Published in final edited form as:

Int J Cult Ment Health. 2013 January 1; 6(1): 58–71. doi:10.1080/17542863.2011.623042.

Discord of Measurements in Assessing Depression among African Americans with Cancer Diagnoses

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Abstract

Objective—This study examined the level of agreement among the Center for Epidemiologic Studies-Depression Scale (CES-D), Hamilton Rating Scale for Depression (HAM-D), Beck Depression Inventory (BDI-II), and Observers' Rating on assessing depression of African American adults with cancer.

Methods—75 breast and prostate cancer patients (57 African Americans and 18 Whites) were interviewed and administered the depression measures. Nonparametric tests were performed to examine the level of measurement agreement by group and the symptom items of CES-D, HAM-D and BDI-II to which African American patients responded differently across measures.

Results—The four measures showed agreement on approximately 75% of the cases in both racial groups. However, the difference between measures in identifying depressive cases is marked. The item analysis indicated that most measurement disagreements about African American patients occurred on two items: self-report of depression and sleeping disturbance.

Conclusion—Measurement discord may be explained by African American's reporting behavior that varies from a self-reported measure to an interviewer-administrated measure of depression. African American patients showed a reluctance to use the word "depression" and a tendency to report sleep disturbance. The findings suggest that accurately assessing depression in these patients requires a consideration of their culturally shaped life experiences.

Depression is common among cancer patients. It is estimated that at least 20% to 25% of cancer patients manifest symptoms of a major depressive episode at a time during their illness (Plumb & Holland, 1977; Kathol, Mutgi, Williams, Clamon, & Noyes, 1990). Regardless of the nature of its relation with cancer, depression is significantly associated with cancer death (Satin, Linden, & Phillips, 2009). African American cancer patients have the shortest survival among all ethnic groups in the United States (ACS, 2009). Accurate assessment of depression in African American cancer patients is important because of its potential impact on improving compliance with cancer treatment and consequently the reduction of disparity in cancer mortality. However, a few studies have examined depression in African American cancer patients (Aziz & Rowland, 2002). Some reported that these patients experienced depression less frequently than (Culver, Arena, Antoni, & Carver 2002; Zhang & Cooper, 2009) or as often as (Rodrigue, 1997) White cancer patients. Others reported an opposite finding (Kurtz, Kurtz, Stommel, Given, & Given, 2002). The

inconsistency and contradictions among the study findings suggest that measurement discord is a potential problem despite other methodological concerns such as researcher's ability to function effectively within the context of African American cultural beliefs, behaviors and needs or so-called "cultural competency."

Existing measures of depression have not been fully validated for African Americans. The Center for Epidemiologic Studies-Depression Scale (CES-D) is widely administered to African Americans, but its psychometric properties have not been established by the validity test as described in the DSM-IVTR as a "gold standard" for African Americans (Foley, Reed, Mutran, & DeVellis, 2002; Roberts, 1980). Results indicated that some CES-D items functioned differently for African Americans than for Whites. This has led to the argument that certain CES-D items are irrelevant to African Americans and should be eliminated (Cole, Kawachi, Maller, & Berkman, 2000; Nguyen, Kitner-Triolo, Evans, & Zonderman, 2004). The revised Beck Depression Inventory (BDI-II) was published in 1996 and validated in a sample of 500 subjects that included only 21 (4%) African Americans. There are no sufficient data to support the sensitivity and specificity of the BDI-II for African Americans (Beck, Steer, & Brown, 1996; Steer, Shaw, Beck, & Fine, 1977). Evidence regarding validation of the Hamilton Rating Scale for African Americans is also scarce. Clearly, current knowledge of African American depression is based primarily on the application of measures that have yet to be validated in this population.

The fact that most existing studies reported a lower or equivalent level of depression in African American cancer patients may indicate under-recognition of depression in this population. Reported difficulties in recognizing depression in African Americans have been attributed to cultural variation in symptom manifestation (Brown, Schulberg, & Madonia, 1996), reporting (Gallo, Cooper-Patrick, & Lesikar, 1998) and cultural insensitivity of measures (Barbee, 1992). The literature shows that African Americans tend to report somatic symptoms more than Whites (Zhang & Snowden, 1999); this makes the detection of depression more difficult because of similarities between cancer symptoms such as fatigue and the somatic symptoms of depression such as having low energy (Trask, 2004). The other ethnic/racial difference in depressive symptom literature indicates that there is limited disclosure of emotions among African Americans. Brown and Schulberg (1998) have suggested that depressed mood is less obvious when compared to other depressive symptoms in African American women. Gary and Yarandi (2004) reported a lower factor loading of affective items than somatic and cognitive items of the BDI-II among 206 southern rural African American women. African Americans may use different ways or words to express depressive emotions, which may contribute to measurement discord since existing depression measures were developed from predominantly White samples.

While at the core of this measurement issue is the validity (including the sensitivity and specificity) of depression measures, this validity must be evaluated according to African Americans' lived experience with depression. Testing the sensitivity and specificity of measures requires a large African American sample. However, examining the concordance of existing measures in case finding, using both quantitative and qualitative methods, can shed light on the underlying cultural context and enhance our understanding of African American cancer patients' responses to depression measures. This type of focused research will help to contribute to the evaluation of measurement validity for this potentially devastating malady. Therefore, in this study, we focused on examining the agreement and discord among four commonly used measures of depression with the intent of addressing these questions: Are there differences among depression measures in detecting depression of African American cancer patients? What are these differences?

Methods

This study was conducted in Cleveland, Ohio between 2006 and 2008. The hospital tumor registry was utilized to identify potentially eligible patients. Subject eligibility included a diagnosis of early-stage breast or prostate cancer (stages I-III) within the past 3 years and the completion of cancer treatments at least 6 months prior. Individuals with psychotic symptoms were excluded. With the Institutional Review Board's approval and physicians' permission, an introductory letter and the IRB-approved consent form were mailed to the identified cancer patients. Research staff followed up the mailing and contacted patients by phone to introduce the study and determine eligibility. The eligible and consenting patients were scheduled for an in-person interview. Written consent was obtained at the time of this face-to-face interview.

Design

The study used mixed methods to evaluate depressive symptoms in cancer patients. Purposeful sampling was designed to recruit 60 African American cancer patients (40 depressed and 20 non-depressed) and 20 depressed White cancer patients as a comparison group. The Center for Epidemiologic Studies-Depression Scale (CES-D) was mailed in advance and used during the phone screening to determine patients' depression status and eligibility. Eligible and consenting patients were recruited consecutively, resulting in a final study sample of 75 subjects, with 57 African Americans and 18 non-Hispanic Whites.

In-depth interview

The recruited study subjects were interviewed once for two hours either at their homes or other private locations. Three interviewers, two African American and one White, were licensed in psychiatric nursing or social work, had Masters degrees in the specialty, and had decades of clinical experience with individuals who had mental illnesses. They completed a mandatory training session in advance, which addressed such topics as crises management, referral resources for individuals in need of further evaluation, and cultural issues that were manifest in the local African American community. The literature suggests that ethnic match between patients and therapists enhance subject retention and utilization of services, possibly due to rapport (Sue, 1998). Hence, the interviewers were matched with study subjects on racial/ethnic status to help ensure cultural sensitivity during data collection.

An interview guide was used to collect contextual information. At the beginning of the interview, the study subjects were asked whether the word "depression" was acceptable and, if not, what word would they use to describe stress related to their cancer. The self-identified word such as feeling "down" or "low" was used to explore cancer-related stress. Subjects' response to this portion of the interview was used in this study. Interviews were audiotaped and transcribed. Study investigators (authors) listened to 40% of the taped interviews to safeguard against interview deviation. At the end of this interview, the following measures were administered and study subjects received a \$30 honorarium for completing the interviews.

Measurement

The Center for Epidemiologic Studies-Depression Scale (CES-D) is a 20-item, self-report scale for depression screening in the general population (Radloff, 1977). A cutoff score of 16 is recommended for identifying individuals with depression (APA, 2000). This measure was selected because it is easy to be understood and administered in African Americans (Wilcox, Field, Prodromidis, & Scafidi, 1998).

The Hamilton Rating Scale for Depression (HAM-D) is not a self-reporting measure, but a commonly used interviewer-administered rating scale of depressive symptoms. It is used to gauge the severity of depression in patients already diagnosed with depressive disorders (McDowell, & Newell, 1996). Its original 21 items were used with a cutoff score of 7 or higher as recommended for identifying depression.

The Beck Depression Inventory-II (BDI-II) is a 21-item self-report scale and commonly used to screen for depression in community residents and for clinical research (Beck *et al.*, 1996; Beck, Steer, & Garbin, 1988). A cutoff score of 14 is recommended for identifying depression.

Observational Rating of Depression was provided by the interviewers in these categories: not depressed, mildly depressed, moderately depressed, or severely depressed, as based on clinical observations.

Data analysis

To address the first study question, the agreement of depressive measures in case finding was first assessed. The “depressive cases” whose total scores were above the cutoff were identified; the number and percentage of these cases were calculated using each depressive measure. The four depressive measures were grouped in pairs. Using cases that were identified as “depressive” by any measures in a pair, we performed frequency tests to identify the number and percentage of cases that either agreed or disagreed by both measures on depression status. The calculation was performed for white and African American groups, respectively.

To address the second study question, the item analysis was performed for the African American group alone to examine how it responded differently to the two, paired measures. This analysis was conducted in three steps. First, on every pair of the two measures to be compared, African American patients were put in two groups: those identified as “depressed” by measure A *alone* and those identified as “depressed” either by measure B or by both measures A and B. This grouping allowed us to find out why some patients were identified as “depressed” on one measure (e.g., measure A) but not on the other (e.g., measure B). Nonparametric tests (the Fisher’s exact test and the Chi-square test) were performed to compare the responses of the two groups on every item of measure A. When two groups exhibited a significant difference on an item of the measure A, this item was identified and reported, because it contributed differently to the patients’ total score on the measure A and, hence, was likely to influence the case finding. Next, the two groups were compared on the responses to the items of measure B that are corresponding to the identified items on the measure A. This comparison revealed group differences in response to the same item on two different measures. Further, the same analysis was repeated with a different grouping: those identified as “depressed” by measures B alone versus those identified as “depressed” either by measure A or both measures A and B. The same process was then repeated for every pair of the depressive measures.

Lastly, two experienced coders, led by the principal investigator (the first author), conducted qualitative data analysis of the transcripts. They used the initial five transcripts to develop initial codes, met weekly to compare notes of newly merged themes and added codes, and developed a code book throughout this iterative process. They coded each transcript independently using Atlas 9.0 software. A code of “use the word depression” was created to describe patients’ preferred words for cancer related stress. The narrative contents of this code were analyzed and reported in this study due to their relevance to the study questions.

Results

The study sample included 57 African American and 18 White patients. The mean age was 63 years for African Americans and 59 for the Whites. The gender was evenly split (51%/49%) among African Americans, but predominately with females (72%) among Whites. For African Americans, 39% were married, 14% had a college or higher degree, 35% were employed, and 30% had a household income less than \$15,000 a year. For Whites, 61% were married, 44% had a college or higher degree, 61% were employed, and only 6% had a household income of less than \$15,000 (see Table 1).

The agreement between two measures on depressive status is over 75% across groups, except a slightly lower agreement between CES-D and BDI-II for Whites (65%) and between HAM-D and BDI-II for African Americans (67%). However, the 25% disagreement between any two paired measures is noteworthy. For African American patients, CES-D and observers' rating each identified 25% more depressive cases than did the BDI-II. The CES-D identified 9% depressive cases alone as compared to the observers' rating, *vice versa*. The CES-D identified 9% of depressive cases alone and HAM-D identified 14% of depressive cases alone when these two measures were compared. Further, HAM-D identified 31% more depressive cases than did the BDI-II. It also identified 11% depressive cases alone whereas the observers' rating identified 5% depressive cases alone when both measures were compared.

For White patients, CES-D identified 35%, 22%, and 6% more depressive cases than the BDI-II, HAM-D, and the observers' rating. The observers' rating identified more depressive cases than did the BDI-II and the HAM-D by 29% and 17%, whereas the HAM-D identified 18% more depressive cases than did the BDI-II. The BDI-II did not identify additional depressive cases to any other measures except one case when compared to HAM-D (see Table 2 in the column of "disagreement").

The item analysis comparing 8 depressive cases identified by HAM-D alone with 35 depressive cases identified by CES-D or jointly by CES-D and HAM-D indicated that the two groups significantly differed on the two items of HAM-D ($p < .01$): "do you think you are depressed?" and "quality of last week's sleep." Regarding the first item, half of the 8 cases (50%) identified by HAM-D alone were rated "2" (*denies being ill at all*) as compared to only 6% in the other group of 35 cases, thus receiving a higher total HAM-D score of depression. However, on a similar item of CES-D "I felt depressed," more of these 8 cases reported "*none of the time*" (38%) or "*some or a little of the time*" (50%), whereas fewer (3% and 34%, respectively) in another group of 35 cases did so. Regarding the second item of sleep quality in the previous week, the two groups also differed significantly ($p < .01$). The 8 depressive cases identified solely by HAM-D reported either "no difficulty in sleep" (38%) or "up to 2-3 nights of troubled sleep" (63%), whereas more in the other group reported 4 nights or more of troubled sleep in the previous week (57%). Comparing the two groups on a similar item of CES-D "my sleep was restless" in the past week, the 8 depressive cases identified by HAM-D continued to report significantly less sleeping disturbance ($p < .01$) than the other group with 1 of the 8 cases reporting more severe sleep disturbance in the category of "*most or all of the time*". The findings together suggest a worsening sleeping condition in both groups when assessed by CES-D.

The item analysis was also performed to compare subject responses between 18 depressive cases identified by HAM-D alone and 21 depressive cases identified by BDI-II or jointly by BDI-II and HAM-D when they were in agreement. The two groups were found significantly different on four items of the HAM-D: "do you think you are depressed?" "feeling sad or having low, blue mood," "feelings of guilt," and "quality of last week's sleep." On the

HAM-D item of “do you think you are depressed,” 6 of the 18 cases were rated 2 (*denies being ill at all*) at a significantly higher rate of 33% ($p = .01$) than the other group of 21 depressed cases (0%). The BDI-II does not contain a similar item of self-reported depression. On the second HAM-D item of “sad, low, or blue mood,” 6 out of the 18 cases (33%) reported not feeling sad, low, or blue as compared to 1 case (5%) in the other group (21 depressed cases) ($p = .05$). However, on a similar BDI-II item of “sadness,” 15 of 18 cases (83%) reported not feeling sad as compared to 6 cases reporting no sadness (28%) in the other group ($p = .01$); this indicated that both groups, particularly the 18 cases, reported more sadness on HAM-D than BDI-II. On another HAM-D item of “feelings of guilt,” 12 of 18 cases (67%) reported not feeling guilt at a significantly higher level than the other group (28%; $p = .05$); however, on a similar BDI-II item of “guilty feelings,” all 18 cases reported not feeling guilty as compared to 6 cases (29%) in the other group ($p = .01$), which suggests that they responded with more guilt to HAM-D than to the BDI-II. Finally, on the HAM-D item of “difficulty sleeping last week,” 7 of 18 cases (39%) reported “*no difficulty*” at a significantly higher rate than the other group (14%; $p = .05$), but on the BDI-II item of “changes in sleeping pattern,” 2 of these 7 patients reported “*slept lot more or less than usual*” and the significant group difference in sleeping problems disappeared, which indicates worsened sleeping problems in this group as measured by BDI-II, rather than HAM-D.

The item analysis was further performed to compare 6 depressive cases identified by HAM-D alone and 35 depressive cases identified by the observers or jointly by the observers and the HAM-D when the two measures were in agreement. The two groups were significantly different on the HAM-D item of “do you think you are depressed?” The result showed that 3 of 6 cases (50%) were rated 2 on this item (*denies being ill at all*) as compared to 9% cases in the other group of 35 depressed cases ($p = .05$). Yet, all 6 cases were rated “not depressed” by the observers, which suggests that they were identified to be depressed mainly because of the elevated rating on the HAM-D item of depression.

Moreover, we compared subject responses between the 5 depressive cases identified by CES-D alone and 38 depressive cases identified by HAM-D or jointly by HAM-D and CES-D when they were in agreement. These 5 depressive cases reported significantly less sleeping disturbance than the other group of 38 depressed cases ($p = .05$) on HAM-D items of “*quality of last week sleep*” and “*wake up earlier than expected*.” However, 4 of them reported sleeping disturbance “*occasionally or most or all of the time*” on CES-D, and there was no significant difference between the groups on any other CES-D items. The results confirmed that sleep disturbance was worse in response to CES-D than to the HAM-D among these 5 depressive cases (see Table 3).

Finally, we compared the 5 depressive cases identified by CES-D alone and 35 depressive cases identified by the observers or jointly by the observers and the CES-D when they were in agreement. We did not detect a significant group difference on any CES-D items. When we flipped it to examine differences between the 5 depressive cases identified by the observers alone and the 35 depressive cases identified by the observers or jointly by the observers and CES-D, these 5 cases reported feeling significantly less bothered, burdened, blue, sad ($p = .01$), or depressed ($p = .05$) and less sleeping disturbance ($p = .01$) than the other group on CES-D. Apparently, CES-D identified more depressive cases than the observers’ ratings, mainly due to the self-report of affective symptoms such as feeling sad, lonely, or blue.

The qualitative data analysis helped to shed light on African American patients’ use of the word “depression. The interview guide contained a question that was asked during the in-depth interview: “Sometimes people feel really down, really low, or really blue. This is a

kind of feeling that some people describes as ‘depressed.’ Would you use the word ‘depression’ to describe this kind of feeling? If not, what words would you use to describe this feeling?” Examples of responses from four African American patients that were assessed as “depressed” on HAM-D are provided below.

“I don’t think I thought so much ‘depressed,’ as like it’s blue. I did feel blue, but I guess I wouldn’t have said the word ‘depressed.’ I was just sad, just really sad and shocked, just scared.”

“My family doctor would try to tell me I was depressed. I told this man I wasn’t, because, I guess, maybe I don’t like the word. It’s saying that I’m sick and I have to take another pill. I don’t like taking pills, and this is why I just said, ‘No, I’m not depressed.’”

“I can’t say. Well, you know it’s all kind of ways that they describe depression. The kind that you can’t get out the bed and stuff like that, I wasn’t like that.”

“I don’t think I was. I really don’t. Like I said, I had support. I had church family support, my sisters, my mother and my brother, in-laws. You knowanything I wanted or needed, you know ...everybody was jumping to it ...you know, so I don’t think I got a chance to be depressed... you know.”

Discussion

The agreement among all four measures approximated 75%. This finding suggests a relatively good consistency between these measures in identifying depression in both White and African American groups.

The disagreement of the measures ranged from 6% to 35% with the White group. The CES-D identified more depressive cases than did the HAM-D, BDI-II, and the observers’ rating by 22%, 35%, and 6%. It is not surprising that the White patients were more responsive to CES-D, a screening tool that was designed to detect depressive symptoms with a lower threshold and, hence, is characterized by greater sensitivity.

The disagreement of measures ranged similarly from 16% to 33% but differed in reasons with regard to the African American group. HAM-D identified more depressive cases than CES-D, BDI-II, and the observers’ rating by 14%, 32%, and 11%. The item analysis showed that half of the patients who were identified as “depressed” solely by the HAM-D received a higher depression score on a single item of the HAM-D: “Do you think you are depressed?” These patients were not found to be depressed on the CES-D, BDI-II, or on the observers’ rating, but rated by the interviewers to be in denial of depression and rendered the highest score of 2 on the HAM-D. It is possible that interviewers’ biases was incurred and resulted in the discord among the measurements. However, the study interviewers were African American and had more than a decade of clinical experience with identifying and managing depression across various ethnic groups. It is plausible that depression is a “buzz word” in this question that caused African American patients to deny or not resonate with the concept. Our qualitative data analysis showed that about 20% of African American patients stated a preference of other words to depression, for example, “feeling low, blue or down,” and they refused to be associated with a label of depression. Supporting this observation, African American patients reported more problems in response to the HAM-D items that assess “feeling sad, low, or blue” and “guilt.” These findings should alert clinicians and researchers to be more aware of African Americans’ non-responsiveness to the word depression and to be cautious with using it in clinical assessments or research. Professionals should also be aware that cultural values might help to restrain help-seeking behaviors in informal and formal systems. The role of stigma as related to mental health issues should not be

underestimated. When African Americans have a mental illness, it is “double stigma” among some individuals. The combinations of being African American, having a mental illness and a disease such as cancer, can be conceptualized as “triple stigma” (Gary, 2005). Although the percentage of African American patients disliking this word may be small, until more science is available about depression among African Americans in general, and in individuals with a diagnosis of cancer, researchers and clinicians should be cautious and remember that language choices can make a difference in diagnosis and treatment options.

Another item on the HAM-D that consistently exhibited a significant difference from items on CES-D and BDI-II concerns the sleep disturbance (i.e., insomnia) in the past week. African American patients who were identified by HAM-D alone as “depressed” reported significantly less sleeping difficulty in the past week than other patients on the HAM-D. However, they reported more sleeping difficulty on CES-D and as much sleeping problems as others on BDI-II. Further supporting this observation, the 5 depressed patients identified by CES-D alone reported significantly less sleeping problems on HAM-D than those identified by HAM-D or both measures. It is common knowledge that African Americans, especially the elderly, frequently complain of sleeping problems (Green, Baker, Smith, & Sato, 2003), and this complaint has been considered as a somatic manifestation of depression in this population (Brown *et al.*, 1996). The study findings, however, demonstrate that such a complaint may be subdued when assessed by the HAM-D.

The contrast between African American patients’ responses to HAM-D and other measures suggests that reporting behavior affects the clinical assessment of depression. Unlike other measures, HAM-D is an interviewer-administered scale that allows probing and is not dependent entirely on the self report. Using this approach, African American patients’ responses to the word of depression were observed and probed; their complaints of sleeping problems, which might be overstated, perhaps to express a need for the researchers’ caring, were lessened; and they were more willing to express affective symptoms: the reports of feeling sad increased from 17% on BDI-II to 67% on HAM-D, and feelings of guilt increased from 0 on BDI-II to 33% on HAM-D among those identified by HAM-D alone as depressed. Although there may only be a subset of African American patients who report fewer affective symptoms or more somatic symptoms, the presence of a culturally competent interviewer has advantages over self-report because it allows these patients to generate, modify, and refine information for accurate assessment.

Interestingly, the BDI-II identified fewer depressive cases in African American cancer patients than HAM-D by 18% and CES-D or the observer’s rating by 25%. When any other measure was employed, BDI-II did not seem to add additional value to case findings in African American cancer patients.

The main lessons to be learned from this study include the precaution of using the word depression and the value of the presence of an African American or culturally competent interviewer. The implication is that the assessment of depression is not merely a process of measuring depressive symptoms, but also a process involving the patient’s reporting behaviors and the interviewers’ probing conduct, which are affected by one’s life experience in a cultural context. A holistic assessment approach that takes these contextual factors into consideration would help improve the accuracy of depression assessment for African American cancer patients.

The study has some limitations. The sample size of this study allowed detection of a medium to large effect size in a two-tailed t-test or chi-square test with 80% power at a 0.05 significance level. A racial difference of a medium to large effect size was our primary interest because it has significantly greater clinical implications. However, any racial

difference of a small effect size could have gone undetected. The study sample size also reduced the possibility of multivariate analysis due to insufficient power. Without controlling for demographic and socioeconomic covariates, the study findings could potentially be attributed to socioeconomic difference between groups rather than race. For example, the female dominance in the White group poses a problem because female patients might report depressive symptoms differently from male patients. African American patients' relatively lower education in this sample may also confound ethnic/cultural difference to an extent. The impact of demographic and socioeconomic factors on African Americans' reporting behaviors has yet to be examined in a multivariate data analysis with a larger sample in the future.

In conclusion, the disagreement among depression measures reveals an underlying transcultural issue concerning the cultural sensitivity of words used during depression assessment and appropriate probing by a qualified interviewer. The HAM-D appears to have advantage over other instruments in this regard. BDI-II is the most conservative instrument and adds no more cases when any other instrument was used for African American cancer patients. The question regarding the validity (including sensitivity and specificity) of these instruments remains as it must be examined against the lived experience of African American cancer patients with depression. Nonetheless, the study findings enhanced our understanding of African Americans' responses to these depression measures and provide guidance for clinicians and researchers to better conduct assessments of depression among African American cancer patients.

Acknowledgments

The study was supported by National Institutes of Health/National Cancer Institute (R03 CA115191; PI: Zhang).

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Table 1

Sample Demographics

Variable	African American (n=57)		Caucasian (n=18)	
	Mean	S.D.	Mean	S.D.
Age	63	10	59	11
	N	%	N	%
Gender				
Female	29	50.9%	13	72.2%
Marital status				
Married	22	38.6%	11	61%
Single	14	24.6	3	16.7
Other (divorced, widowed etc.)	20	35.2	4	22.3
Education				
High school	19	33.3%	4	22.2%
Some college	29	50.9	6	33.3
College	8	14	8	44.4
Employment				
Full time	14	24.6%	9	50%
Half time	6	10.5	2	11.1
Unemployed	35	61.4	7	38.9
Income				
<\$15000 (household)	17	29.8%	1	5.6%
<\$25000	8	14	0	0
<\$50,000	11	19.3	5	27.8
\$50,000	9	15.8	7	38.9
Total # of Depressive cases identified by				
CES-D	35	61%	18	100%
HAM-D	38	67	14	78
BDI-II	21	37	12	67
Observation	35	61	17	94

Tables 2

Comparison of Case Finding by All Measures

Measures	Agreement* : % (N)		Disagreement: % (N)	
	Total agreement	Agreed on non-depress cases	Agreed on depressive cases	Depressive cases identified <i>alone</i> by
CES-D vs. HAM-D				CES-D HAM-D
African American	77% (44)	32% (14)	68% (30)	9% (5) 14% (8)
White	78% (14)	0	100% (14)	22% (4) 0
CES-D vs. BDI-II				CES-D BDI-II
African American	75% (43)	51% (22)	49% (21)	25% (14) 0
White	65% (11)	0	100% (11)	35% (6) 0
CES-D vs. Observing				CES-D Observer
African American	83% (47)	36% (17)	64% (30)	9% (5) 9% (5)
White	94% (17)	0	100% (17)	6% (1) 0
HAM-D vs. BDI-II				HAM-D BDI-II
African American	67% (38)	47% (18)	53% (20)	32% (18) 2% (1)
White	77% (13)	23% (3)	77% (10)	18% (3) 6% (1)
HAM-D vs. Observing				HAM-D Observer
African American	84% (48)	33% (16)	67% (32)	11% (6) 5% (3)
White	83% (15)	7% (1)	93% (14)	0 17% (3)
BDI-II vs. Observing				BDI-II Observer
African American	75% (43)	51% (22)	49% (21)	0 25% (14)
White	71% (12)	8% (1)	92% (11)	0 29% (5)

* Agreement refers to the concordance of measures on assessing depressive status. Disagreement refers to the discord among the measures.

Table 3

Item Analysis for African American Sample

Scale Score	Original question	Groups Identified by	
HAM-D Vs. CES-D			
HAM-D	Do you think you are depressed? **	HAM-D	CES-D
0	Acknowledge being depressed and ill OR not currently depressed	50% (4)	80% (28)
1	Acknowledge illness but attributes it to bad food, climate, virus etc.		14% (5)
2	Denies being ill at all	50% (4)	6% (2)
CES-D	I felt depressed **		
0	Rarely or none of time	38% (3)	3% (1)
1	Some or a little of the time	50% (4)	34% (12)
2	Occasionally or a moderate amount of time	13% (1)	14% (5)
3	Most or all of the time	0	49% (17)
HAM-D	Quality of last week sleep, restless, awaken **		
0	No difficulty	38% (3)	14% (5)
1	Restless and disturbed on 2-3 nights	63% (5)	29% (10)
2	Meet criteria (1) AND wakes on >= 4 nights	0	57% (20)
CES-D	My sleep was restless **		
0	Rarely or none of time (< 1day)	38% (3)	3% (1)
1	Some or a little of the time (1-2 days)	50% (4)	9% (3)
2	Occasionally or a moderate amount of time (3-4 days)	0	14% (5)
3	Most or all of the time (5-7 days)	13% (1)	74% (26)
HAM-D Vs. BDI-II			
HAM-D	Do you think you are depressed? **	HAM-D	BDI-II
0	Acknowledge being depressed and ill OR not currently depressed	67% (12)	86% (18)
1	Acknowledge illness but attributes it to bad food, climate, virus etc.	0	14% (3)
2	Denies being ill at all	33% (6)	0
BDI-II	Loss of Pleasure (Proxy) **		
0	Get as much pleasure as I ever did	56% (10)	5% (1)
1	Do not enjoy things as much as I used to	44% (8)	52% (11)
2	Get very little pleasure than usual	0	38% (8)
3	Can't get any pleasure	0	5% (1)
HAM-D	Depressed mood – sadness, low or blue mood *		
0	Absent	33% (6)	5% (1)
1	Mild, feel sad, blue	61% (11)	43% (9)
2	Moderate	6% (1)	23% (5)
3	Marked	0	5% (1)
4	Severe	0	10% (2)
BDI-II	Sadness **		
0	Do not feel sad	83% (15)	28% (6)

Scale Score	Original question	Groups Identified by	
1	feel sad much of the time	17% (3)	57% (12)
2	I'm sad all of the time	0	5% (1)
3	I'm so sad or unhappy that I can't stand it	0	10% (2)
HAM-D	Feelings of guilt *		
0	Absent	67% (12)	28% (6)
1	Self-reproach	28% (5)	24% (5)
2	Ideas of guilt or rumination over past errors	5% (1)	43% (9)
3	Delusion of guilt	0	5% (1)
BDI-II	Guilty feelings **		
0	Do not feel particularly guilty	100% (18)	29% (6)
1	Feel guilty over many things	0	52% (11)
2	Feel quite guilty most of the time	0	9% (2)
3	Feel guilty all of the time	0	9% (2)
HAM-D	Insomnia (early) – difficulty sleeping last week *		
0	No difficulty	39% (7)	14% (3)
1	Occasional difficulty falling asleep on two or more nights	39% (7)	19% (4)
2	Difficulty falling asleep on >= 4 nights	22% (4)	67% (14)
BDI-II	Changes in sleeping pattern		
0	No change	28% (5)	14% (3)
1	Sleep somewhat more or less than usual	39% (7)	24% (5)
2	Sleep lot more or less than usual	11% (2)	38% (8)
3	Wake up early and cannot get back to sleep	22% (4)	19% (4)
HAM-D Vs. Observer Rating			
HAM-D	Do you think you are depressed? *	HAM-D	Observer
0	Acknowledge being depressed and ill OR not currently depressed	50% (3)	80% (28)
1	Acknowledge illness but attributes it to bad food, climate, virus etc.	0	11% (4)
2	Denies being ill at all	50% (3)	9% (3)
Observer	Level of depression (Observer Rating) **		
0	Not depressed	100% (6)	0
1	Mildly depressed	0	37% (13)
2	Moderately depressed	0	52% (18)
3	Severely depressed	0	11% (4)
CES-D Vs. HAM-D			
HAM-D	Quality of last week sleep, restless, awaken *	CES-D	HAM-D
0	No difficulty	60% (3)	13% (5)
1	Restless and disturbed on 2-3 nights	20% (1)	37% (14)
2	Meet criteria (1) AND wakes on >= 4 nights	20% (1)	50% (19)
HAM-D	Wake up earlier than expected, give up trying to sleep *		
0	No difficulty	80% (4)	24% (9)
1	Awoke in early hours of the morning on two or more mornings	0	24% (9)

Scale Score	Original question	Groups Identified by	
2	Unable to fall back asleep on two or more mornings	20% (1)	52% (20)
CES-D	My sleep was restless		
0	Rarely or none of time (< 1day)	0	10% (4)
1	Some or a little of the time (1-2 days)	20% (1)	16% (6)
2	Occasionally or a moderate amount of time (3-4 days)	40% (2)	8% (3)
3	Most or all of the time (5-7 days)	40% (2)	66% (25)

*
 $p < .05$;

**
 $p < .01$.