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SUBJECTIVE MEMORY IN OLDER AFRICAN AMERICANS

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Abstract

The current analysis examined (a) if measures of psychological well-being predict subjective memory, and (b) if subjective memory is consistent with actual memory. Five hundred seventy-nine older African Americans from the Baltimore Study of Black Aging completed measures assessing subjective memory, depressive symptomatology, perceived stress, locus of control, and verbal and working memory. Higher levels of perceived stress and greater externalized locus of control predicted poorer subjective memory, but subjective memory did not predict objective verbal or working memory. Results suggest that subjective memory is influenced by aspects of psychological well-being but is unrelated to objective memory in older African Americans.

Poor subjective memory is common among older adults (Bolla, Lindgren, Bonaccorsy, & Bleecker, 1991; O'Connor, Pollitt, Roth, Brook, & Reiss, 1990). Approximately 25% to 50% of older adults complain of memory problems, with greater age, female gender, and low levels of education associated with a greater number of memory complaints (Jonker, Geerlings, & Schmand, 2000). Due to concern about Alzheimer's disease and other possible dementias, subjective memory is often a central feature of health care visits for older adults. The clinical significance of poor subjective memory lies in whether it precedes observable dementia and adds diagnostic value to the detection of cognitive decline prior to the onset of dementia (Geerlings, Jonker, Bouter, Ader, & Schmand, 1999; Grut et al., 1993).

Many researchers have found that poor subjective memory is more closely related to affective and personality variables than to objective memory performance (Barker, Carter, & Jones, 1994; Blazer, Hays, Fillenbaum, & Gold, 1997; Bolla et al., 1991; Feher, Larrabee, Sudilovsky, & Crook, 1994; Flicker, Ferris, & Reisberg, 1993; Hanninen et al., 1994; Hays, Fillenbaum, Gold, Shanley, & Blazer, 1995). When individuals complain about their memory but do not show signs of cognitive dysfunction, the existence of psychoaffective

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problems should be evaluated (Comijs, Deeg, Dik, Twisk, & Jonker, 2002). Perceived forgetfulness has been associated with low memory self-efficacy, high memory-related anxiety, negative attitude, and high subjective norm (Mol, Ruiter, Verhey, Dijkstra, & Jolles, 2008); however, the most common predictor of poor subjective memory is the presence of depressive symptomatology. Depression has been linked to subjective memory across numerous studies and has been found to be a stronger correlate of poor subjective memory than objective memory performance in several studies (Kahn, Zarit, Hilbert, & Niederehe, 1975; Minett, Da Silva, Ortiz, & Bertolucci, 2008; Minett, Dean, Firbank, English, & O'Brien, 2005; Schmand, Jonker, Geerlings, & Lindeboom, 1997; Schofield et al., 1997). Individuals may get depressed when they sense a decline in their cognitive functioning (Feher et al., 1994) or depression may emerge as an early sign of dementia (Reding, Haycox, & Blass, 1985). Moreover, memory complaints may merely be an outward symptom of depressed mood. A previous study found that individuals with poorer subjective memory are at greater risk of developing both depression and future dementia (Tobiansky, Blizard, Livingston, & Mann, 1995). Another study suggested that depressed individuals have a tendency to underestimate their memory abilities, whereas individuals with moderate-severe dementia may tend to overestimate theirs (Grut et al., 1993). As further evidence of the distinctive relationship between depression and subjective memory, a lifetime history of depression has been associated with self-reported memory problems, independently of common comorbid psychiatric disorders (Sachs-Ericsson, Joiner, & Blazer, 2008).

Stress and locus of control may also be related to poor subjective memory. For example, an analysis of subjective memory and cortisol found that a poorer subjective memory was associated with higher levels of the stress hormone cortisol (Wolf, Dziobek, McHugh, Sweat, de Leon, et al., 2005). These findings suggest that individuals with poorer subjective memory might have a higher incidence of memory problems under situations of daily stress, based on the dysregulation of hypothalamic-pituitary-adrenal axis functioning, the neuroendo-crine system that controls reactions to stress (Wolf et al., 2005). Based on associations between physiological assessments of stress and subjective memory, a logical extension is to hypothesize that a link exists between self-reported perceived stress and subjective memory. Evidence from a naturalistic setting indicated that on days when individuals experienced stressors, particularly interpersonal stressors, they were more likely to complain about memory (Neupert, Almeida, Mroczek, & Spiro, 2006). Locus of control may help to explain why individuals report poor subjective memory, often when there is no apparent memory deficit. To the extent that individuals perceive events in life as within or beyond their control, the tendency to complain about one's memory might be associated with more externalized control beliefs, the tendency to perceive events as beyond one's control. Although there is no direct evidence to support this notion, control beliefs have been associated with memory. Previous research suggests that positive changes in control beliefs are associated with memory improvement following cognitive training (West, Bagwell, & Dark-Freudeman, 2007).

The value of subjective memory as a predictor of objective memory performance has been debated and findings are inconsistent. Whereas some studies support a link between subjective memory and objective performance on memory tasks (Christensen, 1991; Gagnon et al., 1994; Jonker, Launer, Hooijer, & Lindeboom, 1996; Larrabee & Levin, 1986; Podewils, McLay, Rebok, & Lyketsos, 2003), several studies that utilized similar methodologies do not support this link (Jorm et al., 1994; Mendes et al., 2008; Minett et al., 2008). In addition, some previous research has shown that subjective memory is no more related to performance on certain memory tasks than to nonmemory cognitive tasks (Brown, Dodrill, Clark, & Zych, 1991).

The findings linking subjective memory to cognitive impairment are mixed. Subjective memory may reflect perceptions of past memory performance and may or may not be an early manifestation of cognitive impairment (Jorm, Christensen, Korten, Jacomb, & Henderson, 2001). Alternatively, being forgetful may merely be a result of slower general information processing and delayed recall, but may not predict cognitive impairment over time (Mol et al., 2008). A significant association between subjective memory and cognitive performance was found in a sample of older Chinese participants after controlling for depression, but longitudinal analyses did not reveal an association between poor subjective memory and subsequent cognitive decline (Wang et al., 2000). To the contrary, a longitudinal study of older adults without dementia indicated that subjective memory predicted dementia within 3 years; however, this finding was dependent upon poor subjective memory being accompanied by objective signs of memory deterioration (Schmand, Jonker, Hooijer, & Lindeboom, 1996). Memory complaints have been associated with incident Alzheimer's disease in participants with normal baseline cognition, but not impaired baseline cognition, suggesting that individuals with existing impairment may not be able to accurately assess their memory ability (Geerlings et al., 1999).

The relationship between subjective and objective memory has not been examined extensively in older African Americans. There is only one between-group analysis that has investigated the impact of race on the relationship of subjective memory and cognitive status. Blazer et al. (1997) found that subjective memory and cognitive status were not related in a diverse sample of older adults. However, when racial differences were examined in the analysis, older African Americans had fewer complaints about their memory despite having poorer cognitive performance at baseline and a greater decline in cognitive status 3 years later as compared to their Caucasian counterparts (Blazer et al., 1997). These findings suggest that although subjective memory appraisals did not validly predict objective memory performance overall, there may be greater dissonance for older African Americans that arises from qualitative variations in the factors that predict poorer subjective memory such as affect and personality factors.

There is at least one important reason to evaluate the meaning of subjective memory appraisals in older African Americans. Older African Americans tend to indicate worse cognitive performance and appear to have a higher risk for developing dementia than Caucasians and other ethnic groups (Gurland et al., 1999; Heyman et al., 1991; Zsembik & Peek, 2001). Given that subjective memory may be used as an assessment of potential cognitive impairment in a general health setting, it is imperative that we explore the accuracy of subjective memory in identifying memory impairment, particularly in African American samples. Perhaps, the reliance on subjective memory appraisals in identifying cognitive impairment in African Americans may incorrectly assume that individuals have cognitive impairment when in fact they may be reporting cognitive difficulties due to psychosocial stressors. Here we focus on depressive symptomatology, perceived stress, and locus of control as factors that may help to explain the inconsistencies between subjective memory and objective memory in older African Americans.

The current study had two primary goals. First, we sought to determine if indicators of negative psychological well-being, such as greater depressive symptomatology, greater perceived stress, and more externalized locus of control, predict poorer subjective memory in older African Americans. Second, we sought to determine if poorer subjective memory predicts poorer verbal and working memory performance.

METHODS

Participants

The sample consisted of community-dwelling older African American adults who participated in the first wave of the Patterns of Cognitive Aging (PCA) study, part of a larger group of aging studies known as the Baltimore Study of Black Aging (BSBA). Participants were recruited from 29 senior apartment complexes in the city of Baltimore, Maryland. Twenty-three participants were excluded from the total sample (n =602) based on a Mini-Mental State Examination (MMSE) cut-off score of 20, which was utilized to exclude participants with probable cognitive impairment. This cut-off was based on previous research that suggests that cultural differences related to minority race, ethnicity, and quantity and quality of education have been found to be confounding factors in the interpretation of MMSE scores, and that the customary cut-off of 24 may incorrectly label ethnic minorities as cognitively impaired based on these factors (Crowe, Clay, Sawyer, Crowther, & Allman, 2008; Fillenbaum, Heyman, Williams, Prosnitz, & Burchett, 1990; Wood, Giuliano, Bignell, & Pritham, 2006). An MMSE cut-off of 20 in this sample revealed significant differences between participants who were excluded and the original sample in objective memory performance for four of the six memory measures in the analysis (i.e., Immediate Recall, Auditory Verbal Learning Test, Alpha Span, Backward Digit Span, and Operation Span). There was no significant difference in subjective memory between participants who were excluded and the original sample (t(20) =1.218, p =.24) (see Table 1 for mean differences between excluded participants and original sample). This exclusion resulted in a final sample size of 579 (24.9% male). All participants received monetary compensation for their participation. Sample characteristics can be found in Table 2.

Measures

Subjective Memory

Memory Complaint Questionnaire (MAC-Q): The MAC-Q (Crook, Feher, & Larrabee, 1992) was used to assess participants' self-appraisal of everyday memory functioning. The MAC-Q was designed to assess age-related memory decline and quantifies the presence and severity of memory complaints (Crook et al., 1992). The questionnaire requires participants to rate, on a scale of 1 to 5, how their memory ability for certain tasks has changed since they attended high school. Five items reflect daily situations that require short-term, long-term, or prospective memory, whereas the sixth item asks participants to rate their overall memory decline since high school. The sixth item is a more global item and carries twice the weight of the other items within the total score. The MAC-Q generates a score ranging from 7 to 35, with higher scores corresponding to poorer subjective memory. Test-retest reliability for the total MAC-Q score is 0.67 (Crook et al., 1992). Moderate concurrent validity was established with a well-validated memory questionnaire, the Memory Assessment Clinics-Self-rating (MAC-S) (r =.41, p < .001) (Crook et al., 1992).

Well-Being

Center for Epidemiologic Studies-Depression Scale (CES-D) (Radloff, 1977): The CES-D is a short self-report measure designed to measure depressive symptomatology in the general population. Unlike typical measures of depression that are used for clinical diagnosis, the CES-D measures current level of depressive symptomatology. Higher scores on the CES-D suggest a poorer mood state. Reliability estimates for the CES-D range from 0.85 to 0.90 (Radloff, 1977).

Perceived Stress Scale (PSS) (Cohen, Kamarck, & Mermelstein, 1983): The Perceived Stress Scale is the most widely used psychological instrument for measuring the presence of

psychological stress (Cohen, 1988). Scale items are intended to measure not just the occurrence of stressful events, but how an individual appraises stressful events that may arise. Respondents indicate on a 5-point Likert-type scale ranging from “never” to “very often” how often these feelings and thoughts have occurred in the last month. Higher scores are associated with greater perceived stress. Coefficient alpha reliability for the Perceived Stress Scale ranges from 0.84 to 0.86. Test-retest reliability ranges between 0.55 and 0.85 depending upon time to retest (Cohen et al., 1983).

Locus of Control (LC): LC is a measure of the amount of control individuals feel they have over their lives. Individuals with more internal locus of control tend to attribute outcomes of events to their own control, whereas individuals with more external locus of control attribute outcomes of events to external circumstances (Rotter, 1966). The locus of control measure in the current study was a 12-item scale with four response categories and scores. Lower scores correspond to greater internal locus of control, whereas higher scores correspond to greater external locus of control (Rodin, 1986).

Global Cognition

Mini-Mental State Exam (MMSE) (Folstein, Folstein, & Mchugh, 1975): The Mini-Mental State Exam (MMSE) is a short global assessment of cognition. It is widely used to assess mental state among respondents in clinical and research applications. Test-retest reliability for the MMSE ranged from 0.89 to 0.99 in the original test construction analysis (Folstein et al., 1975).

Objective Memory—Six psychometric measures were utilized to assess the abilities of verbal memory and working memory.

Verbal Memory: This is the ability to encode, store, and recall meaningful language units.

Immediate Recall Test (IR) (Zelinski, Gilewski, & Schaie, 1993): The participant studies a list of 20 words for 3.5 min. The participant is then given an equal period of time to recall the words in any order.

Rey Auditory Verbal Learning Task (AVLT) (Rey, 1941): This task requires participants to study a list of 15 semantically unrelated words for 1 min, followed by an 1-min free recall trial. The number of correctly recalled words is used as the total score for this measure, with no penalties for intrusion or perseveration errors.

Hopkins Verbal Learning Task (HLVT) (Brandt, 1991): This task is similar to the AVLT. However, in this measure, the to-be-remembered words can be placed into one of three semantic categories. As with the AVLT, the number of correctly recalled words is used as the total score for this measure.

Working memory: This is the ability to encode, store, and recall information simultaneously.

Computation Span Task (comp. span) (Salthouse & Meinz, 1995): The Computation Span task involves four blocks of two trials, with different numbers of items in each block. Trials involve the auditory presentation of two to five addition or subtraction problems (e.g., 7 + 6), each followed by three alternative answers printed in the test booklet. The participant is instructed to place a check mark next to the correct answer for each arithmetic problem, while also remembering the second number from the addition (e.g., 6). After selecting the answer to all of the arithmetic problems, participants are instructed to turn the page and

recall all the target (second) digits by writing them in the spaces provided. The number of arithmetic problems increases from two to five as participants progress from Block 1 to Block 4.

Backwards Digit Span Test (Bwd. Digit Span) (Wechsler, 1981): This measures short-term or primary memory. Subjects are instructed to recall the previously presented digits backwards.

Alpha Span (Craik, 1990): This is a task that measures short-term memory. Participants are read a list of words (from two to eight words). After each list is read, participants are asked to repeat the list in alphabetical order. Responses are recorded as pass or fail. If a subject fails two consecutive attempts, the test is ended.

Covariates—The covariates examined in the study included those that were known to be important factors to control for in previous studies of cognitive functioning in African Americans (e.g., Sims, Allaire, Gamaldo, Edwards, & Whitfield, 2009; Whitfield & Wiggins, 2003). Moreover, greater age and lower educational attainment have been associated with more subjective memory complaints in previous studies (Basset & Folstein, 1993; Jonker et al., 1996; Gagnon et al., 1994). Other studies of subjective memory complaints have included age and education as covariates to avoid an inflated relationship between memory complaints and cognitive performance. Age was determined as the difference between the date of birth given and the date of testing. Education was determined by self-report of years of school completed.

Procedure

The recruitment began with the project staff contacting staff and management of senior apartment facilities, directors of senior citizen centers, or representatives from social service agencies. The project staff presented the research project then asked permission to advertise the project through flyers and provide a short presentation at building meetings or during planned activities. The participants were given a telephone number to call to participate in the study. The prospective participants were informed that this is a longitudinal study that will require a commitment of at least 30 months. If they accepted, they were scheduled a time and place to be tested that was convenient for them.

Participants were individually administered a battery of measures, as previously described, in a vacant, public room of their apartment building. Measures were administered in the same order for all participants. Prior to the administration of the assessment battery, each participant completed an informed consent form. Testing sessions lasted approximately 2.5 h. At the conclusion of testing, participants were compensated $30 for their time.

Statistical Analyses

Bivariate correlations were run to evaluate the initial relationships between subjective memory, measures of psychological well-being, and objective memory measures. Next, hierarchical regression was utilized to address the first research objective, which was to determine whether subjective memory was associated with depressive symptomatology, perceived stress, and locus of control among older African Americans, controlling for covariates such as age, gender, and educational attainment. For the second objective, hierarchical regression was again utilized to determine whether subjective memory predicts verbal and working memory performance, controlling for age, gender, and educational attainment.

RESULTS

In this section, descriptive statistics and bivariate correlations are presented first. Mean scores, standard deviations, and ranges for all measures are presented in Table 2. Next, the results of the hierarchical regression examining the associations of depressive symptomatology, perceived stress, and locus of control with subjective memory, and the results of the hierarchical regressions examining the associations of subjective memory and verbal memory and working memory, respectively, are presented for the first and second objectives listed above.

Bivariate Correlations

Bivariate correlations assessed the initial relationships between subjective memory, depressive symptomatology, perceived stress, locus of control, and objective memory measures. Correlation coefficients can be found in Table 3. Subjective memory was not significantly associated with depression scores. Subjective memory was, however, associated with scores on the Perceived Stress Scale. Poorer subjective memory was associated with greater perceived stress (r =.19, p < .001). Locus of Control scores were also significantly associated with subjective memory. Poorer subjective memory was associated with more externalized locus of control (r =.10, p < .001). There were no significant associations between subjective memory and any of the objective memory measures. Depressive symptomatology and perceived stress were unrelated to any of the objective memory measures; however, locus of control was associated with performance on Immediate Recall, Backward Digit Span, Alpha Span, and Computation Span in an unexpected direction.

Hierarchical Regression Analysis: Objective One

In Step 1 of the hierarchical regression, MAC-Q scores were regressed on age, gender, and education (covariates). Overall, this step was nonsignificant and accounted for little variance in subjective memory (F =2.28, p =.08, R^2 =.01). In Step 2, scores on the Perceived Stress Scale, Locus of Control measure, and CES-D were added to the model. This final model accounted for a significant amount of variance in subjective memory (F =7.43, p < .001, R^2 =.07). With regard to specific predictions, greater levels of perceived stress (β =.26, p < .001) and greater externalized locus of control (β =.19, p < .001) predicted poorer subjective memory, but depression did not. Regression coefficients can be found in Table 4.

Hierarchical Regression Analyses: Objective Two

To analyze the association between subjective memory and objective verbal and working memory, memory scores were converted to composite scores. All objective memory scores were transformed to *T*-scores with a mean of 50 and a standard deviation of 10. Then the three verbal memory *T*-scores (AVLT, HVLT, and IR) were averaged to create a verbal memory composite score for each participant. The same procedure was followed to create the working memory composite score (Bwd. Digit Span, Comp. Span, Alpha Span).

In Step 1 of the hierarchical regression examining subjective memory and objective verbal memory performance, verbal memory composite scores were regressed on age, gender, and education (covariates). Overall, this step accounted for a significant amount of variance in objective verbal memory (F =17.95, p < .001, R^2 =.086). In Step 2, scores on the MAC-Q were added to the model. The final model accounted for a significant amount of variance in objective verbal memory (F =13.54, p < .001, R^2 =.087); however, the effect of adding MAC-Q scores to the model was nonsignificant (β =−.02, p =.55) (see Table 5).

In Step 1 of the hierarchical regression examining subjective memory and objective working memory performance, working memory composite scores were regressed on age, gender, and education (covariates). Overall, this step accounted for a significant amount of variance in objective working memory (F =39.85, p < .001, R^2 =.17). In Step 2, scores on the MAC-Q were again added to the model. The final model accounted for a significant amount of variance in objective working memory (F =13.54, p < .001, R^2 =.087); however, the effect of adding MAC-Q scores to the model was nonsignificant (β =.02, p =.54) (see Table 6).

DISCUSSION

The findings presented here suggest that aspects of psychological well-being help to explain the presence of poor subjective memory in older African Americans. These results are novel and add perceived stress and locus of control to the psychological variables associated with subjective memory such as depression, anxiety, trait neuroticism, and trait anxiety (Derouesne, Lacomblez, Thibault, & LePoncin, 1999; Jorm et al., 1994; Klieger, 2005). Consistent with a previous finding that the stress hormone cortisol is associated with subjective memory (Wolf et al., 2005), a greater perception of day-today stress was found to be linked to poorer subjective memory in this sample. One explanation for this finding is that the perception of memory deficits may be heightened while in a stressful state. Another possibility is that the actual perception of memory deficit is seen as an additional everyday stressor. Although these hypotheses were not directly tested in the current analysis, the direction of the relationship between these variables suggests that further exploration is warranted. The association of subjective memory with locus of control suggests that the amount of control participants in the sample feel they have over life events is related to how they appraise their memory abilities. Less perceived control over the occurrence of life events may result in a poorer appraisal of memory. Based on this finding, control beliefs may have an important role to play in assessing the validity of subjective memory.

Depressive symptomatology was not found to be related to subjective memory, despite numerous findings that have shown a strong association between depression and subjective memory (Kahn et al., 1975; Minett et al., 2005, 2008; Schmand et al., 1997). One reason this hypothesis may not have been supported is that only a small proportion of the sample reported significant depressive symptomatology. Utilizing a CES-D cut-off of 16 that was successfully used to discriminate depressed and nondepressed psychiatric patients (Radloff, 1977), only 13.74% of the sample met the criterion to suggest the presence of depressive symptoms. The low prevalence of depressive symptomatology among study participants may have decreased the likelihood of memory complaint. It is also plausible that depressed mood state in older African Americans does not result in the same behavioral manifestations as it does for older Caucasians.

Because depression has been shown to be a stronger correlate of subjective memory than objective memory performance in previous studies (Kahn et al., 1975; Minett et al., 2005, 2008; Schmand et al., 1997; Schofield et al., 1997), and subjective memory is generally not related to memory deficits, subjective memory may, in part, be a tool for detecting depressive symptomatology. However, it appears that subjective memory does not add any diagnostic value for the detection of depressive symptomatology among community-dwelling older Africans Americans. Presumably, within a clinical patient population, subjective memory may help to differentiate depression from cognitive impairment. Given our findings, it may be useful to revisit these research questions among African Americans with probable depression and cognitive impairment.

As noted earlier, poor subjective memory is often not related to any actual memory impairment (Christensen, 1991; Jorm et al., 1994; Mendes et al., 2008; Minett et al., 2008).

The current analysis confirms previous nonsignificant findings. Within the sample, subjective memory was not associated with objective verbal or working memory performance. In order to confirm that there was no association between subjective and objective memory, a post hoc analysis was conducted to explore the association at the lowest levels of cognitive function and the highest level of subjective memory within the sample. Results supported the notion that subjective and objective memory are unrelated among subjective and objective memory subgroups. Given that participants with the poorest subjective memory in the sample are no more likely to have poor memory scores than those with the best subjective memory reports, it is quite reasonable to conclude that poor subjective memory, at least in older African Americans, is attributable to factors outside of actual memory impairment. As a result, attempts to diagnose memory impairment in this population should not rely on subjective memory reports, but more objective and accurate diagnostic tools.

The number of memory complaints reported in our study was lower than those cited in other studies that utilized the MAC-Q. The MAC-Q scores in our sample ranged between 7 and 35 with a mean of 11.73 (SD =5.22) compared to a study by Minett et al. (2005) that had a range of 19 to 35 with a mean of 26.1 (SD =4.2) or a study by Barker et al. (1994) that reported a mean of 24.3 (SD =3.4). Our sample appeared to have a wider range but fewer complaints on average than results from similar studies of non–cognitively impaired samples. Given these comparisons, it is again possible that there are unique characteristics of the sample—characteristics that contribute to lower memory complaints and reduce the possibility of finding a statistically significant relationship between memory complaints and cognitive function. It could also be that African Americans are less likely to complain about their memory. Perhaps there is greater dissonance for older African Americans that arises from qualitative variations in the factors that predict poorer subjective memory such as affect and personality factors. This is particularly interesting given African Americans typically perform less well on average on measures of memory (cf. Gurland et al., 1999; Heyman et al., 1991; Zsembik & Peek, 2001). This is an important question that should be pursued in comparative research.

Overall, the findings support the notion that there are unique patterns of variability in the subjective memory appraisals of older African Americans, particularly given the absence of depressive symptomatology as a significant predictor of poorer subjective memory. An integration of the findings suggests that although older African Americans in the sample may be inaccurate in their assessments of their memory abilities in general, there are two additional factors that help to explain why these assessments are inaccurate. Stress and control beliefs may be underlying factors that reduce the validity of memory appraisals.

Limitations

The current study is limited by the cross-sectional design. A prospective study with multiple time points might help to establish if poor subjective memory predicts poor memory performance across time. In addition, although the six-item MAC-Q is a valid and widely used measure, additional measures of subjective memory are needed to fully assess participants' perceptions of their memory ability. It is very possible that the memory assessments do not fully measure the aspects of memory being complained about by older adults on an everyday basis.

Conclusion

In exploring the predictive value of subjective memory, an understanding of the underlying psychological states of individuals is necessary, particularly if a diagnosis of mild cognitive impairment (MCI) or dementia is being determined. It is critical that older African

Americans are assessed correctly, and not mistakenly labeled as cognitively impaired due to factors that are not related to cognition. Furthermore, it is crucial to acknowledge and evaluate the subjective memory of older adults even when it is not conclusively linked to memory impairment or incident dementia in the literature because perceived efficacy of memory performance may reveal important information about overall psychological well-being in older adults. However, it remains that additional psychological constructs must be examined to help explain the phenomenon of poor subjective memory without measurable memory impairment. For older African Americans, the ability to cope with everyday stressors and perceived control of life's events are implicated, but other psychosocial factors are relevant to this group's overall psychological well-being and may impact subject memory. These ideas need to be further explored. Finally, although this study included a breadth of memory measures, additional types of memory performance require examination to detect explanations for poor subjective memory. In particular, more practical, real world memory abilities should be assessed such as prospective remembering in everyday situations and memory for important facts, names, and faces.

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Table 1

One-sample *t* test results for MMSE exclusion criterion

	Total sample (*n* =602) ***M* (*SD*)**	**MMSE <20 (*n* =23)** ***M* (*SD*)**	***t***
MAC-Q	10.94 (4.66)	12.00 (3.99)	1.22
IR	7.55 (3.03)	4.39 (2.97)	−4.51***
HVLT	5.23 (3.02)	4.89 (4.46)	−.33
AVLT	20.29 (8.48)	12.37 (7.48)	−4.62***
Computation Span	12.67 (4.27)	9.64 (4.85)	−2.34*
Backward Digit Span	5.67 (8.38)	10.11 (21.96)	.88
Alpha Span	4.43 (1.85)	3.05 (1.61)	−3.72**

Note.

* $p < .05$;

** $p < .01$;

*** $p < .001$.

Table 2

Sample characteristics, mean scores, and ranges for well-being and cognitive measures

	Total sample (*n* =579)	
	***M* (*SD*)**	**Range**
Age	68.99 (9.68)	48–95
Education (years)	11.75 (2.90)	3–20
MMSE	25.92 (2.81)	20–30
MAC-Q	11.73 (5.22)	7–35
CES-D	12.00 (5.86)	0–42
PSS	23.95 (9.46)	0–46
LC	52.26 (13.78)	12–48
IR	7.64 (2.94)	1–19
HVLT	5.23 (2.98)	0–26
AVLT	20.57 (8.41)	0–59
Computation Span	12.75 (4.12)	1–30
Backward Digit Span	4.86 (2.33)	1–14
Alpha Span	4.46 (1.85)	0–11

Table 3

Bivariate correlations for MAC-Q, well-being measures, and memory measures

	MAC-Q	AVLT	HVLT	IR	Backward Digit Span	Alpha Span	Computation Span
MAC-Q	1	.06	−.02	.01	−.07	−.01	.01
CES-D	.12	−.06	−.01	−.03	−.001	−.03	−.03
PSS	.19***	.001	.03	.05	.05	.05	.04
LC	.10***	.04	.07	.19**	.11*	.18**	.15**

Note.

* $p < .05$;

** $p < .01$;

*** $p < .001$.

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Table 4

Hierarchical regression: MAC-Q scores regressed on well being measures and covariates

	Step 1			Step 2		
Predictors	***B***	***SE B***	***β***	***B***	***SE B***	***β***
Age	.01	.02	.01	.03	.02	.06
Gender	.01	.08	.01	.02	.08	.01
Education	.20	.08	.11	.10	.08	.06
CES-D				−.01	.05	−.01
PSS				.14	.03	.26***
LC				.07	.02	.19***
R^2		.01			.07	
ΔR^2					.06	

Note.

*$p < .05$;

**$p < .01$;

***$p < .001$.

Table 5

Hierarchical regression: Verbal memory composite scores regressed on MAC-Q scores and covariates

	Step 1			Step 2		
Predictors	***B***	***SE B***	***β***	***B***	***SE B***	***β***
Age	−.08	.03	−.10*	−.08	.03	−.10*
Gender	.09	.11	.03	.10	.11	.03
Education	.70	.11	.26***	.70	.11	.26***
MAC-Q				−.04	.06	−.02
R^2		.086			.087	
ΔR^2					.001	

Note.

* $p < .05$;

** $p < .01$;

*** $p < .001$.

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Table 6

Hierarchical regression: Working memory composite scores regressed on MAC-Q scores and covariates

	Step 1			Step 2		
Predictors	***B***	***SE B***	***β***	***B***	***SE B***	***β***
Age	−.08	.02	−.13**	−.08	.02	−.13**
Gender	.01	.08	.004	.01	.08	.004
Education	.76	.08	.37***	.76	.08	.37***
MAC-Q				.03	.04	.02
R^2		.174			.174	
ΔR^2					.000	

Note.

* $p < .05$;

** $p < .01$;

*** $p < .001$.