majority of African Americans in our sample are likely at a disadvantage compared to their college-educated White counterparts, especially when one considers that less than a quarter of the sample was married with access to a dual-income.

Procedure

Participants were recruited from volunteers in the Healthier Black Elders Center (HBEC), a joint collaboration between WSU's Institute of Gerontology and University of Michigan's Institute of Social Research (Chadiha et al., 2011). After receiving Institutional Review Board and HBEC approval, trained community volunteers contacted Participant Registry (PR) members and asked if they would like to participate in a telephone interview lasting approximately 45 minutes. If the elder responded in the affirmative, an interview was scheduled with one of our trained research assistants, most of whom were college-educated AA seniors from the community. Exclusion criteria were not speaking English, hearing

difficulties that prevented clear communication over the telephone, and an inability to understand the survey due to cognitive difficulties. Besides the 501 participants who completed the interview, 53 other eligible PR members were invited to participate. Of this group, 37 were not available after four call-backs, 10 were 'not interested' or refused to participate, three telephone numbers were disconnected, and two were not sufficiently cognizant to understand the interview questions. Three participants did not complete the interview. Each participant who completed an interview was mailed a \$15 gift card for their time.

Measures

Perceived Cognitive Impairment—Based on questions developed by the Michigan Dementia Coalition, which were included in the Michigan Department of Community Health's BRFSS telephone survey (Lichtenberg et al., 2009):

1. Are your memory, thinking skills, or ability to reason worse than a year ago?
2. If yes, has this interfered with your everyday activities (e.g., shopping, paying bills, driving)?
3. Has a physician or other health care professional evaluated your memory or thinking change?

Depressed mood—One question from the Five-Item Mental Health Screening Test (Berwick et al., 1991) was used in our study: 'during the past month, how much of the time have you felt downhearted and blue?' A similarly worded question has been incorporated into the widely used Short-Form Health Survey (SF-12; Ware, Kosinski, & Keller, 1996). Respondent choices were provided and scored 1–6 in order of severity (1 = none of the time, 2 = a little of the time, 3 = some of the time, 4 = a good bit of the time, 5 = most of the time, and 6 = all of the time). A single-item depression measure has demonstrated predictive value in terms of future health (Kane & Kane, 2000) and been used to assess depression level in previous published studies (Yochim, Kerkar, & Lichtenberg, 2006; Yochim, Mast, & Lichtenberg, 2003).

Social functioning—The Social Production Function Instrument Measuring Level of Need Satisfaction (SPF-IL) was used (Nieboer, Lindenberg, Boomsa, & van Bruggen, 2005). Five subscales of social functioning were scored: affection (feeling loved), behavioral confirmation (feeling appreciated), status (feeling important), comfort (having a lack of physical discomfort), and stimulation (feeling engaged). Each subscale had three items and each item had a range of responses from never (0), sometimes (1), often (2) or always (3) with high responses meaning a greater level of social needs being fulfilled. The internal consistency coefficient for this study was very good ($\alpha = .85$). Scores ranged from 7 to 45 (0–45 possible range) with an average score of 30.66 ($SD = 7.3$) and were normally distributed.

Cardiovascular risk factors—Participants were read a checklist of a broad range of health problems and asked which of the following conditions they have or have had in the past. CVRFs were extracted from this list and each risk factor category was given a point

value of '1' then added together for a sum total of risk factors: Diabetes type 1 or type 2 (1) + high blood pressure (1) + stroke (1) + heart attack, bypass surgery, or other heart problem (1). The average number of CVRFs was 1.17 (SD = .87) and the percentage of the sample for each total number of CVRFs was 4 (0.8%), 3 (6.2%), 2 (23.9%), 1 (47.2%), and 0 (21.9%).

Health problems—Participants were read a checklist of a broad range of health problems and asked which of the following conditions they have or have had in the past. Besides CVRFs described above, patients were asked if they had arthritis (rheumatoid, osteoarthritis or unknown = 1), osteoporosis (1), cancer (colon, lung, breast, prostate, or other = 1), kidney problems (1), liver problems (1), lung problems (1), seizures (1), Parkinson's disease (1), bladder control problems (1), psychiatric disorder (1), neurological problem (1), balance problem (1), difficulty walking (1), nerve damage (1), spine/back/neck problem (1), uncorrected vision problem (1), hearing problem (1), and other significant health problem (1). Out of the 22 possible health issues listed (including CVRFs), scores ranged from 0 to 14 (5.6% –0.2%, respectively) with 3.65 being the average number of health problems (SD = 2.4). Median and mode ($n = 87$) for the total number of health problems was 3.0.

Mobility problems—Participants were asked to rate the following eight domains of mobility: heavy housework (e.g., washing floors, shoveling snow), walking up and down a flight of stairs without help, walking half a mile without help (about eight ordinary blocks), pulling or pushing large objects (like a living room chair), stooping/crouching/ kneeling, lifting or carrying weights over 10 lbs (like a heavy bag of groceries), reaching or extending arms above shoulder level, and writing/handling/fingering small objects. These mobility items are based on the questions used in the New Haven Established Populations for Epidemiologic Studies of the Elderly (EPESE), a longitudinal study of community-dwelling elders age 65 designed to oversample AA elders (Mendes de Leon, Gold, Glass, Kaplan, & George, 2001). Each domain was rated according to the participant's ability to perform the task on a 5 point scale (0 = no difficulty at all, 1 = a little difficulty, 2 = some difficulty, 3 = a lot of difficulty, and 4 = just unable to do it). Scores ranged from 0 to 32 with a mean of 8.4 (SD = 7.4).

Chronic pain—Participants were asked, 'During the past year, were you often troubled with pain?' and if they responded affirmatively, they were asked two additional questions to assess the level of pain and whether or not the pain interfered with everyday functioning. If the participant reported having pain *sometimes*, but not *often*, their answer was recorded as 'no' and the pain assessment was terminated. If the respondent was often troubled with pain, he or she was asked to rate the pain as mild (1 point), moderate (2 points), or severe (3 points). Elders who endorsed the interview item that stated their pain made it difficult for them to do their usual household chores or work received an additional point. A majority of the sample reported being often troubled with pain ($n = 309$; 61.8%) with approximately equal numbers of participants in this group rating their pain as 'mild' ($n = 96$; 31.2%), 'moderate' ($n = 113$; 36.7%), or 'severe' ($n = 99$; 32.1%). One hundred eighty elders (58.3% of 309 participants reporting chronic pain) stated that their pain interfered with their daily

functioning. For the entire sample of 501 participants, the mean total score for chronic pain was 2.2 (SD = 1.9).

Results

Prevalence of Perceived Cognitive Impairment

Approximately one-third of these metro Detroit elders reported that their memory, thinking skills, or ability to reason was worse than a year ago ($n = 150$; 29.9%). Since the participants came from a volunteer registry and were somewhat better off functionally than a random sample in the geographic area, these results may actually slightly underestimate the problems in this urban community. Far fewer numbers of elders reported that their Perceived Cognitive Impairment interfered with their ability to perform everyday activities such as shopping, paying bills, or driving ($n = 26$) or had been evaluated by a physician or other health care professional ($n = 24$). Because 12 participants responded yes to all three questions, roughly 25% ($n = 38$) of the 150 elders who reported decline in cognition in the past year also reported that Perceived Cognitive Impairment interfered with their daily activities and/or warranted a consultation with their doctor.

Group comparisons by Perceived Cognitive Impairment vs. No Cognitive Impairment

Analyses comparing demographic groups who endorsed Perceived Cognitive Impairment over the past year (e.g., elders who answered 'yes' to the question 'Are your memory, thinking skills, or ability to reason worse than a year ago?') vs. those elders who did not report Perceived Cognitive Impairment are found in Table 1. *T*-tests were used for continuous variables of age, number of health problems, CVRFs, depressed mood, and social functioning. Chi-square analyses were used for categorical variables (gender, education category, and single health conditions). No differences were found in demographics (gender, age, education, marital status) or living arrangement (alone vs. with others) between elders who reported Perceived Cognitive Impairment and elders who denied Perceived Cognitive Impairment. Three variables reached significance in these analyses: number of health problems, depressed mood, and social functioning. Elders who reported Perceived Cognitive Impairment ($n = 150$; 29.9%) were found to have significantly more health problems ($t(501) = -3.36$; $p < .001$), more frequent depressed mood ($t(501) = -3.27$; $p < .001$), lower social functioning ($t(501) = 5.57$; $p < .001$), more chronic pain ($t(501) = -2.83$; $p < .01$), and more problems with mobility ($t(501) = -2.97$; $p < .01$).

Group comparisons of elders who report Perceived Cognitive Impairment with/without interference in daily functioning

Elders whose cognitive impairment did not interfere with daily functioning ($n = 112$) were compared to elders whose cognitive complaints did interfere with daily functioning and/or had their cognition evaluated by their doctor ($n = 38$). The results of these analyses are found in Table 2. *T*-tests and chi-square analyses were used for the appropriate variables as described above. No differences for gender, age, education, and marital status were found although elders who reported interference in daily functioning from cognitive impairment were significantly less likely to live alone (36.8%) than elders without such interference (56.2%) ($\chi^2 = 4.28$, $p < .05$). There was a trend for the number of CVRFs to be higher in the

elders whose cognitive impairment interfered with daily functioning or who had been evaluated by their physician ($t(150) = -1.93$; $p = .056$) compared to those whose cognitive impairment had not interfered with daily activities. These same elders who endorsed Perceived Cognitive Impairment that interfered with daily functioning and/or who consulted their doctor about their cognition also had significantly more health problems ($t(150) = -2.68$; $p < .01$), more frequent depressed mood ($t(150) = -2.76$; $p < .01$), lower social functioning ($t(150) = 2.54$; $p < .01$), more chronic pain ($t(501) = -3.98$; $p < .001$), and more mobility problems ($t(501) = -3.08$; $p < .01$).

Logistic regression

Logistic regression analyses were performed to assess the impact of seven independent variables (age, education, marital status, health problems, cardiovascular problems, depression, social functioning, chronic pain, and mobility problems) on the likelihood that elders would report cognitive impairment (see Table 3). The model demonstrated goodness of fit as measured by an insignificant Hosmer and Lemeshow test ($p > .05$). The full model was statistically significant ($\chi^2(7, n = 493) = 15.95$, $p < .05$) and explained 12.3% of the variance (Nagelkerke R^2). Differences in age and education did not increase or decrease the likelihood of reporting cognitive impairment. Unmarried older adults were 58% more likely to endorse the cognitive impairment item, even after controlling for the other variables in the model, but this odds ratio was a trend that did not reach statistical significance ($p = 0.06$). Depression had a similar pattern (odds ratio showed a 17% increase in likelihood but the variable did not reach statistical significance, $p = 0.15$). Three independent variables made a unique statistically significant contribution to the model (health problems, CVRFs, and social functioning). CVRFs functioned as a strong protective factor: the likelihood of reporting cognitive complaints decreased by 28% for every decrease in the number of CVRFs. Similarly, higher social functioning among the elders was an additional protective factor for cognition. For each unit increase in social functioning (45 points maximum scale), the risk of reporting a cognitive impairment decreased by 6%. Health problems were a risk factor with each health complaint increasing the likelihood of cognitive complaints by 14%, even after controlling for the other factors in the model.

Discussion

There are three major findings of the current study: (1) that urban African Americans report significantly higher levels of Perceived Cognitive Impairment than has been previously reported; (2) that Perceived Cognitive Impairment is related to a broader set of health, mental health and functional abilities than previously recognized; and (3) that there may be utility in using Perceived Cognitive Impairment as a measure of public health in survey research.

The rate of Perceived Cognitive Impairment was far higher than what has been found at the state level overall (14.9%), and even somewhat higher than was found among African Americans across Michigan (21.9%). Almost 30% of the sample of metro Detroiters (29.9%) reported experiencing Perceived Cognitive Impairment (i.e., cognitive decline in memory or thinking skills that had occurred in the past 12 months). This level was almost

five times the rate that was reported by older residents of Florida, and 8% greater than the rate for African Americans across Michigan (21.9%). This alarming rate is also likely an underestimate of the actual rate of Perceived Cognitive Impairment given that the sample was slightly better off functionally than a comparable random sample in the same geographical location. More worrisome perhaps is that so few individuals (only 16% of all persons who endorsed Perceived Cognitive Impairment) sought any medical evaluation or assistance for their cognitive problems.

These findings speak to broad vulnerability of older adults and AA elders in particular. Older adults with low education experience worse health sooner than their counterparts with higher socio-economic status (SES) (Marmot, 2006; Smith & Kington, 1997) and health disparities between AA elders and other ethnic groups are well-documented (Williams, 2005). Moreover, these health disparities are not explained by educational differences or even by differences in access to resources, such as healthcare (House, 2002). Stressful life events are considered an important contributor to health disparities and appear to play a key role in poor health among AAs (Lantz, House, Mero, & Williams, 2005). Interestingly, stressful life events, combined with depression, are strongly associated with self-reported memory problems among African Americans (Bazargan & Barbre, 1994) and should be a focus of future research in this area. Another important area of future study is the determination whether the construct of Perceived Cognitive Impairment is related to objective memory difficulties as measured by neuropsychological tests, although such tests are not necessarily free of misinterpretation and misdiagnosis, particularly among older adults with lower education pre-morbidly (Brooks, Iverson, Holdnack, & Feldman, 2008; Brooks, Iverson, & White, 2007).

One of the broader goals of this study is to expand the public health discussion of cognitive health beyond Alzheimer's disease to a broader focus. For most of the general public, an awareness of cognitive health does not extend beyond an awareness of, and fear of, dementia and Alzheimer's disease in particular (Lichtenberg, 2009). Our findings demonstrate that a decline in cognitive health may likely be inextricably linked to many aspects of general health, namely, cardiovascular health, mental health (depression), chronic pain, and mobility, at least among AA elders. When these challenges are present, social functioning may suffer as well.

Indeed, attitudes towards cognitive problems, often seen as monolithic and a signal for the impending doom of an Alzheimer's diagnosis, may broaden and shift as we learn more about the daily lives and needs of people living with various levels of Perceived Cognitive Impairment in the community. Hyer (2013) in his new book *Psychological Treatment of Older Adults: A Holistic Model* emphasizes that many older adults with mental health problems report a combination of depression, anxiety, pain, sleep, and cognitive problems. Our data support this view that most neurocognitive changes are accompanied by other health and functional changes.

The current data provide some support for the construct validity of the Perceived Cognitive Impairment measure. First, the measurement of Perceived Cognitive Impairment adds to the scientific literature as it anchors cognitive change in time (past year), functional impact

(memory or thinking skills decline that have impacted the ability to function in daily life), and clinical relevance (speaking to a healthcare professional about the Perceived Cognitive Impairment). This contrasts with most subjective memory complaint measures that focus primarily on satisfaction with memory. Second, the linkage of Perceived Cognitive Impairment to depression, increased pain, decreased mobility and decreased social well-being, while not being related to age or education, demonstrates convergent and divergent validity. Third, the measure was highly related to CVRFs, which make up the metabolic syndrome so widely discussed.

The fact that this simple three-question measure has strong associations with so many aspects of overall health and well-being among a group of AA elders suggests that routine clinical screening of Perceived Cognitive Impairment may well be justified for all elders, particularly those who are statistically known to be vulnerable to cognitive complaints (e.g., elders with low education who have multiple health problems). It could serve as a gateway to a discussion about cognitive health, education about risk factors for dementia that are related to lifestyle, such as cardiovascular health and physical inactivity, and efforts towards prevention.

It makes intuitive sense to conceptualize cognitive impairment on a continuum that begins with noticing a decline in one's memory or thinking skills that is innocuous (endorsed by 29.9% of the sample) and progresses to interference with one's daily life or warrants seeking advice from a healthcare professional (reported by 16.0% of the sample). However, it is impossible to draw any such conclusion with our results because the data is cross-sectional. In addition, because the sample is non-representative, being comprised of volunteers in a research registry, it is impossible to say how generalizable these findings are. Nevertheless, this study is the first to use a Perceived Cognitive Impairment measure to add to our understanding of the older urban AA experience of health and quality of life.

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Table 1Demographic comparisons for Perceived Cognitive Impairment vs. No Cognitive Impairment ($n = 501$).

	Entire sample: % or mean/ SD ($n = 501$)	‘Are your memory, thinking skills or ability to reason worse than a year ago?’		t or χ^2
		Yes, Perc. Cognitive Impairment ($n = 150$)	No, No Cognitive Impairment ($n = 351$)	
Female ($n = 431$)	86.0%	86.7%	85.8%	0.07
Male ($n = 70$)	14.0%	13.3%	14.2%	
Age	70.73 (8.6)	71.4 (8.9)	70.5 (8.5)	-1.11
Grades 1 st –11 th ($n = 28$)	5.6%	6.0%	5.4%	2.16
High school/GED ($n = 123$)	24.6%	28.7%	22.9%	
Some college ($n = 206$)	41.2%	38.0%	42.6%	
College grad ($n = 143$)	28.6%	27.3%	29.1%	
Single ($n = 381$)	76.0%	73.3%	77.2%	0.87
Married ($n = 120$)	24.0%	26.7%	22.8%	
Live alone ($n = 270$)	53.9%	51.3%	55.0%	0.56
# Health problems	3.65 (2.4)	4.20 (2.7)	3.42 (2.2)	-3.36
# Cardiovascular risks	1.17 (.87)	1.18 (.93)	1.16 (.8)	-0.23
Depressed mood	2.00 (1.0)	2.23 (1.1)	1.91 (1.0)	-3.27***
Social functioning	30.66 (7.3)	27.92 (7.1)	31.82 (7.2)	-5.57
Chronic pain	2.21 (1.9)	2.59 (1.9)	2.05 (1.9)	-2.83***
# Mobility problems	8.44 (7.4)	9.94 (7.7)	7.80 (7.2)	-2.97

Note: One participant's education level was missing.

*
 $p < .05$,**
 $p < .01$ and***
 $p < .001$.

Table 2

Elders with Perceived Cognitive Impairment ($n = 150$) divided into two groups: elders whose cognition did not interfere with daily life ($n = 112$) vs. those whose cognitive difficulties did interfere with their daily life and/or doctor evaluated their cognition ($n = 38$).

	Perceived Cognitive Impairment that did <u>not</u> interfere with daily life: % or mean (SD) ($n = 112$)	Perceived Cognitive Impairment that <u>did</u> interfere with daily life / doctor evaluated: % or mean (SD) ($n = 38$)	t or χ^2
Female ($n = 130$)	88.4%	81.6%	1.14
Male ($n = 20$)	11.6%	18.4%	
Age	71.8 (8.9)	70.3 (9.2)	0.87
Less than high school ($n = 9$)	7.1%	2.6%	5.29
High school grad ($n = 43$)	24.1%	42.1%	
Some college ($n = 57$)	41.1%	28.9%	
College grad ($n = 41$)	27.7%	26.3%	
Single ($n = 110$)	75.0%	68.4%	0.63
Married ($n = 40$)	25.0%	31.6%	
Live alone ($n = 77$)	56.2%	36.8%	4.28*
# Health problems	3.86 (2.5)	5.22 (3.1)	-2.68"
# Cardiovascular risks	1.10 (.92)	1.43 (.90)	-1.93
Depressed mood	2.09 (1.0)	2.63 (1.2)	-2.76"
Social functioning	28.77	25.45	2.54"
Chronic pain	2.25 (1.9)	3.58 (1.7)	-3.98***
# Mobility problems	8.86 (7.4)	13.22 (7.84)	-3.08"

*
 $p < .05$

**
 $p < .01$ and

 $p < .001$.

Table 3

Logistic regression for Perceived Cognitive Impairment: Yes vs. No ($n = 493^*$).

	Perceived Cognitive Impairment: Yes vs. No				
	B	S.E.	Wald's χ^2	p	e^{β} (odds ratio)
Age	0.02	0.01	2.6	0.11	1.02
Education	0.02	0.12	0.02	0.89	1.02
Single (yes = 1)	0.46	0.25	3.40	0.06	1.58
# Health problems	0.13	0.06	5.1	0.02*	1.14
# CVRFs	-0.33	0.14	5.5	0.02*	0.72
Depression	0.16	0.11	2.0	0.15	1.17
Social Functioning	-0.06	0.02	14.72	0.00***	0.94
Chronic pain	0.25	0.24	1.2	0.28	1.29
Mobility Problems	0.01	0.02	0.22	0.64	1.01

CVRFs = Total number of cardiovascular risk factors: diabetes type 1 or type 2 (1), hypertension (1), stroke (1), and heart attack, bypass surgery, or other heart problem (1).

* Note: Eight participants from the entire sample of 501 were excluded from these analyses due to missing data.

* $p < .05$,

** $p < .01$ and

*** $p < .001$.