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INFORMANT-BASED DEMENTIA SCREENING IN A POPULATION-BASED SAMPLE OF AFRICAN AMERICANS

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Abstract

BACKGROUND—An informant-based screening tool for dementia may be useful in population-based studies of minority populations.

OBJECTIVE—Investigate the feasibility of screening for very mild dementia in a community sample of African Americans using an informant-based screening tool (AD8).

DESIGN—Cohort study

PARTICIPANTS—147 persons from the African American Health (AAH) project were screened for dementia; 61 of 93 who were invited had follow-up clinical assessments for dementia diagnosis.

MEASUREMENTS—The AD8, Mini-Mental State Examination (MMSE), Short Blessed Test (SBT), Brief Instrument for Dementia Detection (BIDD), and a neuropsychological battery were administered at visit 1. The Clinical Dementia Rating (CDR) was administered at visit 2 by clinicians blinded to visit 1 results; the presence of dementia was determined by a CDR greater than 0.

RESULTS—465 individuals from the AAH cohort were sent a letter describing the study and, among this group, 252 individuals were contacted by phone to request participation in this study. 6% (14 / 252) of participants contacted by phone were unable to identify an informant (required for the AD8). 150 individuals agreed by phone to participate of which 2% (n=3) did not have an informant available at the time of participation. The AD8 alone was effective at discriminating between CDR 0 and CDR 0.5 (area under the curve = .847; p <.001; 95% confidence interval 0.73-0.96).

CONCLUSIONS—A brief informant-based instrument, the AD8, has high sensitivity and specificity for distinguishing CDR 0 from CDR 0.5 in the community. Informant availability may not be a barrier to using the AD8 in an African American community sample; however, further study in larger samples with a higher response rate, different community settings (e.g., community clinics), and among older age groups (e.g., age 75+) is warranted to confirm this.

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Keywords

African Americans; Dementia; Screening

INTRODUCTION

Brief cognitive tests, such as the Mini Mental State Examination (MMSE) and the Short Blessed Test (SBT), are commonly used to screen for cognitive impairment, including dementia. The MMSE and SBT are practical because these tests are easily administered and scored and effectively document cognitive change in an individual with longitudinal follow-up.¹ Such tests, however, can lack sensitivity in an individual, even for definite dementia in the absence of repeated measurement over time.^{2,3} Matters are compounded when these measures are applied to disadvantaged minorities, due to confounding factors such as education, literacy, and cultural differences.⁴⁻⁸ For example, scores on the MMSE have been shown to differ according to race^{7,8} and educational attainment.⁵ Nonetheless, brief cognitive tests have wide applicability to multiple settings (e.g., research, clinic, community) and can be routinely used to track stability and change in cognitive status over time.

Another less frequently used approach to screen for cognitive impairment, including dementia, is to obtain information from someone who knows an individual well (i.e., informant) to determine whether the individual's cognitive functioning in daily life has changed relative to previously attained cognitive abilities. An informant-based method reduces potential bias from factors such as education and cultural differences, because it compares an individual against his or her prior cognitive function instead of using norms that may not be valid for that group. It also has face validity in that cognitive abilities are assessed in relation to conduct of activities of daily living. In particular, the Clinical Dementia Rating (CDR) is a well-known informant-based approach with high sensitivity for cognitive impairment due to dementia, even in the very earliest disease stages.⁹⁻¹¹ Evidence indicates the CDR has acceptable reliability and validity (i.e., sensitivity and specificity) in transcultural studies as well.^{12,13}

Informant-based methods for detection of cognitive impairment or dementia, such as the CDR, rarely are used in large-scale studies, both because they can be time-consuming and because of the concern that an observant informant for each individual may not be available. There remains a need for the development, testing, and validation of an informant-based screening instrument that can be used in large-scale studies. Such an instrument should have good sensitivity and specificity while also being brief, easy to administer, and acceptable. Without these characteristics, it is unlikely to be used by either researchers or clinicians. Ideally, the validation of such a measure should be conducted in a representative, population-based sample. Validity and reliability also should be assessed within and across ethnic and cultural groups.

The AD8 is an informant-based screening instrument for dementia that is brief and easy to administer.¹⁴ Initial investigations in both a research sample of older adults¹⁴ and patients in a memory clinic¹⁵ demonstrate that the AD8 is a valid and reliable measure with good discriminative properties to identify very mild dementia. These convenience samples, however, consisted primarily of white individuals. The utility of the AD8 in African Americans and the feasibility of its use in a population-based sample are both unknown.

Here we report the feasibility of using the AD8 in the epidemiologic study known as African American Health (AAH).¹⁶ AAH was implemented to identify factors leading to excess disability and early decline in self-care functioning in late middle age and older African Americans in metropolitan St. Louis. We investigated the ability of participants to identify

informants and the ability of the AD8, in comparison with the MMSE, SBT, and Brief Instrument for Dementia Decision (BIDD), to discriminate between CDR 0 and CDR 0.5.

METHODS

Referent population

The sampling and recruitment procedures for AAH have been detailed previously.^{16,17} Briefly, AAH is a population-based longitudinal study of 998 African Americans aged 49-65 years at baseline (2000-2001) from two diverse socioeconomic areas of St. Louis, Missouri.

Recruitment was performed using multi-stage probability sampling methodology designed to select approximately equal numbers of participants from a poor, inner city neighborhood and near suburban neighborhoods northwest of the city. Criteria for study eligibility included self-reported Black or African American race, birth year between 1936 and 1950, and Mini-Mental State Examination (MMSE) scores ≥ 16 .¹⁸ Seventy-six percent of eligible persons agreed to participate and were contacted annually to complete either in-home evaluations (waves 1 & 4) or telephone interviews (waves 2 & 3). The wave-to-wave completions were: wave 1=998, wave 2=932, wave 3=888, and wave 4=853. The wave 1 to wave 4 retention rate (excluding n=51 deaths) was 90%.

Sampling and recruitment

Sampling was performed near the end of wave 4 at which time 837 participants (of the 853 that eventually completed wave 4) were continuing in the AAH project and eligible to be selected for this study. There were two primary eligibility criteria for this ancillary study to AAH: a) current AAH participant and b) completed AAH wave 4. Those who were not current AAH participants included permanent refusals (n=61), deceased persons (n=51), those lost to follow-up (n=9), and those with permanent condition (e.g., severe stroke) precluding participation (n=6). There were an additional n=34 AAH participants excluded because they had not completed AAH Wave 4 at the onset of this ancillary AAH study. Recruitment was initiated by mailing participants a letter that described the study and stated that an AAH investigator (TKM) would call within two weeks to inquire about participation. Upon contact by phone, participants were asked if they would be able to identify an informant (even if they declined to participate in the study) on the basis of "someone who knows you well".

Recruitment for visit 1 (i.e., screening) ceased upon enrollment of the target sample of 150 AAH participants and their self-identified informants. Sampling for visit 2 (i.e., validation) was determined according to the clinical impression rating on the BIDD (i.e., no dementia, uncertain dementia, or dementia) made at visit 1. All participants rated "uncertain dementia" or "dementia" at visit 1 were asked to return for visit 2 for a "gold standard" CDR assessment. A subset of participants rated as "no dementia" at visit 1 were selected randomly and asked to return for visit 2 to complete the CDR assessment and neuropsychological tests (funding constraints precluded evaluation of the entire "no dementia" group). Figure 1 provides a flow chart of sampling, enrollment, and recruitment.

Participants (and informants) came to the Alzheimer's Disease Research Center (ADRC) at Washington University (WU) in St. Louis, to complete dementia screening and neuropsychological tests (i.e., Visit 1) and, subsequently, to complete the "gold standard" CDR (i.e., Visit 2). The institutional review boards at Saint Louis University and WU approved all procedures, and all participants provided written informed consent.

Design

Visit 1

Participants: One hundred fifty participants from the parent AAH project were interviewed and tested. Three informants did not complete their evaluations, resulting in 147 informant interviews (98%). Participants without an informant for visit 1 were not eligible to return for a follow-up visit and are excluded from the analytic sample.

Measures: Dementia screening tools included the AD8,^{14,15} MMSE,¹⁸ Short Blessed Test (SBT),¹⁹ and the Brief Instrument for Dementia Detection (BIDD). The AD8^{14,15} asks informants to use a simple Yes-No format to rate “change [in the subject] in the last several years caused by cognitive (thinking and memory) problems” for 8 items: 1) problems with judgment; 2) reduced interest in hobbies or activities; 3) repeats questions, stories, or statements; 4) trouble learning how to use a tool, appliance, or gadget; 5) forgets month or year; 6) difficulty handling complicated financial affairs; 7) difficulty remembering appointments; and 8) daily problems with thinking and/or memory.¹⁵ Possible scores on the AD8 range from 0-8, with higher scores indicating more cognitive changes from previous level of function. The MMSE is a brief, global measure of cognitive function that assesses orientation, memory, concentration, language, and praxis in the participant.^{5,18} MMSE scores range from 0 to 30, with higher scores reflecting better cognitive performance. The SBT is a six-item test of orientation, memory, and concentration in the participant.¹⁹ SBT scores range from 0-28, with higher scores reflecting worse cognitive performance. The BIDD includes the AD8 interview and brief testing of the participant, consisting of the six-item SBT plus 4 additional calculation items. The BIDD results are synthesized by a clinician (physician or nurse) to yield an impression of: a) no dementia, b) uncertain dementia, or c) dementia. Uncertain dementia ratings on the BIDD reflect uncertainty as to whether cognitive impairment truly is present, either because of discrepancies between the informant observations and the participant's performance or because other factors (e.g., concomitant depression) may complicate dementia detection. Neuropsychological measures included Trailmaking A (visual scanning and motor skills) and Trailmaking B (executive function),²⁰ Wechsler Memory Scale (WMS) Logical Memory (episodic memory),²¹ Animal Naming (verbal fluency)²² and the 15-item Geriatric Depression Scale (GDS; depressive symptoms).²³ WMS Logical Memory requires recall of the critical elements of two stories both acutely and after a time delay, and was scored according to veridical criteria.²⁴

Procedure: Participants and their informants came to the Memory and Aging Project (MAP) research facility for visit 1, which was completed in 1-hour; in a limited number of cases (n=26; 18%), informants did not accompany the participant (e.g., because of work obligations or health issues) but instead were interviewed by phone. An experienced nurse clinician (MAC or PJ) administered the BIDD (including the AD8) and a psychometrician administered the neuropsychological tests. The AD8 was administered prior to the other components of the BIDD and independently of other neuropsychological tests. Participants were compensated \$50 and informants \$15.

Visit 2—Sampling was determined according to the clinical impression rating on the BIDD made at visit 1. Participants rated “uncertain dementia” (n=25) or “dementia” (n=3) were asked to return for the “gold standard” CDR assessment. A subset of participants rated as “no dementia” (n=65) were selected randomly and asked to return for the CDR assessment and neuropsychological tests (funding constraints precluded evaluation of the entire “no dementia” group).

Participants: Of the 147 patient-informant dyads that completed visit 1, 93 were selected to return and 61 (66%) completed the follow-up visit 2.

Measures: The “gold standard” outcome measure was the CDR. The CDR is a staging instrument for Alzheimer's disease that incorporates information from a patient assessment and a semi-structured interview with an informant^{25,26} Cognitive impairment is rated across six categories (Memory, Orientation, Judgment and Problem Solving, Community Affairs, Home and Hobbies, and Personal Care) to yield a global rating of dementia ranging from 0 to 3 (None to Severe) based on clinical scoring rules. The CDR has been shown to be a valid and reliable instrument for staging dementia.^{11, 27-29} [The AD8 was derived from the questions in the semi-structured informant interview; however, CDR raters were blinded to all results of the screening visit.]

Procedure: Participants and informants returned to the ADRC for the CDR protocol, which was completed in 1.5 hours. A MAP physician without knowledge of the screening results completed the clinical assessment to determine a CDR score. The diagnosis of Alzheimer's disease was determined according to the Diagnostic and Statistical Manual-IV³⁰ and NINCDS-ADRDA “probable AD”³¹ definitions. Vascular dementia was identified according to standard criteria.³² Participants were compensated \$50 and informants \$25.

Statistical analysis—Analyses were performed using SPSS, version 14.0 (SPSS, Inc., Chicago, IL).

Sampling and recruitment: Using AAH baseline data, univariable analyses (Mann-Whitney U for continuous variables and Chi-Square for discrete variables), were computed to compare the demographic and cognitive characteristics of those: a) eligible for study versus others; b) sent a letter for possible recruitment into screening [visit 1] versus others; c) recruited into the study and completed screening [visit 1] versus others; d) selected for validation [visit 2] versus others; and e) who completed validation [visit 2] versus others. To further investigate potential biases in sampling and recruitment (and, again, using AAH baseline data; N=998), multivariable logistic regression analyses were computed to examine the independent association of demographic (age, gender, years of education) and cognitive (MMSE and category fluency scores) characteristics according to items a-e above when treated as binary outcomes.

Visits 1 (Screening) and 2 (Validation): Nonparametric Mann-Whitney U tests (continuous variables) and Chi-Square tests (discrete variables) were used to compare scores on screening and neuropsychological tests for CDR 0 (no dementia) and CDR 0.5 (uncertain or very mild dementia) ratings and to compare the study sample with the main AAH cohort. Sensitivity and specificity, receiver operator characteristic (ROC) curve, and area under the curve (AUC) are reported to examine how effectively screening measures discriminated between CDR 0 and CDR 0.5 ratings.

RESULTS

Sampling and Recruitment

Figure 1 provides sampling and recruitment results. The AAH cohort included 998 individuals at baseline (i.e., wave 1) and, of this group, 837 (837 / 998; 84%) were study eligible. Compared to those not eligible for this study (n=161), eligible participants were younger (56.16 ± 4.37 versus 57.02 ± 4.63 ; $p=.031$), more educated (12.50 ± 2.97 versus 11.88 ± 3.07 ; $p=.013$), and had higher AAH baseline scores on the MMSE (27.92 ± 2.62 versus 27.15 ± 3.37 ; $p=.005$) and animal naming (19.07 ± 6.14 versus 17.66 ± 5.88 ; $p=.03$) tests. Gender was equivalent between eligible and non-eligible participant groups (63.1% female versus 61.5%, respectively; $p=.70$). Among predictors (i.e., age, gender, years of education, MMSE, and animal naming), only baseline MMSE scores predicted study eligibility (AOR=1.081; 95% CI 1.009-1.158; $p=.03$) in

multivariable modeling. Four hundred sixty-five (465 / 998; 47%) study eligible AAH participants were sent letters for possible recruitment. Those to whom recruitment letters were sent had lower AAH baseline scores on the MMSE (27.47 ± 2.90 versus 28.07 ± 2.61 , respectively; $p = .005$) compared to those not sent letters ($n = 533$) but did not differ in age (56.23 ± 4.34 versus 56.37 ± 4.50), education (12.45 ± 3.23 versus 12.35 ± 2.78), gender (62.6% female versus 63.0%), or animal naming scores (19.23 ± 6.22 versus 18.50 ± 6.02 ; $p = .07$). In multivariable modeling lower MMSE scores (AOR=0.888; 95% CI 0.839-0.940; $p < .001$) and higher animal naming scores (AOR=1.033; 95% CI 1.008-1.058; $p < .01$) predicted being sent a letter for possible recruitment, but age, gender, and years of education did not differ compared to those not sent letters (all $p_s > .05$). One hundred forty-seven (147 / 998; 15%) AAH participants were recruited into the ancillary study and completed screening (i.e., visit 1); thus, the participation rate among those sent a letter for possible recruitment was 32% (i.e., 147 / 465). Visit 1 participants ($n = 147$) had more education (13.03 ± 3.25 versus 12.29 ± 2.94 ; $p = .005$) and higher animal naming scores (20.11 ± 6.18 versus 18.63 ± 6.09 ; $p = .016$) compared to those who did not complete screening ($n = 841$), but age (56.48 ± 4.23 versus 56.27 ± 4.46), gender (59.9% female versus 63.3%), and MMSE scores (28.02 ± 2.44 versus 27.75 ± 2.82) did not differ by group (all $p_s > .05$). In multivariable modeling, animal naming scores (AOR=1.035; 95% CI 1.001-1.070; $p < .05$) alone predicted completing visit 1 with all other variables $p > .05$. Ninety-three participants (93 / 998; 9%) were selected for the validation visit (i.e., visit 2), and those selected, compared to other AAH participants ($n = 905$), did not differ in age (56.81 ± 4.01 versus 56.25 ± 4.46 ; $p = .177$), education (13.09 ± 3.35 versus 12.33 ± 2.95 ; $p = .107$), gender (62.4% female versus 62.9%; $p = .923$), MMSE scores (28.29 ± 2.18 versus 27.74 ± 2.82 ; $p = .134$), or animal naming scores (19.76 ± 5.99 versus 18.75 ± 6.13 ; $p = .152$). No variables were predictive of being selected for the validation visit (all $p_s > .05$) in multivariable modeling. Sixty-one participants (61 / 998; 6%) returned and completed a clinical assessment by a physician at visit 2 (i.e., validation); thus, participation rate among participants selected for visit 2 was 66% (i.e., 61 / 93). Visit 2 participants, compared to other AAH participants ($n = 937$), did not differ in age (56.27 ± 4.44 versus 56.74 ± 4.13 ; $p = .37$), gender (62.3% female versus 62.9%; $p = .93$), education (12.36 ± 2.99 versus 12.93 ± 3.14 ; $p = .32$), MMSE (27.76 ± 2.80 versus 28.21 ± 2.23 ; $p = .322$) or animal naming (18.78 ± 6.09 versus 19.80 ± 6.45) scores, and no variables were predictive of completing visit 2 (all $p_s > .05$) in multivariable modeling. Demographic and cognitive characteristic associations with sampling and recruitment, where present, were not consistent.

Visits 1 (Screening) and 2 (Validation)

Participants ($n = 147$) screened for dementia were 60% female and 45% resided in the inner city. Their average age was 61.14 ± 4.5 (range 54-70) and education (years) was 13.22 ± 2.7 . Scores on screening instruments were: MMSE 27.90 ± 1.9 ; SBT 2.69 ± 3.1 ; and AD8 1.46 ± 1.9 . Ratings on the BIDD identified 119 (81%) with no dementia, 25 (17%) with uncertain dementia, and 3 (2%) with dementia. Administration times (minutes: seconds) were: MMSE = 05:40 $\pm$ 01:37; SBT = 04:48 $\pm$ 01:57; AD8 = 02:24 $\pm$ 01:45; BIDD = 07:04 $\pm$ 02:25. Informants included family members in 62% (spouses [21%], children [19%], siblings [10%], and other relatives such as cousins, aunts, and adult grandchildren [12%]) and friends (38%).

Median number of days between screening and follow-up visits was 30. Clinical assessments included individuals with BIDD ratings of no dementia ($n = 39$), uncertain dementia ($n = 20$), and dementia ($n = 2$). Participants completing the follow-up clinical assessment were 64% female and 54% resided in the city. Their average age was 61.31 ± 4.4 and education (years) was 12.87 ± 2.8 . Informants included spouses (20%), children (18%), siblings (13%), other relatives (8%) and friends (41%). Clinical assessment results included 39 participants with a CDR score of 0 (no dementia) and 22 participants with a CDR of 0.5 (uncertain dementia or very mild dementia); there were no participants with a CDR of 1 or greater. CDR 0 scores

(n=39) included individuals with BIDD ratings of no dementia (n=31) and uncertain dementia (n=8); and CDR 0.5 (n=22) scores included individuals with BIDD ratings of no dementia (n=8), uncertain dementia (n=12), and dementia (n=2). Primary diagnoses for participants with a CDR of 0.5 included a) dementia of the Alzheimer type (DAT; n=8), b) vascular dementia (n=1), c) incipient dementia (active mood disorder; n=1) and d) uncertain/questionable dementia (n=12). The low prevalence of diagnosed dementia (e.g., DAT or vascular dementia) for CDR 0.5 ratings is consistent with the relatively young age of the sample; participants given a CDR 0.5 designation were 61.50 ± 4.9 .

Table 1 provides scores (means $\pm$ standard deviations) on dementia screening instruments and neuropsychological tests for participants rated CDR 0 and CDR 0.5. Participants with a CDR 0.5 rating had higher AD8 ($p < .001$), lower Logical Memory Delayed Recall ($p < .05$), and worse GDS scores ($p < .01$), and fewer were rated no dementia on the BIDD ($p < .01$). Scores on other measures did not differ between groups (all p -values $> .10$).

Standard receiver operator characteristic (ROC) curves were determined to investigate how well screening instruments were able to discriminate between CDR 0 (no dementia) and CDR 0.5 (very mild dementia). [Note: BIDD classifications of uncertain dementia and dementia are collapsed because there were only n=2 cases in the latter category.] ROC curves for the MMSE (AUC = .460; $p = .61$; 95% CI 0.32-0.60) and SBT (AUC = .458; $p = .59$; 95% CI .30-.62) show that neither test effectively distinguished between CDR 0 and CDR 0.5. ROC curves were highest for the AD8 (AUC = .847; $p < .001$; 95% CI 0.73-0.96) and the BIDD (AUC = .716, $p < .01$; 95% CI 0.58-0.86), indicating very good and good discrimination between CDR 0 and CDR 0.5 for the AD8 and BIDD, respectively. Cutoff scores on the AD8 of ≥ 1 yielded a sensitivity of .86 and specificity of .59 and ≥ 2 demonstrated a sensitivity of .73 and specificity of .79. Sensitivity was .63 and specificity .79 for the BIDD using a cutoff point of no dementia versus uncertain dementia / dementia.

DISCUSSION

This work extends previous investigations of the AD8^{14,15} in two important ways. First, community-dwelling older adults with a low rate of dementia were sampled for this study, rather than relying on convenience samples of older adults with much higher base rates of dementia. Second, the study sample included only African Americans, an understudied group in dementia assessment research.

A key finding of this preliminary investigation was that an informant-based dementia screening tool was successfully applied in a sample of African Americans recruited from a large epidemiologic study. The AD8 averaged less than 3 minutes to complete. Informants were more likely to be friends of participants and less likely to be spouses in this community sample when compared to informants in clinic-based samples.^{14,15} Identification of an informant was not a major barrier to conducting this ancillary study to the AAH project; only 6% (14 / 252) of subjects contacted from the parent study were unable to identify an informant. The percentage without an informant in this study is slightly higher than that reported for clinic-based samples,¹⁵ yet is still low enough to permit an informant-based measure, such as the AD8, to be used in epidemiologic research. Nonetheless, the findings regarding informant availability in AAH are preliminary because only 54% (252 / 465) of AAH participants to whom a recruitment letter was sent were contacted by telephone and the 32% (147 / 465) participation rate was low (in part, because funding constraints precluded a study sample above 150). It is plausible a higher percentage of AAH participants would not be able to identify a reliable informant to complete the AD8. Older individuals (e.g., ages 75+) might also be less likely to be able to identify reliable informants.

This study provides preliminary evidence that the AD8 is a useful tool for distinguishing between CDR 0 from CDR 0.5 in a population-based sample of an important disadvantaged minority group (African Americans). The distinction of CDR 0 from CDR 0.5 with the AD8 was supported by worse performance for the CDR 0.5 groups on an independent measure (the delayed recall WMS LM) of episodic memory, which is affected in early-stage dementia.^{33, 34} The AD8 may be detecting cognitive problems at a stage before the degree of cognitive decline detected by tests such as the MMSE or SBT is evident and hence prior to the recognition of cognitive impairment that is based on cut-off scores on screening tests such as the MMSE or SBT.³⁵

Informant-based measures, such as the AD8, identify memory and thinking problems through use of an individual as his/her own control, thereby avoiding known confounds or biases (e.g., education) of other dementia screening measures, such as the MMSE or SBT. In this preliminary study, the performance-based measures, MMSE and SBT, did not effectively discriminate between CDR 0 and CDR 0.5. Clinical impression ratings using the BIDD were better than the MMSE or SBT and overall achieved good discriminative ability for CDR 0.5. The AD8 alone was the most effective measure for discriminating between CDR 0 and CDR 0.5.

There are other limitations for this preliminary study. The AD8 is a screening tool, so follow-up assessments are needed to confirm the validity of the identified cognitive impairment as well as to complete the differential diagnosis of dementia. The study sample was small, the participation rate was low (32%), participants were relatively young for the occurrence of dementia, and individuals were only eligible for participation in the parent AAH study if their MMSE scores were 16 or higher; these factors may reduce external validity. The reliability of the AD8 has yet to be established among non-Caucasian samples. The CDR was selected as the gold standard based on its demonstrated sensitivity and accuracy in a research sample in which it has been shown to be a valid indicator of longitudinal progression to dementia severity^{36,37} and by neuropathologic diagnosis of dementia.^{38,39} The degree to which CDR 0.5 is predictive of greater cognitive decline and dementia is uncertain in the current study sample without longitudinal follow-up investigations. There was a low frequency of diagnosed dementia at the CDR 0.5 stage, as might be expected given the mean age of the sample (61 y); more commonly, uncertain dementia was identified. Longitudinal follow-up also is required to validate that the BIDD is detecting cognitive impairment caused by dementia or other conditions (e.g., depression). The potentially greater sensitivity and specificity of the AD8 alone rather than combined with brief neuropsychological tests of the participant in the BIDD needs to be evaluated in a larger sample with more individuals with diagnosed dementia. Even with these limitations, however, the AD8 appears to have potential as a portable dementia screening instrument feasible to use in an African American community sample.

In summary, the AD8 is a brief, acceptable, easily-administered, informant-based dementia screening instrument that compares individuals against their prior cognitive function. In this preliminary study, the AD8 demonstrated high sensitivity and specificity for distinguishing CDR 0 from CDR 0.5 and, among a subset of AAH participants, informant availability was not a barrier to study participation; additional studies with larger samples, with higher participation rates, higher dementia rates, and older participants are warranted to confirm these findings. The AD8 may prove useful as a screening instrument for early dementia in clinical venues as well, especially once dementia-remitive therapies become available.

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Figure 1.
Participation Chart.

Table 1
Screening Tests (Visit 1) by Clinical Assessment Results (Visit 2)

Screening	Clinical Assessment [*]		P-Value [†]
Tests for Very Mild Dementia	CDR 0 (n=39)	CDR 0.5 (n=22)	
AD8 (0-8)	0.67 (0.9)	3.45 (2.4)	<.001
Mini-Mental State Exam (0-30)	27.67 (2.3)	27.68 (1.5)	.604
Short Blessed Test (0-28)	3.18 (3.6)	2.91 (3.6)	.576
Brief Instrument for Dementia Detection			.001
No Dementia	31 (79%)	8 (36%)	
Uncertain Dementia or Dementia	8 (21%)	14 (64%)	
Neuropsychological Tests			
Trailmaking A (Seconds)	45.38 (24.3)	46.51 (16.2)	.261
Trailmaking B (Seconds)	134.68 (75.7)	133.63 (76.5)	.793
Animal Fluency	20.51 (6.2)	19.43 (7.1)	.509
Logical Memory I: Immediate Recall	29.29 (9.6)	26.91 (11.3)	.341
Logical Memory II: Delayed Recall	27.42 (10.0)	21.68 (12.5)	.047
Geriatric Depression Scale (0-15)	2.33 (2.5)	4.91 (3.6)	.004

^{*} CDR = Clinical Dementia Rating.

[†] CDR 0 and CDR 0.5 groups compared using a chi-square test for the Brief Instrument for Dementia Detection and a Mann-Whitney U tests for all other measures.