Dimensions of the Beck Depression Inventory-II in Clinically Depressed Outpatients

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To ascertain the dimensions of the Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996) in clinically depressed outpatients, exploratory factor analyses were performed with the BDI-II responses of 210 adult ($\geq 18$ years) outpatients who were diagnosed with DSM-IV depressive disorders. Two factors representing Somatic-Affective and Cognitive dimensions were found whose compositions were comparable to those previously reported by Beck, Steer, and Brown (1996) for psychiatric outpatients in general. A subsequent confirmatory factor analysis supported a model in which the BDI-II reflected one underlying second-order dimension of self-reported depression composed of two first-order factors representing cognitive and noncognitive symptoms. The clinical utility of using subscales based on these two latter first-order symptom dimensions was discussed. © 1999 John Wiley & Sons, Inc. J Clin Psychol 55: 117–128, 1999.

The Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996) measures the severity of self-reported depression in adolescents and adults. It is an upgrade of the amended Beck Depression Inventory (BDI-IA; Beck & Steer, 1993a), and the symptom content of the BDI-II now reflects the diagnostic criteria for major depressive disorders (MDD) that are described in the American Psychiatric Association’s (1994) Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV).

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There are four new BDI-II symptoms: Agitation, Concentration Difficulty, Worthlessness, and Loss of Energy. Weight Loss, Body Image Change, Work Difficulty, and Somatic Preoccupation symptoms from the BDI-IA were dropped. The time frame for the BDI-II ratings now corresponds to that given by the DSM-IV for MDD, and respondents are asked to describe themselves for the “Past Two Weeks, Including Today.” The BDI-II is scored by summing the highest ratings for each of the 21 symptoms. Each symptom is rated on a 4-point scale ranging from 0 to 3, and total scores can range from 0 to 63.

Because the BDI-IA is one of the most widely used self-report instruments for assessing the severity of depression (Piotrowski & Keller, 1992), Beck, Steer, Ball, and Ranieri (1996) administered the BDI-IA and BDI-II to 140 outpatients who were diagnosed with various psychiatric disorders and found that the coefficient alphas for these instruments were .89 and .91, respectively. The correlations of the BDI-IA and the BDI-II total scores with sex, ethnicity, age, the diagnosis of a mood disorder, and the Beck Anxiety Inventory (Beck & Steer, 1993a) were within one point of each other for the same variables. However, the mean BDI-II total score was approximately two points higher than it was for the BDI-IA, and approximately one more symptom was endorsed on the BDI-II than on the BDI-IA.

With respect to background characteristics, ethnicity (1 = White, 0 = Nonwhite) ($r = .04$) and age (years) ($r = -.03$) were not significantly correlated with the BDI-II total scores of the 500 psychiatric outpatients whom Beck, Steer, and Brown (1996) studied. However, the mean BDI-II total score of their 317 (63%) outpatient women was approximately three points higher than that of their 183 (37%) outpatient men. They also reported that the BDI-II was more positively correlated with the revised Hamilton Psychiatric Rating Scale for Depression (Riskind, Beck, Brown, & Steer, 1987) ($r = .71$) than it was with the revised Hamilton Rating Scale for Anxiety ($r = .47$; Riskind et al., 1987). Furthermore, Steer, Ball, Ranieri, and Beck (1997) investigated the BDI-II’s construct validity with respect to self-reported depression and anxiety as measured by the SCL-90-R (Derogatis, 1983) and reported that the BDI-II was more highly correlated with the SCL-90-R Depression subscale ($r = .89$) than it was with the SCL-90-R Anxiety subscale ($r = .71$) in 210 psychiatric outpatients.

Using an iterated principal-factor analysis with Promax (oblique) rotation, Beck, Steer, and Brown (1996) identified two dimensions of self-reported depression for psychiatric outpatients in general. The first factor was a Somatic-Affective dimension represented by salient ($\geq .35$) loadings for the somatic symptoms, such as Fatigue and Loss of Energy, and affective symptoms, such as Crying and Irritability. The second factor was composed of psychological symptoms, such as Pessimism and Worthlessness, and represented a Cognitive dimension. Moreover, they also factor-analyzed the BDI-II responses of 120 undergraduates and found comparable Cognitive-Affective and Somatic dimensions, but several affective symptoms, such as Sadness and Crying, switched between factors. Beck, Steer, and Brown (1996) speculated that the affective symptoms might shift because such symptoms are more sensitive than nonaffective symptoms to the background and clinical characteristics of the sample being studied.

Symptom shifts in the factor structure of the BDI-IA had been observed by Beck, Steer, and Garbin (1988) in their review of 25 years’ worth of factor analyses about this instrument. The total number of BDI-IA factors that was extracted and symptom compositions of the resultant factors were dependent upon the types of clinical and nonclinical samples being studied. Nevertheless, confirmatory factor analyses by Tanaka and Huba (1984), Clark, Cavanaugh, and Gibbons (1983), and Byrne and Baron (1993) suggested that the BDI-IA represented one underlying second-order syndrome of self-reported depression that was composed of three intercorrelated first-order factors representing Cognitive-
Affective, Performance, and Somatic symptoms. These three first-order factors have also been confirmed as underlying the BDI-IA responses of patients who are diagnosed with major depression disorders (Startup, Rees, & Barkham, 1992). However, the symptom compositions of these factors appear to vary with respect to sex, and a fourth factor reflecting Weight Loss may emerge. For example, Steer, Beck, and Brown (1989) administered the BDI-IA to 174 psychiatric outpatient men and 276 psychiatric outpatient women who were diagnosed with mood disorders and not only found a fourth Weight Loss factor, but also reported that the affective and performance symptoms of the men loaded together, whereas the affective and cognitive symptoms of the women loaded together. Therefore, it might be hypothesized that the factor structure of the BDI-II for patients with DSM-IV depressive disorders might also differ from that which has been found for psychiatric patients in general.

The purpose of the present study was to ascertain what the dimensions of the BDI-II were for clinically depressed outpatients. We were especially interested in ascertaining (a) whether the Somatic-Affective and Cognitive dimensions that Beck, Steer, and Brown (1996) had identified for psychiatric outpatients in general would be comparable to those found in a sample of outpatients who were all diagnosed with principal DSM-IV depressive disorders and (b) whether reliable subscales reflecting dimensions of the BDI-II could be constructed.

**METHOD**

**Outpatients**

The sample consisted of 105 (50%) male and 105 (50%) female adult (≥18 years old) outpatients who were consecutively evaluated by the Department of Psychiatry, University of Medicine and Dentistry School of Osteopathic Medicine, located in Cherry Hill, NJ. The sample was restricted to outpatients who were diagnosed with principal DSM-IV depressive disorders to correspond to the types of clinically depressed samples in which the factor structure of the BDI-IA had been previously studied by Steer et al. (1989) and Startup et al. (1992). A total of 105 outpatients was chosen to represent each sex because we believed that a separate factor analysis might have to be conducted for each sex and wanted to have a ratio of 5 respondents of each sex for each item. Because the present outpatient service had previously participated in Beck, Steer, and Brown’s (1996) normative study, in Beck, Steer, Ball, and Ranieri’s (1996) comparison of the BDI-II and BDI-IA, and in Steer et al. (1997) investigation of the BDI-II’s construct validity with respect to the SCL-90-R, it is important to state that none of the present patients had participated in these three earlier studies.

There were 195 (93%) White, 10 (5%) Black, 1 (<1%) Hispanic, and 4 (2%) Asian participants. The mean age was 41.29 (SD = 15.25) years old. As previously indicated, the present sample was restricted to consecutive admissions who were diagnosed with principal DSM-IV depressive disorders. Although all of the patients were diagnosed by boarded psychiatrists who were actively involved in teaching residents and medical students how to derive DSM-IV diagnoses, no interjudge agreement study was conducted with respect to diagnosis. Because no interjudge agreement study was conducted, we decided to classify the outpatients into the following broad, principal diagnostic groups for descriptive purposes; there were 81 (39%) with single-episode major depressive disorders, 94 (45%) with recurrent-episode major depressive disorders, 21 (10%) with dysthymic disorders, and 14 (7%) with depressive disorders not otherwise specified.
Procedure

After signing voluntary consent forms, the patients were administered the BDI-II as part of a standardized intake-evaluation battery completed by everyone seeking outpatient treatment. The present study was conducted with the approval of our Institutional Review Board.

RESULTS

Before attempting to ascertain what the dimensions of the BDI-II were for the 210 clinically depressed outpatients, we performed a series of statistical analyses to determine (a) whether we needed to control for any of the outpatients’ background characteristics and (b) how our sample’s background and clinical characteristics compared to those described by Beck, Steer, and Brown (1996) for their sample of 500 psychiatric outpatients in general.

Overall Severity

The mean total score of the BDI-II for the 210 outpatients was 28.64 (SD = 11.75), and its coefficient alpha was .90. This mean value indicates that the sample was severely depressed according to the diagnostic ranges presented by Beck, Steer, and Brown (1996) and confirmed that our clinically depressed sample was indeed describing a high level of self-reported depression. The coefficient alpha represented high internal consistency, and the frequency distribution of the BDI-II total scores approximated a normal distribution, Kolmogorov-Smirnov z = .75, ns.

Relationships with Background Characteristics

Sex. The mean BDI-II total scores of the 105 women (M = 30.59, SD = 11.51) and 105 men (M = 26.70, SD = 11.73) differed significantly, t (208) = 2.43, p < .05. A stepwise discriminant analysis employing a stepwise entry method and a Bonferroni adjustment of alpha/21 to control for the familywise error rate indicated that just one symptom, Loss of Energy, contributed unique variance to differentiating women from men. Partial $R^2 = .10$, $F(1,208) = 22.28$, $p < .05$. The women described themselves as having less energy than the men did. The mean ages (years) of the women (M = 40.76, SD = 13.34) and men (M = 41.81, SD = 17.01) were comparable, t(208) = .50, ns.

Ethnicity. The BDI-II total scores were not significantly correlated with ethnicity (0 = Other, 1 = White), r = .08, ns.

Age. Although age (years) was negatively correlated with the BDI-II total scores, $r = -.24$, $p < .001$, the relationship was quadratic. The severity of self-reported depression gradually increased from 18 years old to approximately 38 years old and then decreased to 82 years old, BDI total score = .52 (Age) − .01 (Age)$^2$ + 21.48, Multiple $R = .29$, $F(2,207) = 9.61$, $p < .001$. However, the mean BDI-II total scores of the outpatients ≤38 years old and those ≥39 years old were, respectively, 30.10 (SD = 10.99) and 27.19 (SD = 12.35) years and comparable, t(208) = 1.80, ns.

A stepwise regression analysis using a stepwise entry method and employing a Bonferroni adjustment of alpha/21 to control for the familywise error rate found that just one symptom, Self-Dislike, contributed unique variance to the explanation of age, Multiple
Dimensions of BDI-II

To perform a two-factor MANOVA with the set of 21 BDI-II symptom ratings and calculated canonical correlations to ascertain whether sex, age, or the Sex \times Age interaction (product variable) should be controlled for in evaluating the interrelationships among the 21 BDI-II symptom ratings. The canonical correlation for sex was .33, Wilks’s lambda = .89, $F(21, 186) = 1.12, ns$; the canonical correlation for age was .45, Wilks’s lambda = .79, $F(21, 186) = 2.28, p < .01$; and the canonical correlation for the Sex \times Age interaction was .32, Wilks’s lambda = .90, $F(21, 186) = 1.00, ns$. Because the set of 21 BDI-II ratings was only significantly related to age, we concluded that we did not have to control for sex or the Sex \times Age interaction in evaluating the interrelationships among the 21 BDI-II symptom ratings.

Factor Matching. The intercorrelations among the 21 BDI-II symptom ratings were next calculated (Table 1), and Kaiser’s Measure of Sampling Adequacy (Dziuban & Shirkey, 1974) was .92, a value Kaiser (1970) considered to be “marvelous.” For comparative purposes, we used the same type of factor analytic approach that Beck, Steer, and Brown (1996) had employed. Cattell’s (1966) scree test was used to ascertain the number of factors to extract based on the plot of the magnitudes of the consecutive principal-component eigenvalues. The first six consecutive eigenvalues were 7.33, 1.80, 1.19, 1.05, .91, and .84. The scree plot indicated that two- or three-factor solutions were feasible.

An iterated principal-factor analysis was then performed in which squared multiple correlations were employed for the initial communality estimates, and the common factors were rotated to a Promax (oblique) criterion for two- and three-factor solutions. However, the three-factor solution displayed a complex structure with several symptoms loading saliently ($\geq .35$) on more than one factor indicating that too many factors had been extracted. An alpha factor analysis was also conducted to confirm what number of factors to extract, and the estimated coefficient alphas for the factors suggested that the first two common factors were potentially reliable for clinical purposes; the coefficient
| Symptom                  | M    | SD   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
|--------------------------|------|------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|
| 1. Sadness              | 1.38 | 1.02 |   |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| 2. Pessimism            | 1.38 | .85  | .48 |   |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| 3. Past Failure         | 1.40 | .97  | .33 | .39 |   |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| 4. Loss of Pleasure     | 1.55 | .89  | .50 | .44 | .27 |   |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| 5. Guilty Feelings      | 1.10 | .89  | .34 | .27 | .38 | .29 |   |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| 6. Punishment Feelings  | 1.02 | 1.22 | .37 | .40 | .30 | .33 | .27 |   |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| 7. Self-Dislike         | 1.68 | .91  | .37 | .30 | .43 | .21 | .37 | .21 |   |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| 8. Self-Criticalness    | 1.46 | 1.00 | .44 | .35 | .37 | .31 | .40 | .36 | .40 |   |   |    |    |    |    |    |    |    |    |    |    |    |    |
| 9. Suicidal Thoughts    | .63  | .63  | .41 | .39 | .33 | .34 | .28 | .27 | .36 | .38 |   |    |    |    |    |    |    |    |    |    |    |    |
| 10. Crying              | 1.37 | 1.13 | .33 | .28 | .24 | .38 | .22 | .38 | .25 | .33 | .17 |   |    |    |    |    |    |    |    |    |    |    |
| 11. Agitation           | 1.20 | .92  | .27 | .24 | .17 | .26 | .26 | .11 | .09 | .18 | .09 | .28 |   |    |    |    |    |    |    |    |    |    |
| 12. Loss of Interest    | 1.60 | 1.02 | .49 | .38 | .27 | .57 | .33 | .33 | .20 | .29 | .28 | .40 | .24 |   |    |    |    |    |    |    |    |
| 13. Indecisiveness      | 1.50 | 1.01 | .48 | .32 | .21 | .45 | .32 | .21 | .26 | .34 | .34 | .24 | .27 | .49 |   |    |    |    |    |    |    |
| 14. Worthlessness       | 1.15 | .97  | .47 | .50 | .45 | .50 | .39 | .36 | .36 | .40 | .46 | .28 | .18 | .45 | .41 |   |    |    |    |    |    |
| 15. Loss of Energy      | 1.52 | .86  | .53 | .29 | .18 | .49 | .18 | .14 | .28 | .24 | .33 | .27 | .11 | .46 | .46 | .41 |   |    |    |    |    |
| 16. Changes in Sleeping| 1.76 | .96  | .32 | .31 | .16 | .27 | .20 | .21 | .18 | .26 | .24 | .22 | .35 | .24 | .31 | .27 |   |    |    |    |    |
| 17. Irritability        | 1.31 | .99  | .43 | .28 | .23 | .35 | .35 | .31 | .22 | .25 | .22 | .34 | .32 | .36 | .35 | .32 | .38 | .16 |   |    |
| 19. Concentration Difficulty | 1.57 | .88  | .50 | .30 | .34 | .42 | .31 | .25 | .31 | .29 | .33 | .28 | .22 | .41 | .50 | .40 | .43 | .32 | .46 | .31 |
| 20. Tiredness or Fatigue| 1.62 | 1.00 | .51 | .26 | .14 | .48 | .19 | .23 | .20 | .22 | .33 | .27 | .19 | .54 | .42 | .39 | .71 | .28 | .42 | .48 |

$N = 210$. 

Table 1. Means, Standard Deviations, and Intercorrelations Among the Beck Depression Inventory-II Items for Clinically Depressed Outpatients.

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alphas for the three factors were .93, .74, and .52. Therefore, only two factors were extracted, and the resultant factor pattern was compared to that given by Beck, Steer, and Brown (1996).

The mean cosine between our and Beck, Steer, and Brown’s (1996) two sets of factors for psychiatric outpatients was .99 according to Kaiser, Hunka, and Bianchini’s (1971) factor matching procedure, and we concluded that both sets matched. Recently, ten Berge (1996) has cautioned against the use of this factor matching technique. However, this approach had been previously used by Beck, Steer, and Brown, and Wiseman’s (1993) correction for achieving symmetry and positive diagonals in the matrices was unnecessary because both sets of factors were based upon the same set of 21 symptoms.

To ascertain whether age would influence the compositions of the obtained BDI-II factors, age (years) was partialled out of the intercorrelations among the 21 BDI-II symptom ratings. An iterated principal-factor analysis with Promax rotation was again performed with this partial intercorrelation matrix. The Spearman rank-order correlations between the rankings of the standardized regression coefficients in the factor pattern matrices for the first and second factors composed of the same salient symptoms before and after controlling for age were .98 and .96, respectively, ps < .001. Consequently, we concluded that age did not have to be controlled for, and we did not compare the factor structures of the BDI-II with respect to ethnicity because only 7% of our sample was composed of minorities.

**Exploratory.** To test whether the BDI-II symptom ratings represented one underlying second-order dimension of self-reported depression composed of correlated first-order factors, such as Tanaka and Huba (1984), Clark, Cavanaugh, and Gibbons (1983), and Byrne and Baron (1993) had demonstrated with the BDI-IA, we first performed an exploratory maximum-likelihood factor analysis (EPA) with the 21 symptom ratings’ covariance matrix to ascertain the unrestricted EPA factor pattern. Although the goodness of fit test indicated that three factors were statistically sufficient, \( \chi^2 (150, N = 210) = 154.48, ns \), the resultant three factors displayed the same type of factorial complexity that had been observed in the iterated-principal factor analysis. The two-factor solution was again chosen for its clarity of interpretation, \( \chi^2 (169, N = 210) = 207.22, p < .05 \).

The pattern matrix of the standardized regression coefficients loading on the two Promax-rotated maximum-likelihood factors is presented in Table 2. The salient (≥.35) standardized-regression coefficients for the first factor in Table 2 are for Sadness, Loss of Pleasure, Loss of Interest, Indecisiveness, Loss of Energy, Irritability, Change in Appetite, Concentration Difficulty, Tiredness & Fatigue, and Loss of Interest in Sex. Sadness was also salient with respect to the second factor. However, Tiredness and Fatigue and Loss of Energy had the highest loadings, and these symptoms also had the highest loadings on Beck, Steer, and Brown’s (1996) Somatic-Affective dimension.

The second factor’s salient symptoms in Table 2 were for Sadness, Pessimism, Past Failure, Guilty Feelings, Punishment Feelings, Self-Dislike, Self-Criticalness, Suicidal Thoughts or Wishes, Crying, and Worthlessness. With the exceptions of Sadness, which was bivocal, and Crying, which just achieved saliency, the other eight salient symptoms were cognitive or psychological in nature. Past Failure had the highest loading on this second factor as it had on Beck, Steer, and Brown’s (1996) second factor. Therefore, this factor was interpreted as reflecting the Cognitive dimension that they had identified. It is important to note that the pattern of salient maximum-likelihood standardized-regression coefficients was almost identical to that which had been found in the present sample with the iterated principal-factor analysis. However, in the former analysis Crying was not salient on either factor.
As Table 2 shows, the Somatic-Affective and Cognitive factors were moderately correlated at .57, \( p < .001 \). This correlation was comparable to the correlation of .66 between these same-named factors that was found by Beck, Steer, and Brown (1996), \( z = 1.76, ns \).

Confirmatory. Because 8 of the 10 salient symptoms composing the Cognitive factor were for psychological symptoms, we hypothesized that the BDI-II might be conceptualized as reflecting one second-order factor that reflected two first-order factors representing intrinsically cognitive and noncognitive symptom domains. We focused on testing for cognitive vs. noncognitive first-order factors in a confirmatory factor analysis (CFA) because we wished to ascertain whether the construction of BDI-II subscales based on these two distinct types of symptom domains were plausible.

Twenty years ago, Plumb and Holland (1977) suggested that different sets of the 21 BDI-IA symptoms might be useful to differentiate among psychiatric, medical, and normal samples, and Shaw, Steer, Beck, and Schut (1979) were concerned that some of the somatic BDI-IA symptoms that heroin addicts complained about were also shared (trans-diagnostic) with depression. Eventually, Beck and Steer (1993b) provided detailed psy-
chometric information about using the BDI-IA’s Cognitive-Affective subscale with patients whose somatic symptoms might yield spuriously high BDI-IA total scores. The Cognitive-Affective subscale has been found to be effective for detecting and measuring the severity of depression in both medical patients (Clark & Steer, 1994) and heroin addicts (Steer, Iguchi, & Platt, 1992).

In the CFA, the first-order Cognitive and Noncognitive factors were permitted to be correlated only with the second-order factor and not with each other. Furthermore, the Pessimism, Past Failure, Guilty Feelings, Punishment Feelings, Self-Dislike, Self-Criticalness, Suicidal Thoughts or Wishes, and Worthlessness symptoms were restricted to load on the Cognitive factor, whereas the remaining 13 symptoms were restricted to load on the Noncognitive factor. The eight Cognitive factor symptoms were thus constrained to have zero loadings on the Noncognitive factor, and the 13 Noncognitive factor symptoms were set to have zero loadings on the Cognitive factor. All of the error and uniqueness terms for the two first- and one second-order factors and 21 symptoms were assumed to be random. The CFA was performed with PROC CALIS (SAS Institute, 1989).

With respect to overall indices of fit, the chi-square test for the CFA model was significant, $\chi^2 (187, N = 210) = 299.32, p < .001$, and indicated that residual variance still needed to be explained; the EPA had already established that another factor would have to be extracted to explain the residual variance. However, other measures of fit indicated that the present CFA model was plausible according to Hatcher’s (1994) criteria for acceptability of fit. The fit criterion ($\chi^2/df$) was 1.43 and <2.0; the root-mean-square residual (RMR) was .06 and <.10; the comparative fit index (CFI) was .92 and >.90; and the nonnormed fit index (NNFI) was .91 and >.90. Furthermore, all of the standardized path coefficients of the symptoms for the two hypothesized first-order factors were salient ($>.35$). The standardized regression path coefficients of the first-order Cognitive and Noncognitive factors for the second-order factor were, respectively, .89 and .85. Therefore, we concluded that it was reasonable to conceptualize of the BDI-II as reflecting two first-order Cognitive and Noncognitive factors that, in turn, represented one underlying second-order dimension of self-reported depression.

Subscales

A Cognitive subscale was next constructed by summing the ratings for the eight cognitive symptoms that had been used in the CFA, and a Noncognitive subscale was developed by summing the ratings for the 13 noncognitive symptoms. The coefficient alphas for the subscales were, respectively, .81 and .87, and these coefficients are within the range that Cicchetti (1994) has described as acceptable for clinical purposes. The mean Cognitive and Noncognitive subscale total scores were, respectively, 9.82 ($SD = 4.95$) and 18.82 ($SD = 8.00$). The Cognitive subscale scores displayed no relationship with sex (0 = Men, 1 = Women) ($r = 0.0$), whereas the Noncognitive subscale scores were positively associated with being female ($r = .24, p < .001$). In contrast, the correlation of age (years) with the Cognitive subscale scores ($r = -.34, p < .001$) was stronger than that with the Noncognitive subscale scores ($r = -.14, p < .05$), Hotelling $t (207) = 3.58, p < .001$; the correlation between the Cognitive and Noncognitive subscale scores was .63, $p < .001$.

DISCUSSION

The overall pattern of results supported the existence of the Somatic-Affective and the Cognitive dimensions in clinically depressed, adult outpatients that had been previously
identified by Beck, Steer, and Brown (1996) to be underlying the BDI-II responses of psychiatric outpatients in general. Contrary to previous findings for the BDI-IA with clinically depressed samples, the number and symptom compositions of the BDI-II factors for our outpatients with DSM-IV depressive disorders did not differ from those found for psychiatric outpatients in general. The set of 21 BDI-II symptom ratings was not significantly related to sex, and the symptom compositions of the two BDI-II dimensions were not affected by age. The identity of these two dimensions was also found to be robust with respect to method of factor extraction. Furthermore, there was support for Beck, Steer, and Brown’s contention that affective symptoms, such as Sadness and Crying, would be the symptoms most likely to shift from one dimension to another depending on the background and diagnostic compositions of samples being studied. Sadness loaded saliently ($r > .35$) on both dimensions, whereas Crying loaded on the Cognitive factor, instead of on the Somatic-Affective factor as it had in Beck, Steer, and Brown’s analysis.

Because the BDI-II symptoms of Pessimism, Past Failure, Guilty Feelings, Punishment Feelings, Self-Dislike, Self-Criticalness, Suicidal Thoughts or Wishes, and Worthlessness loaded saliently in both the present and in Beck, Steer, and Brown’s (1996) exploratory factor analyses on the Cognitive factor, we employed a CFA to test the plausibility of considering the BDI-II as constituting one second-order factor representing overall self-reported depression that was, in turn, composed of two first-order factors. A Cognitive factor was hypothesized to be composed of the aforementioned eight cognitive symptoms, and a Noncognitive factor was proposed that represented the remaining 13 affective and somatic symptoms. All of the standardized path coefficients for the symptoms hypothesized to constitute these two first-order factors were salient ($r > .35$). Furthermore, the Cognitive subscale scores that were derived by summing the ratings for the cognitive symptom ratings were not correlated with sex, whereas the Noncognitive subscale scores were positively correlated with being female. The 8-item Cognitive and 13-item Noncognitive subscales displayed adequate internal consistencies for clinical purposes (coefficient alphas $> .80$). Therefore, we recommend the scoring of the BDI-II for these two subscales and believe that the Cognitive subscale will be especially useful for measuring self-reported depression in medical and psychiatric populations in which somatic symptom complaints are known or suspected to be attributable to medical or other conditions rather than depression per se.

With respect to the outpatients’ background characteristics, we supported Beck, Steer, and Brown’s findings (1996) that (a) the BDI-II was not significantly correlated with ethnicity categorized as White vs. Other and (b) men described less severe self-reported depression on the BDI-II than the women did. Women again scored approximately four points higher than men. However, our findings indicated that one symptom, Loss of Energy, accounted for much of sexual differentiation with the women complaining of having less energy than the men did.

Age displayed a quadratic relationship with respect to the BDI-II total scores; the severity of self-reported depression gradually increased during young adulthood until approximately 38 years of age when it decreased into late adulthood. Self-Dislike was the only symptom that was inversely associated with age, and the younger clinically depressed outpatients described less self-esteem than the older clinically depressed outpatients did.

With respect to future research, the factor structure of the BDI-II needs be studied in a variety of different clinical populations. We did not ascertain whether the BDI-II discriminated among specific depressive disorders, such as single-episode vs. recurrent-episode MDD, because the accuracy of the specific diagnoses was suspect given that no structured clinical interviews had been used. The factor structure of the BDI-II must also
be evaluated in clinical samples representing higher proportions of minorities and different socioeconomic backgrounds than the predominately White, middle-class samples that have been studied to date.

REFERENCES


