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COMPARISON OF SYMPTOMS IN AFRICAN-AMERICAN, ASIAN-AMERICAN, MEXICAN-AMERICAN AND NON-HISPANIC WHITE PATIENTS WITH MAJOR DEPRESSIVE DISORDER

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Abstract

The study compared depressive and associated psychopathological symptoms in 17 African-American, 19 Asian-American, 22 Mexican-American and 41 Non-Hispanic White patients with unipolar major depressive disorder. Overall, severity of depression was comparable among the groups both on clinician-rated and subject-rated measures. However, ethnic-minority groups were more likely to experience diurnal variation of mood, with worsening in the evening. Furthermore, Asian-Americans and Mexican-Americans reported greater severity of anxiety and somatic symptoms. The findings suggest that clinicians should be aware of potential differences in symptom presentation when assessing and treating depressed patients from different ethnic groups.

Keywords

anxiety; cross-cultural; depression; ethnicity; psychopathology; somatization

1. Introduction

There has been a growing interest in ethnic/cultural differences in psychopathology in general and, given its high prevalence and associated disability, in depressive illness in particular (Bailey et al., 2011; Ballenger et al., 2001; Berry, 1992; Breslau et al., 2006; Kalibatseva and Leong, 2011; Kleinman, 1985; Lehti et al., 2010; Lepine, 2001; Mezzich, 1995; Podawiltz and Culpepper, 2010; Sartorius et al., 1980). Ethnic processes have been found to be associated with variations in the prevalence rates of depression, symptom presentation, psychobiological correlates, and treatment response (Alegria et al., 2008; Brown et al., 1996; Escobar, 1984; Escobar et al., 1983; Gavin et al., 2010; Hwu et al., 1989; Karno et al., 1987; Kessler et al., 1994; Kirmayer, 2001; Lee, 2011; Lin, 1995; Lin,

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2001; Takeuchi et al., 1998; Vega et al., 1998; Williams et al., 2007; Woodward et al., 2011; Zhang, 1995). The nature and extent of cross-cultural differences in depression, however, are unclear because a majority of the studies examined only one ethnic group or compared two groups (primarily Non-Hispanic Whites and one ethnic-minority group). Other important methodological differences include the nature of the samples (community, primary care or psychiatric), type of assessment procedures (self-report, and unstructured and structured clinical interviews), as well as varying diagnostic criteria. These factors preclude a generalizability of the findings.

In order to address the influence of ethnicity on severity and patterns of depressive symptoms, the present exploratory study was undertaken whereby symptom profiles of US-born depressed patients from four major ethnic groups were assessed at the same site. The study, part of a larger ongoing investigation, had the purpose of examining the effect of ethnicity on psychobiological processes associated with depression. With respect to the clinical presentation, a relatively homogeneous sample was selected with no comorbid psychiatric or medical illnesses. When examining the psychobiological measures, it became evident that there were cross-ethnic differences on these variables in both depressed patients and normal volunteers (Poland et al., 1999; Rao et al., 2009; Rao et al., 1999). The present analyses were undertaken to examine whether the various ethnic groups differed on patterns of depressive symptoms or associated features despite a consonant clinical profile with respect to depression severity and lack of comorbidity.

In addition to evaluating more diverse ethnic groups, this report extends previous findings in that standardized subjective and objective assessments of depressive and other psychopathological symptoms were performed. Cross-cultural comparison between self-administered and observer-rated measures of depression is important because it has been suggested that depression may be misdiagnosed in ethnic-minority groups as a result of different symptom presentation by these groups (Brown et al., 1996; Chung and Singer, 1995; Escobar et al., 1983; Fabrega et al., 1988; Farooq et al., 1995; Golding and Lipton, 1990; Kirmayer, 2001; Wohi et al., 1997; Zhang, 1995), one not readily recognized by clinicians from other ethnic backgrounds (Coyne et al., 1995; Fabrega, 1994; Hanson and Klerman, 1974; Kirmayer, 2001; Pedersen, 1993).

2. Method

2.1. Sample

Ninety-nine patients with depression were recruited (17 African-American, 19 Asian-American, 22 Mexican-American, and 41 Non-Hispanic White). The Asian-Americans were primarily of Chinese origin. The participants were part of an ongoing investigation on psychobiological processes associated with depression. Recruitment was done through advertisements in the local media, and by referral from the community mental health centers in Los Angeles County. Membership in a particular ethnic group required that all four biological grandparents were of the same ethnicity. All participants signed an institutionally-approved informed consent form prior to the completion of all research assessments.

2.2. Measures and Procedures

All participants were evaluated with the Structured Clinical Interview for DSM-III-R (SCID). The SCID is a standard semi-structured diagnostic instrument for major psychiatric disorders (Spitzer, 1986). In addition to the assessment of depressive disorders with the SCID, severity of depressive symptoms during the past week was rated by the clinician using the Hamilton Depression Rating Scale (HDRS). The HDRS is a 24-item standardized instrument, with scores ranging from 0–73 (Hamilton, 1960). In addition to providing

information on the severity of depressive symptoms, the HDRS can be categorized into seven relatively independent factors (Rhoades, 1983). Over 90% of the SCID interviews and HDRS ratings were performed by a Non-Hispanic White female clinician who was fluent in Spanish. The remaining interviews were performed by either a male or a female Asian-American clinician. No specific efforts were made to match the Asian-American clinicians to participants from Asian background.

Subjects were included in the study if they met criteria for current major depressive disorder (MDD) according to the SCID, and received a score of 15 or greater on the first seventeen items of the HDRS (at least moderate severity). Participants had to read and speak English in order to be included in the study. Subjects were excluded if there was any current or past psychotic disorder (including MDD with psychotic features), lifetime history of mania/hypomania, current or past (within the past five years) history of alcohol or substance abuse/dependence disorder, current or past organic mental disorder, or primary anxiety disorder. These exclusionary criteria were selected because the clinical features described above potentially can influence the psychobiological measures. All participants were medically healthy as determined by physical examination, full chemistry panel, thyroid function tests, urine analysis and drug screens, and electrocardiogram. All subjects were free from psychotropic agents or any medications which could affect depressive symptoms for a minimum period of two weeks.

In addition to the SCID and HDRS assessments, subjects completed the revised versions of the Beck Depression Inventory (BDI-II) and the 90-item Symptom Checklist (SCL-90-R). The BDI-II is a 21-item instrument, each item having four choices ranked in order of severity (Beck et al., 1996; Beck et al., 1961). Individuals select the choice that best represents how they have been feeling during the past week. A score of 19 or greater is considered clinically significant (Steer et al., 1997). The SCL-90-R is a self-report instrument widely used to assess psychopathology in community, medical and psychiatric samples (Derogatis, 1994; Derogatis et al., 1973). It is rated on a 5-point Likert Scale. The SCL-90-R provides information on three global indices of psychological distress and nine primary symptom dimensions. Norms have been established for both genders, and in non-patient and patient samples (Derogatis, 1994)..

2.3. Statistical Methods

Initially, the four ethnic groups were compared on demographic characteristics (see Table 1). The chi-square was utilized for categorical variables and analysis of variance (ANOVA) was used for continuous variables. These analyses showed significant inter-ethnic differences in age and education level, as well as non-significant trends for gender differences. Analysis of covariance (ANCOVA) was used with age and gender entered as covariates in one set of analyses, and education level was entered as a covariate in the second set. The dependent variables included the total BDI score, the total 17-item HDRS score, the total 24-item HDRS score, the seven HDRS factor scores, and the global severity index (GSI) and the nine factor scores from the SCL-90-R. Associations between different measures of depression were examined using Pearson product-moment correlation.

3. Results

3.1. Demographic Characteristics of the Sample

Demographic features of the four ethnic groups are outlined in Table 1. With the exception of Non-Hispanic Whites, there were higher proportions of females. This was expected because the prevalence of depression is elevated in females. The Non-Hispanic Whites were significantly older than Asian-Americans and Mexican-Americans, whereas the Mexican-

Americans had less number of years of education. The education level between males and females within each ethnic group was comparable. All participants were outpatients.

3.2. Effect of Age, Education Level and Gender

Neither age nor education level had significant effect on any of the dependent variables. Significant gender effects were observed on depression and anger-hostility factors of the SCL-90-R scale, with females scoring higher on both factors.

3.3. Effect of Ethnicity on BDI Score

The mean BDI scores for the four ethnic groups are shown in Table 2. The score for each ethnic group was in the moderate/severe category. After controlling for age and gender, the groups did not differ significantly on the BDI score. There was, however, a trend for African-Americans to have less severe symptoms ($p \leq .06$). This was also true when education level was co-varied.

3.4. Effect of Ethnicity on HDRS Scores

The mean 17-item and 24-item HDRS scores for the four groups are given in Table 2. The scores were in the moderate to severe range. After controlling for demographic variables, ethnicity had no significant effect on these scores.

The HDRS factor scores are depicted in Table 2. After controlling for age and gender, only diurnal variation was significantly influenced by ethnicity. African-Americans, Asian-Americans and Mexican-Americans, particularly females, showed more diurnal variation of mood (with worsening in the evening) compared to the Non-Hispanic Whites. When education level was controlled, a similar pattern was noted. Also, there was a non-significant trend for African-Americans to have a lower score on depressed mood than the remaining three groups ($p \leq .09$).

3.5. Effect of Ethnicity on SCL-90-R Scores

The SCL-90-R GSI scores for all ethnic groups are provided in Table 3. The GSI scores in Non-Hispanic Whites were comparable to the reported norms in outpatients. After controlling for age and gender, Mexican-Americans had a significantly higher GSI score than African-Americans and Non-Hispanic Whites. There was, however, a trend for ethnicity×gender interaction ($p \leq .08$). Similar to the Mexican-Americans, Asian-American females had a high GSI score, whereas the score in Asian-American males was comparable to African-Americans and Non-Hispanic Whites. When education level was co-varied, a similar trend was found.

The SCL-90-R symptom dimensions are outlined in Table 3. With the exception of scores on depression and obsessive-compulsive factors (which were slightly higher in this sample), the remaining factor scores in the Non-Hispanic White sample were comparable to the reported norms. When the effects of age and gender were removed, several SCL-90-R factor scores discriminated the four groups. These included somatization, anxiety, anger-hostility and phobic anxiety. The general pattern was that Asian-Americans and Mexican-Americans scored higher than African-Americans and Non-Hispanic Whites. Also, there was a non-significant trend for African-Americans to have a lower score on depression than the remaining three groups ($p \leq .07$), and Asian-Americans and Mexican-Americans had higher scores on paranoid ideation ($p \leq .08$). When education level was controlled, a similar pattern was observed. Gender also affected many of these factors. In general, females had higher scores than males. There was, however, ethnicity×gender interaction. Both Mexican-American males and females had high scores, but only Asian-American females scored higher than African-Americans and Non-Hispanic Whites. With the exception of phobic

anxiety, Asian-American males were comparable to African-Americans and Non-Hispanic Whites. Gender differences in the Non-Hispanic White sample were less prominent.

3.6. Relationship between Self- and Clinician-Rated Depression Measures

Pearson correlation coefficients between the total BDI score and the total 17-item HDRS score for all four ethnic groups are shown in Table 4. There was variability among the ethnic groups with respect to the strength of association between these two measures. They correlated best in Asian-Americans, followed in order by African-Americans, Mexican-Americans and Non-Hispanic Whites. With the exception of Mexican-Americans, a similar pattern was observed when the sum of items rated on the Depression Factor of the SCL-90-R and the total 17-item HDRS score were correlated (see Table 4). The lack of association between HDRS and SCL-90-R in the Mexican-Americans was seen only in males.

3.7. Relationship between the BDI-II and SCL-90-R Depression Factor Scores

Pearson correlation coefficients also were examined between the total BDI score and the sum of depression items from the SCL-90-R (depicted in Table 4). These two measures correlated well in all ethnic groups.

4. Discussion

The study compared symptom profiles among a relatively homogeneous sample of African-American, Asian-American, Mexican-American and Non-Hispanic White patients with unipolar major depressive disorder. Overall, severity of depression was comparable among the groups. There was a trend, however, for African-Americans to have a lower score on depression than the remaining ethnic groups on both self-reported and clinician-rated measures. Ethnic minority groups were more likely to have diurnal variation, with worsening of mood in the evening. Contrary to expectations, the Non-Hispanic White clinician was competent in recognizing the severity of depressive symptoms in patients from ethnic-minority backgrounds. In addition to the differences in depressive symptoms, cross-ethnic differences were reported for other psychopathological symptoms. For example, Asian-American females and Mexican-Americans experienced a greater level of general emotional distress, and somatic, anxiety, anger-hostility and phobic symptoms.

Cross-ethnic studies on depression have suggested that the core depressive syndrome is universal (Ballenger et al., 2001; Brown et al., 1996; Escobar et al., 1983; Harding et al., 1980; Jablensky et al., 1981; Wohi et al., 1997). It is, however, important to note that these studies employed patients who sought treatment in a psychiatric or primary care setting. It is not clear whether cultural influences on depressive phenomenology are masked by illness severity. A study with an ethnically-diverse community sample, together with multiple self-administered and observational instruments, is necessary to determine whether populations from different ethnic groups exhibit distinct patterns of depressive symptomatology. In the current study, diurnal variation, with worsening of mood in the evening, was more common in ethnic-minority groups compared to Non-Hispanic Whites. The pathophysiological and treatment implications of this symptom pattern are yet to be determined.

Although the core depressive syndrome may be similar across racial/ethnic groups, cultural elements appear to influence the expression of a number of secondary manifestations. For example, similar to the observation in this study, a higher prevalence of nonspecific somatic symptoms has been found in ethnic-minority groups, particularly in individuals from the developing countries (Chung and Singer, 1995; Escobar et al., 1983; Farooq et al., 1995; Harding et al., 1980; Kalibatseva and Leong, 2011; Lehti et al., 2010; Mezzich and Raab, 1980). It has been suggested that somatic symptoms represent an altered expression of the

underlying depression because physical complaints are a socially sanctioned communication of emotional distress (Katon et al., 1982; Zhang, 1995). Several investigations, including the current study, have demonstrated that respondents who presented with unexplained physical symptoms also reported high levels of emotional distress, depression in particular (Escobar et al., 1987; Escobar et al., 1983; Farooq et al., 1995; Harding et al., 1980; Katon et al., 1991; Simon and VonKorff, 1991). These findings are consistent with a model of somatization as increased sensitivity to both physical and emotional distress. Patients from developing cultures, however, may ascribe a greater need to describe somatic symptoms probably because they are more likely to hold a unitary rather than a dichotomous view of the relationship between body and mind, as well as ascribe emotional symptoms as consequences of physical illness (Barsky, 1998; Pennebaker, 1982; Zheng et al., 1986). These observations also highlight the need for clinicians to inquire about psychiatric symptoms when patients present with somatic complaints. A methodical evaluation of emotional symptoms in such patients may be helpful to target them for early intervention.

Greater levels of general emotional distress, as well as associated anxiety symptoms, were observed in Asian-American females and in Mexican-Americans. Other investigators also have noted relatively high levels of emotional distress in these populations in comparison with Non-Hispanic Whites (Escobar et al., 1983; Farooq et al., 1995; Harding et al., 1980; Kalibatseva and Leong, 2011; Lepine, 2001; Sue et al., 1991). Cultural traits, such as, conceptualization of mental health and expectations of the treatment process, language barriers, accessibility to the services, stigma against mental illness and religious beliefs, may contribute to the minimization of symptoms and under-utilization of mental health services until the problems become more severe (Becerra, 1982; Chung, 1994; Kagawa-Singer, 1994; Sue et al., 1991). Clinicians and policy makers should be sensitive to such issues in the planning and implementation of mental health services for such groups.

On examining the association between self-reported and clinician-rated severity of depressive symptoms among the different ethnic groups, the ethnic-minority groups fared relatively well with a Non-Hispanic White clinician. It is also important to note that only participants who could read and write English were recruited into the study. Also, the clinicians were fluent in Chinese and Spanish, possibly providing some help to participants with lower English fluency from these ethnic backgrounds. It is important to note that, using a standardized instrument, the clinicians specifically inquired about each symptom. It is possible that subjects may not have reported these symptoms to clinicians if such an inquiry was not made. Another important factor to consider is that the respondents were not re-assessed by an ethically-matched clinician to test the assumption that racial/ethnic differences between clinician and patient are less significant in the assessment of depression. Although empirical data on the rating of depressive symptoms by clinicians matched by ethnicity are limited, some studies have suggested that the full constellation of symptoms in the ethnic-minority groups may not be identified by Non-Hispanic White clinicians (Fabrega, 1994; Hanson and Klerman, 1974; Pedersen, 1993). Future research should address this clinically-relevant question.

With the exception of diurnal variation in mood, African-Americans in the study did not differ significantly from Non-Hispanic Whites on any depressive or other psychopathological symptoms. However, the African-American sample was modest, thus limiting the statistical power to detect differences. Some studies reported differences between African-Americans and Non-Hispanic Whites in the clinical presentation of depression, in such measures as, depression severity, diurnal variation, and anxiety, somatic and psychotic symptoms (Brown et al., 1996; Fabrega et al., 1988; Wohi et al., 1997). The nature and extent of the differences in depressive phenomenology between African-Americans and other ethnic-minority groups is yet to be determined.

There are several limitations to the study which should be considered in the interpretation of the above described observations. First, the sample sizes, particularly for the ethnic-minority males, are modest. Therefore, it is cautioned that the findings are only preliminary. Second, several symptom variables were examined without controlling for multiple comparisons, thereby introducing the potential for chance findings. Third, the sample comprised only of non-randomly selected, moderately ill outpatient volunteers and, therefore, the findings are specific only to this population. Fourth, cross-ethnic variability in symptom expression may have been reduced greatly because of the way the participants were recruited. Because the investigation primarily focused on psychobiological measures, patients with "atypical" manifestations were excluded by the study design. Finally, numerous socio-cultural factors that presumably interplay with the manifestation of depressive symptoms were not addressed. The study also has some strengths. Multi-dimensional systematic assessments were performed, and the criteria for inclusion were rigorous, particularly with regard to racial/ethnic classification, and medical and psychiatric comorbidity.

In conclusion, this preliminary study found that, despite a universal presentation of the core depressive syndrome among individuals from diverse racial/ethnic groups, cultural traits may play a role in the expression of a number of secondary manifestations of the syndrome. With the phenomenal ongoing population shifts combined with the observed secular changes in depressive illness in recent decades (Group, 1992; Klerman et al., 1985; Minnai et al., 2006; Stassen et al., 1997), this issue is in need of further study. We propose that future investigations focus on large and more diverse populations and geographical regions, standardization and validation of assessment instruments across cultures, and evaluation of important socio-cultural factors which potentially impact on the epidemiology, phenomenology, psychobiology and treatment of depression.

HIGHLIGHTS

- We compared depressive and associated symptoms in four ethnic/racial groups.
- Overall, severity of depression was comparable among the groups.
- Ethnic-minority groups had diurnal mood variation, with worsening in the evening.
- Asian-Americans and Mexican-Americans had more severe anxiety and somatic symptoms.

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Table 1

Demographic Characteristics of Depressed Subjects, by Ethnicity

	African-Americans (n = 17)		Asian-Americans (n = 19)		Mexican-Americans (n = 22)		Non-Hispanic Whites (n = 41)		Statistic	p
	Mean	*Range*	*Mean*	*Range*	*Mean*	*Range*	*Mean*	*Range*		
Age (years)	$37.9_{a,b}$	19–63	36.7_{a}	18–72	37.5_{a}	18–61	44.4_{b}	25–72	$F_{3,98} = 2.70$	.05
Education (years)	13.7_{a}	11–16	$15.5_{a,c}$	12–18	$10.9b_{b}$	5–14	15.5_{c}	12–20	$F_{3,63} = 14.15$	.0001
Gender (male/female)	4/13		6/13		5/17		21/20		$\chi^2 = 7.07$	.07

Different subscripts denote significant differences between the groups.

Table 2

Beck Depression Inventory and Hamilton Depression Rating Scale Scores (Mean + SD) Grouped by Ethnicity

	African-Americans (n = 17)	Asian-Americans (n = 19)	Mexican-Americans (n = 22)	Non-Hispanic Whites (n = 41)	ANCOVA Age	ANCOVA Gender	ANCOVA Ethnicity
Total BDI score	22.0 ± 6.5	28.5 ±11.1	30.3 ± 8.9	27.2 ± 8.2	2.60	1.96	2.71[1]
Total 17-item HDRS score	20.2 ± 3.8	21.1 ± 4.3	23.1 ± 5.3	22.0 ± 4.2	0.29	0.57	1.48
Total 24-item HDRS score	25.8 ± 5.4	28.5 ± 6.6	30.7 ± 6.8	27.5 ± 6.9	0.12	1.06	1.85
Somatization	1.9 ± 0.6	1.8 ± 0.7	2.1 ± 0.8	1.9 ± 0.7	0.48	0.49	0.93
Diurnal variation	$-0.3 \pm 0.7_a$	$-0.3 \pm 0.9_a$	$-0.3 \pm 1.4_a$	$0.5 + 1.0_b$	0.39	3.54	3.54*
Sleep disturbance	2.3 ± 1.2	2.0 ± 1.1	2.8 ± 1.0	2.3 ± 1.2	1.55	0.01	1.86
Weight loss	0.9 ± 1.0	1.6 ± 1.4	1.3 ± 1.5	1.3 ± 1.6	0.25	0.26	0.65
Reality disturbance	0.8 ± 0.4	0.7 ± 0.5	0.8 ± 0.4	0.7 ± 0.4	0.03	1.53	0.66
Depressed mood	1.6 ± 0.5	1.9 ± 0.4	1.9 ± 0.6	2.0 ± 0.5	0.01	0.62	2.30
Anxiety/agitation	2.6 + 1.3	2.9 ± 1.3	3.0 ± 1.5	3.1 ± 1.3	0.19	0.04	0.52

BDI = Beck Depression Inventory; HDRS = Hamilton Depression Rating Scale;

[1] $_{df = 3,77}$;

* $p \leq .05$

Different subscripts denote significant differences between the groups.

Table 3

Revised 90-Item Symptom Checklist Scores (Mean ± SD) Grouped by Ethnicity

	African-Americans (n = 14)	Asian-Americans (n = 15)	Mexican-Americans (n = 17)	Non-Hispanic Whites (n = 34)
Global severity index	$1.4 \pm 0.7_{a}$	$1.8 \pm 0.9_{a,b}$	$2.0 \pm 0.7_{b}$	$1.5 \pm 0.5_{a}$
Somatization	$1.0 \pm 0.9_{a}$	$1.5 \pm 1.0_{a,b}$	$1.8 \pm 0.8_{b}$	$1.2 \pm 0.7_{a}$
Obsessive-compulsive	2.0 ± 0.9	2.2 ± 1.0	2.5 ± 0.7	2.1 ± 0.8
Interpersonal sensitivity	1.6 ± 1.0	1.9 ± 1.0	2.2 ± 0.9	1.7 ± 0.8
Depression	1.9 ± 0.9	2.4 ± 0.9	2.7 ± 0.7	2.3 ± 0.8
Anxiety	$1.2 \pm 0.8_{a}$	$2.0 \pm 1.1_{b}$	$1.9 \pm 1.0_{b,c}$	$1.3 \pm 0.7_{a,c}$
Anger-hostility	$1.2 \pm 1.0_{a}$	$1.7 \pm 1.1_{a,b}$	$2.2 \pm 1.1_{b}$	$1.1 \pm 0.8_{a}$
Phobic anxiety	$0.5 \pm 0.8_{a}$	$1.2 \pm 1.1_{b}$	$1.2 \pm 1.0_{b}$	$0.4 \pm 0.4_{a}$
Paranoid ideation	1.5 ± 0.6	1.8 ± 0.9	1.9 ± 0.9	1.2 ± 0.8
Psychoticism	1.0 ± 0.8	1.5 ± 0.9	1.4 ± 1.0	1.0 ± 0.6

* $p \leq .05$;

** $p \leq .01$;

*** $p \leq .0005$

Different subscripts denote significant differences between the groups.

Table 4

Correlations between Clinician-Rated and Self-Rated Depressive Symptomatology

	BDI-II and HDRS	SCL-90-R and HDRS	BDI-II and SCL-90-R
African-Americans (n = 14)	.42	.58*	.80**
Asian-Americans (n = 15)	.77**	.78***	.78***
Mexican-Americans (n = 17)	.42	.09	.66**
Caucasians (n = 34)	.36*	.35*	.72****

BDI = Beck Depression Inventory (21-item total score)

HDRS = Hamilton Depression Ratings Scale (17-item total score)

SCL-90-R = revised version of the 90-Item Symptom Check List (13-item depression factor)

* $p \leq .05$;

** $p \leq .005$;

*** $p \leq .001$;

**** $p \leq .0001$