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Personality as a Source of Individual Differences in Cognition among Older African Americans

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Abstract

Previous research suggests that demographic factors are important correlates of cognitive functioning in African Americans; however, less attention has been given to the influence of personality. The present study explored how dimensions and facets of personality predicted individual variability in cognition in a sample of older African Americans from the Baltimore Study of Black Aging. Cognition was assessed by verbal learning and attention/working memory measures. Personality was measured by the NEO Personality Inventory. Linear regressions controlling for demographic factors showed that Neuroticism, Openness, and Agreeableness were significant regression predictors of cognitive performance. Individual facets of all five personality dimensions were also associated with cognitive performance. These findings suggest personality is important in understanding variability in cognition among older African Americans.

Keywords

personality; cognition; African Americans; aging

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1. Introduction

Age-related changes in cognitive functioning are considered a primary feature of growing older. Identifying the etiology of individual variability in cognitive functioning in later life remains a question of considerable interest, as does the exploration of whether the correlates of this variability differ as a function of ethnicity. Given the growing evidence that social, psychological, and health factors are important sources of individual differences that significantly and differentially impact cognitive aging in the African American population (e.g., Aiken Morgan, Sims, & Whitfield, 2010; Whitfield, Allaire, Aiken Morgan, Gamaldo, Sims, & Edwards, 2008; Whitfield & Aiken Morgan, 2008), there may be additional sources of variation in African American cognitive aging that are significant and that have remained unstudied.

One of the unexplored behavioral factors that may account for within-group variability in cognitive functioning among African Americans is personality. Personality has been found to be significantly associated with cognitive abilities in other studies with predominately Caucasian samples. For example, Schaie and Parham (1975) designed a Test of Behavioral Rigidity (TBR) to measure three dimensions: psychomotor speed, motor-cognitive flexibility, and attitudinal flexibility. This multidimensional measure, which appears to tap at least the Openness component of personality, has been found to be significantly related to intellectual decline in later life (e.g., Schaie, 1958, 1984; Schaie & Parham, 1975). Furthermore, Openness has been found to be a factor of importance in studying a variety of cognitive abilities, including crystallized ability, fluid ability, processing speed, and memory (Baker & Bichsel, 2006; Booth, Schinka, Brown, Mortimer, & Borenstein, 2006; Soubelet & Salthouse, 2011) in older adults.

In addition, some studies have explored the relation between Neuroticism and cognition in older adults with mixed results. Baltes and Labouvie (1973) postulated that older adults did more poorly on cognitive tasks than did younger adults because they were anxious about their performance and unfamiliar with standardized tests. In contrast, Pearson (1993) found a positive relation between Neuroticism and crystallized intelligence (general knowledge) in an older sample of women diagnosed with anxiety and depression. In general samples of older adults, however, studies have found a negative relation between Neuroticism and cognitive abilities (Arbuckle, Gold, & Andres, 1986; Jorm, MacKinnon, Christensen, Henderson, Scott, & Korten, 1993; Soubelet & Salthouse, 2011). Further complicating this interpretation is that a few studies found no relation between Neuroticism and cognition (Baker & Bichsel, 2006; Booth et al., Jellic, Bosma, Ponds, Van Boxtel, Houx, & Jolles, 2003). It may be that the conflicting findings between Neuroticism and cognitive abilities are due to how much the Neuroticism measure taps anxiety and how much anxiety is impacting cognitive performance (Jorm et al., 1993; Moutafi, Furnham, & Tsaousis, 2006; Zeidner, 1995).

Past research examining associations between the remaining Big Five factors and cognition in older adults have also produced mixed results. Baker and Bichsel (2006) found Extraversion to be positively related to long-term memory, Arbuckle et al. (1986) found Extraversion to be negatively related to memory, and Soubelet and Salthouse (2011) found Extraversion to be negatively related to both fluid and crystallized ability and unrelated to memory. Conscientiousness was associated with auditory ability and working memory in high-functioning older adults (Baker & Bichsel, 2006). However, Soubelet and Salthouse (2011) found no relation between Conscientiousness and cognitive abilities. It is possible that the relationship between Conscientiousness and auditory ability and working memory found by Baker and Bichsel (2006) reflects a positive association between speed and Conscientiousness, which tends to be positive in Soubelet and Salthouse's (2011) work.

Soubelet and Salthouse (2011) also found no relation between Agreeableness and cognition; however, Baker and Bichsel (2006) found that Agreeableness was negatively related to crystallized ability. These inconsistent findings between studies may be reflective of the correlations among cognitive abilities and correlations among personality traits.

Examining personality as a correlate of cognitive aging in African Americans appears to be a potentially promising source of individual differences given the previous findings among Caucasian elderly. There is, however, very little research available on the personality structure of African Americans and none on how personality may serve as a source of individual variability in cognitive functioning. One of the most popular conceptualizations of the structure of personality in general is the five factor model (FFM; Costa & McCrae, 1992; Digman, 1990; Goldberg, 1993; John, Donahue, & Kentle, 1991; Piedmont, 1998). The FFM describes personality traits in terms of five basic constructs or dimensions: Neuroticism, Extraversion, Openness, Conscientiousness, and Agreeableness. Costa and McCrae (1992) propose that personality structure is universal across cultural groups. However, there are only a few studies that have directly examined the FFM in African American samples. Savla, Davey, Costa, and Whitfield (2007) examined the NEO-PI R in 234 older African Americans and the NEO-PI R factor structure was nearly the same as in samples of European Americans. However, even though the structure of personality has been found to be highly similar across race, statistically significant differences in mean scores of some domains and facets have been found to exist (Heuchert, Parker, Stumpf, & Myburgh, 2000).

The Five Factor Theory (FFT) postulates that culture directly influences the development of characteristic adaptations, but not basic tendencies (Costa & McCrae, 1992). Culture may also affect the degree to which a trait is expressed due to constraints of the context but neither instills nor eliminates traits in the individual (Jang, Livesley, & Vernon, 1998). Furthermore, individual personality factors may interact with other factors to differentially affect some cultural groups. For example, and particularly relevant to the study of African Americans, health has been found to be related to cognition and personality. Various indices of health have been found to be significantly related to cognitive functioning in analyses conducted both within (e.g., Izquierdo-Porrera, & Waldstein, 2002; Whitfield et al., 2008; Whitfield, Allaire, & Wiggins, 2004; Whitfield & Wiggins, 2003) and across race (e.g., Bohannon, Fillenbaum Pieper, Hanlon, & Blazer, 2002; Whitfield, Fillenbaum, Pieper, Seeman, Albert, Berkman, Blazer, & Rowe, 2000). These studies suggest that chronic conditions such as hypertension, cardiovascular disease, and self-rated health indicators are important risk factors for cognitive dysfunction. Personality has also been found to be related to physical illness (Smith & Williams, 1992) and health outcomes (Brickman, Yount, Blaney, Rothberg, & De-Nour, 1996; Kempen, Jelacic, & Ormel, 1997).

The central purpose of this study was to examine the contribution of personality to individual variability in cognition among African Americans after accounting for known sources of individual variability in cognition. Based on assumptions made by Costa & McCrae (1976) about the relationship between personality and cognition, we hypothesize that people who score high on Extraversion will perform more poorly on the measures of attention/working memory and verbal learning. The rationale for this hypothesis is that a more extraverted social interaction style could negatively interfere with performance on cognitive tasks. Conversely, it is hypothesized that less extraverted people (more introverted) will perform better because they better orient themselves to the successful completion of a given task. Another hypothesis posed by Costa & McCrae (1976) is that people higher on Openness generally perform better on cognitive measures, since open, imaginative individuals tend to be more receptive to new experiences, such as a psychometric testing situation.

To explore these possible relationships between cognition and personality dimensions, the present study examined whether dimensions of personality derived from the NEO personality inventory were related to performance on measures of attention/working memory and verbal learning, while accounting for demographic variables in a sample of African American older adults.

2. Methods

2.1 Participants

Participants in this study were recruited for the Baltimore Study of Black Aging (BSBA), which was designed to examine individual variability in cognition among older African Americans. The BSBA (Whitfield & Wiggins, 2003; Whitfield, Baker-Thomas, Heyward, Gatto, Williams, 1999) was initiated in 1997 to recruit a large sample of educationally diverse African American adults for the purpose of studying biobehavioral relationships among cognitive functioning, mental health, and physical health indices. The BSBA consists of eight separate and different waves of data collection. The third data collection of this study focused on personality, which was assessed on 343 individuals. Using criteria in line with the NEO-PI-R Manual (Costa & McCrae, 1992), data from 51 participants were excluded from the analysis for the following reasons: (a) protocols missing more than 40 items (7 participants); (b) repetitive response set (e.g., 10 consecutive neutral responses; 41 participants); and (c) disagreement with having answered honestly (3 participants). The neutral response was used to substitute missing data in protocols with fewer than 40 missing items. Our sample showed an average of 2.1 items missing in the NEO-PI-R protocols. One participant was excluded due to substantial missing cognitive data.

Our final analytic dataset included 291 participants with valid NEO-PI-R protocols. Two of these participants were missing data on two cognitive measures (Digit Span Forward and Backward), and the missing data points were replaced with series means. All the participants were African-Americans living in the metropolitan Baltimore area. The analytic sample consisted of 87 men (29.9%) and 204 women (70.1%). Their ages ranged from 49 to 90 years ($M = 67.2$ years, $SD = 8.66$) and the average years of formal education in the sample was 10.8 years ($SD = 3.3$).

2.2 Measures

2.2.1 Demographics—Age (in years), sex (male = 0, female = 1), and education (in years) were included as covariates in the analyses because they are important concomitants of level of cognitive performance (see review by Tombaugh & McIntyre, 1992) and may statistically predict future performance (White, Katzman, Losonczy, Salive, Wallace, Berkman, Taylor, Fillenbaum, & Havlik, 1994; Albert, Jones, Savage, Berkman, Seeman, Blazer, & Rowe, 1995).

2.2.2 Personality—The NEO Personality Inventory is a 240-item scale designed to measure five domains of personality (Neuroticism, Extraversion, Openness, Agreeableness, and conscientiousness). It is a reliable measure with reported test-retest reliabilities ranging from .63 to .81 for the domain scales (Digman, 1990; Costa & McCrae, 1992). The domains captured by the inventory are composed of highly correlated facets (Costa & McCrae, 1992). Piedmont (1998) recognized the inventory as being robust and having predictive validity. In the present study, data were collected in paper-and-pencil format using the NEO-PI-R.

2.2.3 Verbal Learning—California Verbal Learning Test (CVLT; Delis, Kramer, Kaplan, & Ober, 1987) administration was modified for use with an older adult population, such that there were three list-learning trials presented instead of five. The list was

comprised of 16 words, each related to one of four semantic categories. The CVLT has been shown to have a relatively stable factor structure (e.g., Delis, Freeland, Kramer, & Kaplan, 1988; Schear & Craft, 1989; Vanderploeg, Schinka, & Retzlaff, 1994; Wiens, Tindall, & Crossen, 1994). For the present study, Short Delay Free Recall, Long Delay Free Recall, Short Delay Cued Recall, and Long Delay Cued Recall were selected as measures of learning and memory (Delis et al., 1987). The Short Delay Free Recall trial score was the total number of words recalled after presentation of the three initial list learning trials and a second list of distracter words (CVLT List B), whereas the Long Delay Free Recall trial score was the total number of words recalled from the initial list following a 20-minute delay period. The Short Delay Cued Recall score was the total number of words recalled after participants were cued by each of the four semantic categories immediately following the Short Delay Free Recall trial. Finally, the Long Delay Cued recall followed immediately after the Long Delay Free Recall and participants again were cued by each of the four semantic categories.

2.2.4 Attention/Working Memory—Digit Span Forward (DSF; Wechsler, 1981) is a measure of attention that requires participants to repeat a series of orally presented digits. Digit strings range from four to nine digits, and participants were given 20 seconds to respond. The number of correct and incorrect responses was recorded as pass or fail. If the participant failed two consecutive trials of the same digit string, the test was ended. Next, Digit Span Backward (DSB; Wechsler, 1981) measures attention and working memory and requires participants to repeat backwards a series of orally presented digits. Participants again were given 20 seconds to respond, and digit strings range from four to nine digits. The number of correct and incorrect responses was recorded as pass or fail. Failure of two consecutive trials of the same digit string resulted in discontinuation of the task. Finally, Alpha Span (AS; Craik, 1990) measures working memory. Participants were read a list of words (from two to eight words), and after each list was read, they were asked to repeat the list in alphabetical order. Responses were recorded as pass or fail. If a participant failed two consecutive attempts, the task was ended.

2.3 Procedure

Participants contacted the staff after seeing advertisements for the study. Once scheduled, they were given the first cognitive test session at their home. The test session lasted approximately 3 hours and a short rest period was offered halfway through the session. Participants were contacted for the second session from telephone information gathered during the first session. The second assessment, which lasted approximately 1.5 hours, included the personality assessment and collection of health information. For both sessions, participants were provided monetary incentives for their participation, \$35 and \$25 for the first and second sessions respectively.

3. Results

The aim of the present study was to examine whether FFM personality dimensions were associated with verbal learning and attention/working memory performance. The average score on the NEO for each domain ranged from 113 to 145. These scores do not suggest that the level of each domain and facets were similar across all individuals, but instead it indicates that there was not an imbalance in traits represented.

3.1 Data Reduction

Analysis began by reducing the number of cognitive variables down to the two underlying constructs verbal learning and attention/working memory. Specifically, the results from a factor analysis with a promax rotation found clear evidence for a two factor solution where

the CVLT variables all loaded on factor 1 (verbal learning), and the Digit Span Forward and Backward and Alpha Span loaded on factor 2 (attention/working memory). Factor weight composite scores were then created using this solution. The analyses that follow utilized these factor scores, rather than each cognitive measure, in order to reduce the number of statistical tests conducted.

3.2 Bivariate Correlations

Table 1 includes the correlations between verbal learning, attention/working memory, chronological age, and the five personality dimensions along with the six facets within each dimension. The overall pattern of results suggested that verbal learning and attention/working memory were negatively associated with the dimension and facet scores for Neuroticism and were positively related to the other four personality dimensions and most of their individual facet scores. Specifically, for individual Neuroticism facet Angry-Hostility, it was negatively related to verbal learning but positively related to attention/working memory. Depression was negatively related to both cognitive factors, while Vulnerability was only related to verbal learning. With respect to Extraversion, the dimension was not significantly associated with cognition; however, Assertiveness was positively related to both cognitive dimensions, while Warmth and Positive Emotion were only positively associated with verbal learning. For Openness, both cognitive factors were positively associated with the dimension, as well as the facets of Aesthetics, Ideas, and Values. Openness to Actions was positively associated with attention/working memory only. For Agreeableness, the personality dimension was positively associated with both cognitive factors, as were the Trust, Straightforwardness, Altruism and Tender-mindedness facets. Finally, for Conscientiousness, the personality dimension was unrelated to either cognitive factor, but individual facets Competence and Self-discipline were positively related to both cognitive factors, while Deliberation was negatively related to verbal learning.

Age was positively related to Neuroticism and its Anxiety, Angry-Hostility, Depression, and Vulnerability facets. In contrast, age was negatively related to the dimensions of and facets for Extraversion (Positive Emotion) and Openness (Fantasy, Ideas, and Values). Age was negatively related to Competence and Self-Discipline, Conscientiousness facets. Finally, more differentiated pattern was found for the facets of Agreeableness. Specifically, age was significantly and negatively related to Altruism and positively to Modesty, while unrelated to the dimension of Agreeableness.

3.3 Regression Analysis

Analysis next turned to determining the extent to which personality dimensions and facets were uniquely related to cognitive functioning after controlling for participants' age, education, and sex. Specifically, separate regression models for verbal learning and attention/working memory were estimated with age, education and sex, and the five personality dimensions. Regarding verbal learning, Table 2 presents regression findings, which indicated that increased age was associated with poorer performance, while higher education and female gender were related to better performance. In addition, there was a negative relationship between Neuroticism and verbal learning, while there were positive relationships between Openness and Agreeableness and verbal learning performance. Table 3 shows findings for attention/working memory. In this regression model, education and female gender were significantly related to better performance, while Agreeableness was the only personality dimension significantly predicting performance. Higher Agreeableness was related to better attention/working memory.

Next, only the facets with significant bivariate correlations with each cognitive factor were included in a second set of regression models. Table 4 displays the results for the model

predicting individual differences in verbal learning. As presented in the table, there were significant and unique negative age differences in performance and female participants performed significantly better than male participants. Turning to the estimates for the facets, Positive Emotion and Deliberation were significant and unique predictors, suggesting that higher scores on these were related to lower verbal learning performance. It should be noted that the bivariate relationship between Positive Emotion and verbal learning was positive; however, the direction of this relationship changed within the context of the other predictors in the model. Straightforwardness was also a significant and unique predictor indicating that higher Straightforwardness was related to better verbal learning. Together the variables in this model explained 33% of the variance in verbal learning, of which 40% (of the explained variance) was accounted for by the personality facets.

Table 5 presents the results for the model predicting individual differences in attention/working memory. Results indicated that higher education was significantly related to better cognitive functioning and, as with verbal learning, female participants performed significantly better than male participants. Regarding individual facets, Assertiveness and Straightforwardness were both significant and unique predictors suggesting that more Assertiveness and Straightforwardness were related to greater attention/working memory performance. Higher Self-Discipline was significantly and uniquely related to lower Attention/Working memory performance. Together the variables explained 23% of the variance in attention/working memory, of which 25% (of the explained variance) was accounted for by the personality facets.

4. Discussion

The primary aim of the present study was to examine the relationship between personality and cognition in older African Americans. Our central hypothesis was that individuals with higher Extraversion scores on the NEO-PI-R personality inventory would perform more poorly on measures of verbal learning and attention/working memory, and those with higher Openness scores would perform better. We speculated that a more extraverted social interaction style could negatively interfere with performance on cognitive tasks requiring attention. Conversely, Openness would benefit people's ability to remember information when presented in a memory test. To this end, we performed correlation analyses between demographic variables, cognition, and personality and found that while Extraversion was not correlated with either of our cognitive factors, certain Extraversion facets were. Assertiveness was positively related to both cognitive dimensions, while Warmth and Positive Emotion were only positively associated with verbal learning. For Openness, this personality dimension was positively related to both cognitive factors, as were Aesthetics, Ideas, and Values. Openness facet Actions was positively related to attention/working memory only. These findings partially supported our hypotheses. To investigate further, we conducted separate multiple regression models for each dependent variable (cognitive factors: verbal learning and attention/working memory) while controlling for age, sex, and education. In the first models including the five personality dimensions, there was a negative relationship between Neuroticism and verbal learning, while there were positive relationships between Openness and Agreeableness and verbal learning performance. For attention/working memory, higher Agreeableness was related to better attention/working memory performance.

In the next set regressions, only the facets with a significant bivariate correlation with the cognitive factors were included in the models. Regression analyses showed that Extraversion facet, Positive Emotion, was negatively related to verbal learning performance. None of the three Openness facets were significant. Regarding attention/working memory function, Assertiveness (Extraversion) personality facet was a significant positive predictor,

while, again, none of the three Openness facets included in the regression model emerged as significant. These findings lend some support for our hypotheses; specifically our hypothesis that Extraversion would be related to worse performance, but this was true only for verbal learning. Our hypotheses regarding Openness were not supported.

In summary, our findings indicated mixed support for the relationship between personality-cognition in this sample. The Extraversion dimension was not a significant statistical correlate or regression predictor in any of our analyses; however, at the level of the facets, there was support for the effect of aspects of Extraversion being important for cognitive performance. There was more support for Openness, in that this dimension was a significant correlate of both cognitive factors and a significant, unique, positive predictor of verbal learning performance. Overall, the present findings provide some support for the relationship between personality and cognitive performance in a sample of older African Americans. The direction of the relationships between Openness and verbal learning were consistent with previous work on Caucasian samples (e.g., Baker & Bichsel, 2006; Soubelet & Salthouse, 2011). The complexity of a list learning task (CVLT) requires a degree of Openness to properly attend to and remember an orally presented list of words.

Although we did not have specific hypotheses with regard to Neuroticism, it showed significant negative relationship with verbal learning, and it is plausible that the high levels of anxiety underlying a neurotic personality style would, in contrast, inhibit performance in a task such as the CVLT. In addition, the negative association between Neuroticism and memory may be explained in part by the fact that anxiety in standardized testing situations, if excessive, is generally related to poorer performance (e.g., Yerkes-Dodson Law; Yerkes & Dodson, 2007). In fact, previous research suggests that African Americans may experience great test anxiety in psychological testing due to novelty of situation (African Americans on average have lower education in contrast to their White counterparts and thus may not have as much experience in standardized testing situations) (Whitfield et al., 1999; Whitfield & Aiken Morgan, 2008). A person with a neurotic personality style would likely experience even greater levels of anxiety with the addition of normal test anxiety that is experienced by most people in such situations. Further, a neurotic personality style may interact negatively with a novel testing environment, including with the personality style of the test administrator.

In general, the previous literature on the personality-cognition association shows inconsistent results. For example, the FFM facets individually have been found to be both positively and negatively correlated with cognition (e.g., Soubelet & Salthouse, 2011). In particular, Extraversion has been both positively and negatively related to intelligence in Caucasian samples (e.g., Ackerman & Heggstad, 1997; Moutafi, Furnham, & Crump, 2003; Moutafi, Furnham, & Paltiel, 2005). Age appears to be a critical variable in these findings and assumes a significant proportion of the individual variability in this relationship. Also, demographic covariates, such as education, have previously been studied in this population and found to be important factors for which to account in examining cognitive functioning (Aiken Morgan et al., 2010; Whitfield, Allaire, Belue, & Edwards, 2008).

It is noteworthy that the age-personality trends found in the present study are not typically found in the literature (e.g., Mroczek & Spiro, 2003). Post-hoc analyses (partial correlations) accounting for the potential effect of depression did not change these age-personality relationships. This is a possible limitation regarding the representativeness of the sample; however, these findings underscore the importance of within group study of personality, particularly among African Americans (Whitfield et al, 2008). It may be the case that the association between age and personality varies among African Americans and other

minority groups. Future research should focus on explaining this age-personality relationship in African Americans.

4.1 Dementia and Personality Change

Prior literature has also examined the linkages between dementia and personality changes (e.g., Chatterjee, Strauss, Smyth, & Whitehouse, 1992; Osborne, Simpson, & Stokes, 2010). Personality structures may influence how dementia is experienced by an individual, and because of personality's stability over time and in the face of dementia, it could be a causal factor in the expression of challenging behavior. Openness and Agreeableness personality traits remain relatively stable during dementia progression, while Neuroticism, Extroversion, and Conscientiousness are more likely to change with progression of the dementia (Chatterjee, et al., 1992). In their review, Osborne and colleagues found that 72% of studies reported significant relationships between pre-morbid personality and dementia behavior. There was a strong positive relationship between pre-morbid Neuroticism and mood, and between aggression and overall behavioral acts. The authors concluded that a lifetime tendency towards negative emotion, as captured by pre-morbid Neuroticism level, may be associated with increased vulnerability to distress, manifesting as a challenging behavior.

4.2 Limitations

There are limitations of this research that are important to discuss. The data come from a sample of convenience and derived from an urban setting. These results may vary with a more diverse geographical sample. This study was also limited by missing data. The study used a limited cognitive battery of measures and would be improved by employing multiple measures of attention, working memory, and verbal learning and memory. The findings here may not generalize to other dimensions of cognition, like speed of processing or executive functioning. Additionally, the present analyses account for correlations among personality traits but not correlations among cognitive functions. With a broader cognitive battery, the use of structural equation modeling could be employed to better understand these relationships. Furthermore, this study wave included insufficient cognitive data to make dementia or mild cognitive impairment (MCI) classifications; thus, unfortunately, we were unable to examine the associations between cognitive impairment, personality, and cognitive performance. The findings here do, however, suggest that personality may be an important source of variability and require further exploration with other types of cognitive measures. Furthermore, it may be the case that there are certain cognitive measures that are more sensitive to the influence of personality factors than the measures included in these analyses.

It is also worth noting that the effect sizes found in the present analyses are somewhat small. Particularly, the individual relationship between each facet and the cognitive factors are small, particularly in relation to variables such as age and gender. However, future work should consider personality as a whole, as well as on an individual facet level, when examining individual differences in cognition. The results of our study suggest that certain facets are unique predictors of performance and that together personality facets account for at least 25% of the explained variance.

4.3 Conclusions

The findings here suggest that personality is an important and significant source of individual differences in cognitive aging for African Americans. Personality seems important to account not only for the variability in cognitive outcomes among African Americans but may also be a critical factor in attempts to compare and contrast cognitive function across racial and ethnic groups (Whitfield et al., 2008). Specifically, Neuroticism and Openness may be more related to cognition in African Americans.

Typically and logically, factors such as health and education have been used to attempt to decompose the variability observed in cognitive functioning in African Americans (Aiken Morgan, et al., 2010), and future work in the area of personality and cognition in African Americans should also examine the role of health. Health and education are influenced by individual decisions as well as macro-social-contextual factors like insurance companies and local government policy. In contrast, personality could be argued to arise from more micro-level social and contextual factors and even by genetic factors. While the data presented here show the impact of personality on cognitive functioning in later life, the results beg the question as to when the impact of cognition begins earlier in the life-course. Whether personality starts a person's cognitive trajectory earlier in life or if it becomes more important in maintaining cognition in later life cannot be understood from the current data alone. Conversely, it may be the case that cognition changes personality in later life. The direction of this relationship is unclear and requires longitudinal study to help explain this complex relationship. Future research should also consider how personality might be used as a factor to account for differences in between-group analyses of ethnicity. One additional research avenue that should be pursued in understanding the impact of personality on cognition the possibility of genetic-environmental correlations or interactions between personality and cognition.

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Highlights

- We studied how personality predicted cognitive function in older African Americans.
- Cognition was assessed by seven attention and memory measures.
- Personality was measured by the NEO Personality Inventory.
- Linear regressions showed that Neuroticism, Openness, and Agreeableness predicted cognition.

Table 1

Bivariate Correlations between Personality, Cognitive Factors, and Age

	Verbal Learning	Attention/Working Memory	Age
Neuroticism	-.20*	-.11	.17*
Anxiety	-.08	.01	.14*
Angry-Hostility	-.22*	.16*	.14*
Depression	-.23*	-.18*	.19*
Self-Consciousness	-.09	-.09	.03
Impulsiveness	-.01	.07	.03
Vulnerability	-.21*	-.09	.18*
Extraversion	.09	.11	-.15*
Warmth	.16*	.10	-.04
Gregariousness	-.10	.004	-.02
Assertiveness	.20*	.22*	-.20
Activity	.01	.03	-.03
Excitement-Seeking	-.04	-.03	-.08
Positive Emotion	.13*	.10	-.21*
Openness	.15*	.16*	-.15*
Fantasy	-.05	.04	-.12*
Aesthetics	.20*	.12*	-.01
Feelings	-.02	-.002	-.02
Actions	.07	.13*	-.11
Ideas	.20*	.20*	-.16*
Values	.21*	.13*	-.18*
Agreeableness	.18*	.18*	-.001
Trust	.12*	.20*	.02
Straightforwardness	.19*	.18*	-.04
Altruism	.20*	.13*	-.18*
Compliance	-.04	.01	.07
Modesty	.03	.01	.15*
Tender-mindedness	.19*	.17*	-.03
Conscientiousness	.09	.11	-.09
Competence	.21*	.26*	-.15*
Order	.07	.08	-.07
Dutifulness	.07	.09	.03
Achievement Striving	.05	.04	-.02
Self-Discipline	.13*	.14*	-.15*
Deliberation	-.12*	-.10	-.02

Table 2

Linear Regression With Personality Dimensions Predicting Verbal Learning Performance

	B	SE	Beta
Age	-.03	.01	-.27*
Education	.05	.02	.16*
Sex	.50	.11	.23*
Neuroticism	-.01	.004	-.15*
Extraversion	-.01	.004	-.08
Openness	.01	.005	.16*
Agreeableness	.01	.005	.15*
Conscientiousness	-.01	.004	-.12
			R ² = .25

Table 3

Linear Regression With Personality Dimensions Predicting Attention/Working Memory Performance

	B	SE	Beta
Age	-.01	.01	-.09
Education	.08	.02	.33*
Sex	.29	.10	.16*
Neuroticism	-.001	.003	-.02
Extraversion	-.001	.004	-.02
Openness	.01	.004	.11
Agreeableness	.01	.004	.16*
Conscientiousness	-.01	.004	-.08
			R ² = .25

Table 4

Linear Regression With Personality Facets Predicting Verbal Learning Performance

	B	SE	Beta
Age	-.03	.01	-.28*
Education	.03	.02	.10
Sex	.46	.12	.22*
Angry-Hostility	-.01	.02	-.03
Depression	-.02	.02	-.11
Vulnerability	-.01	.02	-.04
Warmth	.002	.02	.01
Assertiveness	.02	.02	.06
Positive Emotion	-.06	.02	-.19*
Aesthetics	.03	.02	.12
Ideas	.02	.02	.09
Values	.03	.02	.09
Trust	.01	.02	.03
Straightforwardness	.04	.02	.15*
Altruism	.003	.02	.01
Tender-mindedness	.03	.02	.08
Competence	.02	.03	.05
Self-Discipline	-.02	.02	-.07
Deliberation	-.06	.02	-.21*
Total variance explained: $R^2 = .33$			

Table 5

Linear Regression With Personality Facets Predicting Attention/Working Memory Performance

	B	SE	Beta
Age	-.01	.01	-.08
Education	.08	.02	.31*
Sex	.22	.10	.12*
Angry-Hostility	.004	.01	.02
Depression	-.01	.01	-.05
Assertiveness	.03	.02	.12*
Aesthetics	-.01	.01	-.02
Actions	.01	.02	.04
Ideas	.02	.02	.08
Values	-.01	.02	-.02
Trust	.03	.02	.11
Straightforwardness	.03	.01	.12*
Altruism	-.02	.02	-.08
Tender-mindedness	.04	.02	.13*
Competence	.02	.02	.07
Self-Discipline	-.03	.02	-.14*
Total variance explained: $R^2 = .23$			