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Original Research

Correlates of Subjective Cognitive Decline in Black American Men

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Abstract

BACKGROUND: Past research suggests that subjective cognitive decline serves as an early and potentially important indicator that individuals may be at risk for future cognitive decline or neurodegenerative conditions. However, there is a dearth of studies on factors influencing the experience of subjective cognitive decline in Black Americans, especially in Black American men.

OBJECTIVE: The current study explored correlates of subjective cognitive decline in Black American men.

PARTICIPANTS: A total of 117 Black American men, with a mean age of 38.5 (SD = 7.14) years, participated in the study.

MEASUREMENT: Participants completed a survey that assessed their demographic characteristics, self-rated health, neighborhood problems, length of residency in neighborhood, bodily symptoms, sleep comorbidities, sleep difficulties, and subjective cognitive decline. Linear regression analyses was performed and standardized beta coefficients were reported to describe the estimated independent effect of the predictor variables.

RESULTS: We found that socioecomic status (β = -.222, p=.003), bodily symptoms (β = .246, p=.005), length of residency in neighborhood (β = .157, p=.029), and sleep difficulties (β = .305, p<.001) were significant correlates of subjective cognitive decline among Black American men.

CONCLUSION: These findings underscore the intricate roles of socioeconomic status, bodily symptoms, neighborhood factors, and sleep health in shaping subjective cognitive experiences in this population. Research on subjective cognitive decline can contribute to the early identification of individuals at risk for cognitive decline, allowing for timely interventions, lifestyle modifications, and potential preventive measures.

Key words: Sleep, neighborhood, cognitive decline, ADRD risk.

Introduction

Dementia, particularly Alzheimer's Disease (AD), is typically diagnosed when symptoms of cognitive decline have manifested and preventive protocols may no longer apply (1). Since late-stage dementia is irreversible, there has been increasing research interest in the preclinical stages, at which preventive measures may apply and/or progression may be delayed. In recent years, emphases have been placed on subjective cognitive decline (SCD) (2) as a precursor for cognitive decline to dementia (3-5). SCD —an individual's self-reported experience of cognitive impairments or difficulties in memory and thinking abilities (3-6)—has been shown to be associated with cognitive decline. Liew (4) found that people with persistent SCD had a >75% probability of developing mild cognitive impairment and dementia within ten years. Jessen et al. (3) also reported that in a 12-year period, 82.7% of people with SCD developed dementia, while Robertson and Jacova (5) found SCD to be the most reliable predictor of dementia.

The overall prevalence of cognitive decline is higher in Americans racialized as Black compared to their White counterpart (7, 8). It is estimated that the prevalence of mild cognitive impairment is 32.6% among Black Americans, compared to White (20.3%) and Hispanic (26.8%) Americans (9). While research on SCD among Black Americans is evolving, existing studies suggest that this population may face a higher incidence of SCD compared to other racial groups (10-12). Gupta et al. (10) found SCD prevalence to be highest among Black Americans and linked to the prevalence of chronic conditions (e.g., heart attack, stroke) that are known precursors for cognitive decline to dementia. However, very little is known about the incidence of SCD in Black American men (hereafter referred to as Black men). Black men are often underrepresented in scientific studies, leading to a lack of comprehensive understanding of factors influencing their health outcomes (13). This underrepresentation hinders the ability to draw accurate conclusions and develop targeted interventions that address the unique challenges faced by Black men (13, 14).

Prior research links several factors to cognitive decline. Older age is consistently associated with a higher risk of cognitive decline, including conditions like Alzheimer's disease and other forms of dementia (15). Educational attainment also plays a significant role, with higher levels of education often associated with a lower risk

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of cognitive decline and a reduced rate of cognitive decline over time (16). Furthermore, socioeconomic status, including factors such as income and occupation, can influence cognitive health, with individuals from lower socioeconomic backgrounds often experiencing higher rates of cognitive decline (17). These demographic factors may intersect to impact the risk of cognitive decline in Black men, and investigating them can help identify their complex interplay and inform interventions that address multiple levels of influence.

Studies point to associations between cognitive decline and sleep health (18, 19), particularly insomnia (18, 20) or difficulty initiating sleep (19). Neighborhood factors have also been linked to cognitive decline, including neighborhood problems (21, 22), neighborhood (dis) advantage (21, 22), neighborhood stress (23), access to green spaces (24), and pollution (25, 26). Understanding the role of these factors is crucial for addressing potential health disparities among Black men. However, the majority of the prior studies were on non-Black Americans or predominantly Black women. Thus, the current study explores the correlates of SCD among Black men to help inform community-level interventions and public health strategies for maintaining cognitive health and potentially reducing the risk of cognitive decline and AD.

Methods

Participants and Procedure

The study was designed as a cross-sectional study. Eligibility criteria for study participation included self-identifying as being a man (gender), Black American, 40+ years of age, able to read and understand English, and ability to provide consent for study participation. Data were collected via Amazon's Mechanical Turk (MTURK) website—a crowdsourcing internet marketplace that allows community-based individuals to participate in academic research on Amazon's platform for money (27). The published link was tailored to target Black men living in the United States. Attention checks were put in place to ensure that participants paid attention. In addition, we utilized location validation to ensure that only men in the United States completed the survey and the IP address blocker to prevent participants from submitting more than one response to the survey. Each online survey lasted approximately 45 minutes, and respondents received monetary compensation for study participation. The study was approved by the Institutional Review Board of Providence College, Rhode Island(#22-035).

Measures

Subjective cognitive decline

The SCD measure (28) is a 21-item self-report questionnaire assessing memory changes, including everyday cognition and memory functioning. Sample questions are: "Do you think you have problems with your memory?" "Do you have difficulty remembering a conversation from a few days ago?" "How often is the following a problem for you: personal dates (e.g., birthdays)," and "How often is the following a problem for you: Phone numbers you use frequently?" Response options were dichotomous (yes = 1/no = 0) for 15 questions and Likert scale (i.e., always = 2, sometimes = 1, or never a problem = 0) for six questions. SCD score was computed for each individual by summing their score on the questions, with higher scores indicating greater reports of SCD. The mean score for this sample was 7.25 (SD = 5.48). The scale yielded a reliability score of Cronbach's α = .87.

Predictor variables

Neighborhood problems

The neighborhood problems were measured using a single-item question that assesses a participant's perception of problems in their neighborhood. Participants were asked, "In your opinion, how will you rate the overall level of physical problems (e.g., litter, vandalism, noise, etc.) in your neighborhood." The response options were on a 4-point Likert scale from 0 (no presence of physical problems) to 3 (high presence of physical problems). The mean score for this population was 1.30 (SD = 0.48), with higher scores indicating a greater perceived presence of neighborhood problems.

Length of residency in the current neighborhood

Participants were asked to self-indicate how long they have lived in their current neighborhood using a single question, "How long have you lived in your current neighborhood?"

Sleep difficulties

Sleep difficulties were assessed using the Pittsburgh Sleep Quality Index (PSQI) (29). PSQI is a 19-item questionnaire used to assess sleep quality and quantity. Most of the items are evaluated on a 4-point scale, and scores range from 0 to 21, with higher scores indicating poorer overall sleep quality. PSQI has seven component scores: sleep quality, sleep latency, sleep duration, sleep efficiency, sleep disturbance, sleep medication, and daytime sleep dysfunction. In this study, the sum of

Table 1. Sociodemographic characteristics of Black American men in the study of correlates of subjective cognitive decline (N=117)

Variables	Mean (n)	SD (%)
Age (years)	47.50	8.21
Education	12.38	2.50
>12 years	(96)	(82.1)
Marital status (single)	(64)	(54.7)
Socioeconomic status	5.06	1.56
Self-rated health	1.92	0.66
Excellent	(18)	(15.4)
Good	(75)	(64.1)
Fair	(21)	(17.9)
Poor	(3)	(2.6)
How often they see a doctor		
About once a month	(9)	(7.7)
About 4 times a year	(44)	(37.6)
Only very rarely	(53)	(45.3)
Almost never	(11)	(9.4)
How often they have been treated during the past year (For exam-ple, drugs, change of drugs, sur-gery, etc.).		
Always	(1)	(0.9)
Most of the time	(8)	(6.8)
About half of the time	(11)	(9.4)
Sometimes	(34)	(29.1)
Never	(63)	(53.8)
How many different doctors, chiropractors, and other healers they have seen in the past year.		
6 or more	(1)	(0.9)
4-5	(5)	(4.3)
2-3	(40)	(34.2)
1	(41)	(35.0)
0	(30)	(25.6)
Bodily symptoms	3.03	2.96
Neighborhood problems	1.30	0.48
Length of residency in neighbor-hood	8.14	3.59
Sleep difficulties	7.15	3.29
Sleep comorbidities	1.02	1.35

scores from the seven components reflects the presence or absence of sleep difficulties, with higher scores indicating a greater presence of sleep difficulties.

Sleep comorbidities

Participants were asked if they have the following: insomnia, snoring/sleep apnea, parasomnias, sleep paralysis, restless legs syndrome, periodic limb movement, circadian rhythms disorder, and narcolepsy. Their response option was Yes or No. If they answered yes, they were asked follow-up questions: "How long?" and "Were you diagnosed by a medical professional?" Sleep comorbidity scores were computed for each individual by summing their scores, with higher scores indicating a greater presence of sleep comorbidities.

Bodily symptoms

The participants were asked to reflect on their experience of bodily symptoms, including pain, aches, pressures in the body, breathing difficulties, and tiredness,

Table 2. Associations between subjective cognitive decline and predictor variables among Black American men (N=117)

				95% CI	
Variables	**β**	**SE**	**p-value**	**Lower**	**Upper**
Age	.045	.050	0.385	-.069	.130
Education	-.109	.173	0.171	-.582	.105
Marital status	.032	.840	0.676	-1.314	2.019
Socioecomic status	-.222	.255	0.003	-1.283	-.273
Self-rated health	-.150	.643	0.054	-2.525	.024
Bodily symptoms	.248	.161	0.005	.141	.779
Neighborhood problems	.129	.252	0.079	-.053	.945
Length of residency	.157	.108	0.029	.026	.453
Sleep difficulties	.305	.143	<.001	.225	.791
Sleep comorbidities	.125	.328	0.125	-.142	1.158
R^2	.497				
df	10,106				
F	10.459				
p	<.001				

and respond to 3 questions. The questions were, "Do your bodily symptoms stop you from working?" "Do your bodily symptoms stop you from concentrating on what you are doing?" and "Do your bodily symptoms stop you from enjoying yourself?" The response options were: Never (0), Seldom (1), Sometimes (2), Often (3), and Almost always (4). Scores range from 0 – 12, with a mean score of 3.03 (SD = 2.96). A bodily symptom score was computed for each individual by summing items, with higher scores indicating a higher presence of bodily symptoms that have been linked to sleep difficulties.

Self-rated health

A single-item measure of subjective health—"In general, how would you rate your current health status?"— was used to assess self-ratings of health. Response options were: "excellent (3)," "good (2)," "fair (1)," or "poor (0)."

Demographic characteristics

Four demographic variables were included in the analyses: age, marital status, education, and socio-economic status. Socioeconomic status was assessed by asking participants to rate their social standing on a 10-rung ladder relative to others. Although the study was designed only to include Black American men, participants were asked to self-identify their race group (e.g., Black/African American, White/Caucasian American, Hispanic American, Asian American, etc.). It is our assumption that the participants who self-identify as Black American men are from various cultural backgrounds, such as Jamaican, Haitian, African, and Black (referring specifically to Black Americans). Those who did not self-identify as Black/African American were excluded from study participation. Age and education were included as continuous variables. However, marital status was also reported as a dichotomous variable (0=single/never married; 1=married).

Data Analytic Strategy

Descriptive analyses were used to identify the sample's demographic characteristics. A linear regression analysis was further specified to estimate the independent effect of age, education, marital status, socioeconomic status, neighborhood problems, bodily symptoms, self-rated health, length of residency, sleep difficulties, and sleep comorbidities on SCD. Standardized beta coefficients were reported to describe the estimated independent effect of the predictor variables. Statistical significance was determined with the probability of a Type I error, $p \leq 0.05$. All statistical analyses were conducted using SPSS version 28.0 (SPSS Inc., Chicago, IL).

Results

The demographic characteristics of the sample

The distribution of the demographic and health characteristics for the total sample is shown in Table 1. The study included a sample of Black men (N=117), with a mean age of 47.50 (SD = 8.21) years. Approximately 55% reported being single. The average years of education of the total sample was 12.28 (SD = 2.50), and the majority (82.1%) reported having more than 12 years of education.

Of the total sample, 79.5% self-rated their health as good or excellent, and 34.2% reported seeing 2-3 doctors, chiropractors, and other healers in the past year. Further demographic information can be found in Table 1.

Association between subjective cognitive decline and predictor variables

The independent associations of the study variables to SCD are shown in Table 2. Results showed that Black men with higher socioeconomic status were significantly more likely to report lower levels of SCD (β = -.222, p=.003). Black men who reported more bodily symptoms, such as pain or discomfort, were significantly more likely to report higher levels of SCD (β = .248, p=.005). Results further showed that a longer length of residency in a neighborhood was significantly associated with the likelihood of reporting higher levels of SCD (β = .157, p=.029). Finally, Black men who reported experiencing higher levels of sleep difficulties were significantly more likely to report higher levels of SCD (β = .305, p<.001). The linear regression model was significant (F (10,106) = 10.546, p<.001).

Discussion

Past research suggests that SCD serves as an early and potentially important indicator that individuals may be at risk for future cognitive decline or neurodegenerative conditions. The current study investigated the correlates of SCD among Black men. We found that while higher levels of SES were associated with lower reports of SCD, greater presence of bodily symptoms, longer residency in a neighborhood, and greater presence of sleep difficulties were associated with higher reports of SCD among Black men.

Our finding that SES is negatively associated with SCD in Black men is in line with previous studies that found that lower SES is a risk factor for SCD (30, 31). We also found a significant relationship between bodily symptoms and SCD — increased bodily symptoms like pain, aches, pressures in the body, breathing difficulties, and tiredness increased the likelihood of Black men in the study reporting the presence of SCD. These results are somewhat supported by a recent prospective cohort study using eight waves of national data from the Health and Retirement Study (32). Du et al. (32) found that an increase in multimorbidity status, depressive symptoms, and instrumental activities of daily living limitations increased the risk of cognitive impairment in older adults. The Centers for Disease Control and Prevention posit that more adults and older adults with chronic disease report the presence of SCD compared to those without (33). Thus, bodily symptoms may be indicative of underlying health issues that could impact cognitive function. Further studies are recommended to examine if bodily symptoms are predictors of SCD in Black men when chronic diseases or presence of comorbidities, depression, anxiety, and functional disability are controlled for in the analysis.

The study revealed that the longer a person lived in a neighborhood, the greater the presence of SCD. Our findings suggest that the presence of SCD could be due to prolonged exposure to adversities such as environmental stressors, socioeconomic disadvantages, and social isolation. While neighborhood problems had a trending association with SCD in this study, other studies (21-22, 25, 26, 34) showed that living in disadvantaged neighborhoods may increase the risk of cognitive decline. People in these neighborhoods experience poor access to quality education, health care facilities, and public resources, high pollution (e.g., noise, air), and poor living conditions (35). Therefore, it is reasonable to expect that longer stays in neighborhoods with greater problems will increase the risk of cognitive decline. A geospatial analysis (e.g., using zip codes) may offer more information on the association between neighborhood problems, length of neighborhood residency, and cognitive decline among Black men.

Our study further revealed that a higher score for sleep difficulties was associated with higher SCD scores, indicating that Black men with sleep difficulties have an increased risk of SCD. This is in line with a study by Liu et al. (36), which found that self-reported shorter sleep duration and poor sleep efficiency are associated with dementia. Several underlying mechanisms have been proposed to explain these observations. Eide and colleagues (37) concluded that sleep deprivation impairs molecular clearance from the brain. Similarly, Holth et al. (38) found higher levels of AD biomarkers in sleep-deprived people. Bellesi (39) also found that sleep deprivation can lead to the death of nerve cells in the brain, which may cause or further worsen brain dysfunction. All these studies support our findings on sleep health and SCD in urban Black men.

Overall, our findings highlight the role of SES, sleep difficulties, length of residency in a neighborhood, and bodily symptoms in shaping subjective cognitive experiences among Black men. It illuminates the importance of considering a holistic approach when examining cognitive health, incorporating both individual and contextual determinants. This study's emphasis on understanding these factors can contribute to the early identification of individuals at risk for cognitive decline, enabling timely interventions, lifestyle modifications, and potential preventive measures. It contributes valuable insights to the broader understanding of cognitive health disparities, emphasizing the need for nuanced and culturally sensitive approaches to address subjective cognitive decline in Black men.

Although this study demonstrated significant results, it has certain limitations. The current study was cross-sectional and did not assess changes in SCD over time. We did not capture a history of medical comorbidities, such as hypertension and diabetes, that are very

common in Black Americans. Such information could offer additional biological insight into why some of the participants reported SCD. The data were collected via self-report, which has the potential for response bias from the participants, such as social desirability. Also, the participants were recruited from MTURK. The participant pool on MTurk may only partially represent the broader population, as it attracts more tech-savvy individuals who frequently participate in online tasks. Further, we did not include neuropsychological variables that are well- known precursors of cognitive decline, such as depression. Assessing such variables ensures a holistic understanding of cognitive health that can lead to more accurate diagnoses for men experiencing cognitive decline. Despite these limitations, our findings significantly contribute to the literature as they explore the trends of SCD and suggest the need for further studies to clarify factors associated with SCD in Black men.

Conclusion

This study contributes valuable insights into the factors associated with SCD among Black men. The results reveal the relevance of SES, sleep difficulties, length of residency in a neighborhood, and bodily symptoms in cognitive well-being. Also, the study provides a nuanced perspective by identifying specific factors among Black men that may contribute to SCD. Given that SCD is a reported preindicator of neurological disorders such as Alzheimer's disease, this research contributes to the early identification of individuals at risk for cognitive decline. The findings point to the need for the development of timely interventions, lifestyle modifications, and potential preventive measures tailored to the unique needs of Black men. Continued exploration of subjective cognitive decline within diverse populations is crucial for advancing our understanding of cognitive health disparities and promoting proactive measures for improved overall well-being.

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Conflict of interest. The authors declare that there are no conflicts of interest.

Authors' contributions: DE, CN, and DC contributed to the study's conception and design. Literature search was performed by CN, CN and AB. DE conducted data analysis, with input from CN and RT. The first draft of the manuscript was written by AB, CN, DE, and CN, while DC and RT critically revised versions of the manuscript. All authors read and approved the final version of the manuscript for submission.

Ethical approval: The Institutional Review Board of Providence College, Rhode Island (#22-035).

Availability of data and material: The current paper contains data that is part of a larger project. Details about the larger project are available from the first author. The study used standardized questionnaires that are accessible on Google Scholar.

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