

# CLASSIFICATION OF PSYCHIATRIC INPATIENTS WITH THE BECK INSTRUMENTS: A CLUSTER-ANALYTIC APPROACH

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## ABSTRACT

Computer-administered versions of the revised Beck Depression Inventory (BDI), Hopelessness Scale (BHS), Anxiety Inventory (BAI), and Scale for Suicide Ideation (BSI) were completed by 200 inpatients diagnosed with mixed psychiatric disorders. The BSI was then used to classify the patients into 75 (37.5%) suicide ideators and 125 (62.5%) nonideators. Ward's minimum-variance technique was next employed to identify prototypal profiles for both the ideators and nonideators, and these prototypes were subsequently entered into k-means nonhierarchical cluster analyses. The cluster analyses were independently performed with the nonideators' BDI, BHS, and BAI scores and with the ideators' BDI, BHS, BAI, and BSI scores. Three types of ideators and nonideators were identified representing anxious depressed, hopeless depressed, and below average symptomatology. The implications of these classification systems for the Beck instruments are discussed.

## INTRODUCTION

Although the revised Beck Depression inventory (BDI; Beck, Rush, Shaw, & Emery, 1979; Beck & Steer, 1987) is one of the most frequently used psychological tests to measure the severity of self-reported depression in adolescents and adults (Piotrowski, Sherry, & Keller, 1985) and the Beck Hopelessness Scale (BHS; Beck, Weissman, Lester, & Trexler, 1974; Beck & Steer, 1988) is often employed to evaluate the severity of negative expectancies about the future (hopelessness), two of the other self-report instruments developed by Beck and his associates have only recently become available for general clinical use. The

Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988; Beck & Steer, 1990), which measures the severity of anxiety, was published in 1990, and the Beck Scale for Suicide Ideation (BSI; Beck, Steer, & Ranieri, 1988; Beck & Steer, 1991), which assesses the intensity of and definitiveness of suicidal ideas, was released in 1991. However, these two latter instruments have been used in clinical practice for sometime. The BAI was developed over the course of two decades, whereas the BSI represents a direct translation of a clinical rating scale, called the Scale for Suicide Ideation (Beck, Kovacs, & Weissman, 1979) which has also been used for over two decades, into a self-report format.

Clinicians can now administer all four of the Beck instruments (BDI, BHS, BAI, & BSI) to their patients as a test battery and might be interested in knowing whether total scores for these instruments can be used to represent distinct clinical profiles. For example, the relative balance in the levels of depression, anxiety, hopelessness, and suicidal ideation measured by these scales might be useful in making differential diagnoses. There is an extensive literature indicating that although the Beck instruments were not designed to discriminate specific psychiatric disorders, they do differentiate broad diagnostic groups of psychiatric patients, such those diagnosed with mood and anxiety disorders (Beck & Steer, 1987, 1988, 1990, 1991). However, there is no research indicating that profiles of total scores based on the Beck instruments represent distinct types of psychiatric patients.

The purpose of the present study is to determine whether the BDI, BHS, BAI, and BSI total scores of inpatients diagnosed with mixed psychiatric disorders reflect distinct clinical profiles. We also investigated whether any of the resultant types were differentiated with respect to selected background characteristics and clinical diagnosis.

## METHOD

### PATIENTS

The sample was composed of 200 patients admitted to the inpatient unit of a general hospital located in Cherry Hill, NJ. Cherry Hill is a suburban middle- to upper-middle class community near Philadelphia, PA. The service was run by the Department of Psychiatry, University of Medicine and Dentistry- School of Osteopathic Medicine. The psychiatric unit was a voluntary short-term facility from which the majority of patients were discharged within two weeks of admission.

All of the patients were diagnosed by experienced psychiatrists according to DSM-III-R (American Psychiatric Association, 1987) criteria. The psychiatrists taught psychiatric residents and medical students DSM-III-R criteria and had daily responsibilities for reviewing these students' diagnoses. However, none of the psychiatrists participated in an interjudge agreement study with respect to the present diagnoses.

There were 100 (50.0%) women and 100 (50.0%) men. There were 172 (86.0%) Whites and 28 (14.0%) Blacks. The mean age was 38.17 ( $SD = 13.80$ ) years old.

With respect to DSM-III-R disorders, there were 98 (49.0%) patients who were diagnosed with mood disorders, and 102 (51.0%) who were diagnosed with nonmood disorders. In the mood disorder group, there were 66 (33.0%) single-



## BECK INSTRUMENTS

and recurrent-episode major depressive, 16 (8.0%) bipolar, and 10 (5.0%) depressive not-otherwise-specified disorders. In the nonmood group, the modal diagnosis was for 34 (17.0%) adjustment disorders with depression. The remaining nonmood disorder groups were, each, represented by fewer than 30 patients. For example, there were 13 (6.5%) psychotic not-otherwise-specified, 12 (6.0%) schizophrenias, and 15 (7.5%) alcohol or drug abuse disorders. Only 5 (2.5%) inpatients were diagnosed with anxiety disorders.

### INSTRUMENTS

*Beck Depression Inventory.* The revised BDI (Beck, Rush, Shaw, & Emery, 1979; Beck & Steer, 1987) is a 21-item self-report instrument used to assess the severity of depression in adults and adolescents. Each of the 21 symptoms is represented by four statements reflecting increasing levels of depression, and each item is rated on a 4-point scale ranging from 0 to 3. The BDI is scored by summing the 21 ratings, and total scores can range from 0 to 63.

A number of studies have described the psychometric properties of the BDI with respect to diverse samples of psychiatric populations. The mean coefficient alpha for psychiatric patients is in the high 0.80s (Beck & Steer, 1987). The BDI's one-week test-retest reliability is also within the 0.80s for both psychiatric and nonpsychiatric populations. A comprehensive review of BDI studies is reported by Beck, Steer, and Garbin (1988).

*Beck Hopelessness Scale.* The BHS (Beck, Weissman, Lester, & Trexler, 1974; Beck & Steer, 1988) consists of 20 true-false statements that assess the extent of negative expectancies about the future and is scored by summing the keyed responses of hopelessness for each of the 20 items. The possible range of scores is from 0 to 20. The Kuder-Richardson-20s for the BHS across diverse clinical and nonclinical populations are typically in the 0.80s, and its correlations with clinical ratings of hopelessness are in the 0.70s (Beck & Steer, 1988).

*Beck Anxiety Inventory.* The BAI (Beck & Steer, 1990) is a 21-item self-report instrument in which patients are asked to rate the severity of each symptom using a 4-point scale ranging from (0) "Not at all" to (3) "Severely — I could barely stand it." The inventory is scored by summing the severity ratings across all 21 symptoms. The total scores can range from 0 to 63. With respect to the BAI's reliability, Beck, Epstein, et al. (1988) reported a one-week test-retest reliability of 0.75, and the coefficient alphas are in the low 0.90s.

*Beck Scale for Suicide Ideation.* The 19-item BSI (Beck, Steer, & Ranieri, 1988) is a self-report instrument that is used to evaluate the intensity of a patient's specific attitudes, behaviors, and plans about committing suicide. Each item is rated with a three-point scale ranging from 0 to 2. The ratings are then summed to yield a total score which may range from 0 to 38. Beck, Steer, and Ranieri (1988) reported that the BSI's coefficients alpha were 0.90 and 0.87, respectively, for psychiatric inpatients and outpatients, and its one-week test-retest reliability was 0.54 for 60 inpatients (Beck & Steer, 1991).

The first five BSI items may be used to identify suicide ideators; support for this screening procedure is described by Beck and Steer (1991). If a patient receives a 0 rating indicating no active suicidal intention (desiring to kill himself or herself) for item #4 or receives a 0 rating indicating no avoidance of death if

## MULTIVARIATE EXPERIMENTAL CLINICAL RESEARCH

presented with a life-threatening situation in item #5, then the rater is instructed to skip the remaining 14 BSI items which address specific information about the patient's plans and attitudes. Otherwise, the remaining 14 BSI items are rated. Therefore, suicide ideators represent patients who are rated as having either active and/or passive thoughts about killing themselves. In the present study, the aforementioned system was employed for identifying current suicide ideators. A patient who received a positive rating for either BSI item #4 or #5 was classified as an ideator (0 = nonideator, 1 = ideator).

### PROCEDURE

The inpatients were administered computerized versions of the BDI, BHS, BAI, and BSI following the procedures employed by Beck, Steer, and Ranieri (1988). As soon as a patient was considered by his or her psychiatrist to be capable of psychological testing, the patient was asked to complete the Beck instruments. All of the inpatients were receiving psychotropic medications at the time of testing. Although psychotropic drugs might be expected to have reduced the levels of symptom severity that were measured by the Beck scales, there were insufficient numbers of patients being prescribed the various combinations of medications to permit us to test for the effects of these combinations. Furthermore, the classification of the drugs into broad categories, such as minor and major tranquilizers, was nested within diagnosis, e.g., the patients who were prescribed minor tranquilizers were diagnosed with mood disorders and those who were prescribed major tranquilizers were diagnosed with psychotic disorders. No attempt was thus made to control for the effects of psychotropic medication.

The Beck instrument items were sequentially presented one at a time to the patient on the screen of a monochrome monitor (green lettering on black background) along with the appropriate rating scale for each instrument. The patient was then asked to rate the symptom by pressing the appropriate key on the personal computer's keyboard that reflected his or her choice. The patient was monitored by a medical student or resident who assured that the patient understood how to enter his or her responses.

### RESULTS

The mean BDI, BHS, and BAI total scores for the total sample of 200 inpatients were, respectively, 22.01 ( $SD = 13.34$ ), 8.15 ( $SD = 5.99$ ), and 18.12 ( $SD = 12.34$ ). These mean Beck instrument scores indicate that the total sample was moderately to severely depressed, moderately hopeless, and moderately anxious according to the cut-off score ranges described by Beck and Steer (1987, 1988, 1990). Because the BSI total scores were here only calculated for the 75 patients who were thinking about suicide, the mean BSI score for the suicide ideators was 16.32 ( $SD = 7.59$ ). Although Beck and Steer (1991) assert that cut-off score ranges for the BSI are inappropriate because any mention of suicidal ideation should be taken seriously by clinicians, this mean value was higher than any of the mean BSI scores given in the BSI Manual (Beck & Steer, 1991).

The internal consistency estimates for the Beck instruments were all in the 0.90s, and we concluded that profile patterns of any resultant typologies would be



## BECK INSTRUMENTS

moderately stable. The coefficients alpha for the BDI and BAI for the 200 outpatients were both 0.92, and the Kuder-Richardson-20 coefficient for the BHS was also 0.92. For the 75 suicide ideators, the coefficient alpha for the BSI was 0.90.

### NONIDEATORS AND IDEATORS

The first stage in identifying the types of inpatients according to the Beck instruments involved dividing the total sample into suicide ideators and nonideators with the BSI. The simultaneous use of all four Beck scores for identifying types of psychopathology in a combined sample would have been inappropriate because the BSI had been employed *a priori* to screen for suicide ideators. The BSI total scores of the nonideators could have only ranged from 0 to 6, whereas the BSI total scores of the ideators could have ranged from 1 to 38. The restriction in the range of the nonideators' BSI total scores would have produced spurious results. Furthermore, in using the battery of Beck instruments, we assumed that most clinicians would first want to know if their patients were ideators and then would wish to weigh the levels of depression, anxiety, and hopelessness against the severity of suicidal ideation.

There were 75 (37.5%) ideators and 125 (62.5%) nonideators. As Table 1 indicates, the suicide ideators differed from the nonideators with respect to the BDI, the BHS, and the BAI total scores, but did not differ with respect to gender, ethnicity, age, or diagnosis (mood = 1, other = 0). The ideators' self-reported levels of depression, hopelessness, and anxiety in Table 1 were higher than those of the nonideators, Wilks' lambda = 0.65, MANOVA  $F(3, 196) = 34.13$ ,  $p < .001$ . However, the mean BDI, BHS, and BAI scores of the nonideators shown in Table 1 indicate that they were moderately depressed, hopeless, and anxious according to the cut-off score ranges given by Beck and Steer (1987, 1988, 1990).

### CLUSTER ANALYSES

Because the Beck instruments not only reflected different total score ranges, but also indicated that the ideators' overall levels of self-reported psychopathology were higher than those of the nonideators, the total scores for the Beck instruments were independently standardized within the ideators and nonideators to have means of 0 and standard deviations of 1. A three stage approach was then employed to discover whether distinct types of ideators and nonideators could be identified according to these standard scores. The following approach is similar to the cluster analytic sequence previously employed by Overall and Rhoades (1982) with the Hamilton Psychiatric Rating Scale for Depression (Hamilton, 1960) and Kinder, Curtiss, and Kalichman (1991) with the MMPI.

First, to estimate the number of replicable mean standard-score profiles in the ideators and nonideators, both groups were, each, randomly divided into two approximately equal subsamples. Using the SAS CLUSTER procedure (SAS Institute, 1988), Ward's agglomerative-hierarchical cluster analysis was independently performed for each subsample; this minimum-variance technique identified the number of clusters by finding those that had the smallest ratio of within-group to between-group variance. The squared Euclidean distances ( $d^2$ ) between the

TABLE 1  
GENDER, ETHNICITY, AGE, DIAGNOSIS, AND BECK  
INSTRUMENT SCORES OF SUICIDE IDEATORS AND  
NONIDEATORS

Variable	Ideators (N = 75)		Nonideators (N = 125)		$\chi^2$ (1, N = 200)
	n	%	n	%	
Gender					
Women	35	(46.7)	65	(52.0)	0.34
Men	40	(53.3)	60	(48.0)	
Ethnicity					
White	62	(82.7)	110	(88.0)	0.71
Black	13	(17.3)	15	(12.0)	
Diagnosis					
Mood	41	(54.7)	57	(45.6)	1.20
Other	34	(45.3)	68	(54.4)	

Variable	Ideators (N = 75)		Nonideators (N = 125)		t (198)
	M	SD	M	SD	
Age (yrs.)	36.83	12.49	38.98	14.52	1.07
BDI	30.35	12.28	17.01	11.34	7.81*
BHS	12.52	5.51	5.53	4.58	9.67*
BAI	24.43	12.10	14.34	10.89	6.08*

Note.- Bonferroni adjusted level of significance (alpha / 7): \* p < .001  
BDI = Beck Depression Inventory, BHS = Beck Hopelessness Scale,  
and BAI = Beck Anxiety Inventory

clusters were summed across the four Beck scores for the ideators and across three scores for the nonideators. Because patients (outliers) with extreme Beck scores might have distorted the identification of reliable clusters, 10% of the outliers in the subsamples were temporarily excluded at this stage in each of the cluster analyses to make the solutions more stable. Sarle's (1983) cubic clustering criterion was employed to determine the number of salient inpatient types existing in each subsample. The two hierarchical cluster analyses for the ideator subsamples produced the highest cubic-clustering criteria at three clusters. However, one of the nonideator subsamples had its highest cubic clustering criterion at three clusters, and the other subsample had its highest cubic clustering criteria at four clusters.



After determining that there were three salient ideator and either three or four salient nonideator types, the second stage of the present cluster-analytic approach involved running Ward's minimum-variance technique again with the total samples of 75 ideators and 125 nonideators; 10% of the patients with extreme Beck scores in each group were again temporarily excluded in deriving these final seed or prototypal profiles. Three prototypal profiles of mean BDI, BHS, and BAI scores were extracted for the nonideators, and both three and four prototypal profiles of mean BDI, BHS, BAI, and BSI scores were calculated for the ideators.

Milligan (1980) and Borgen and Barnett (1987) suggest that if an agglomerative hierarchical method, such as Ward's minimum-variance technique, is first used to identify prototypal or seed profiles that are subsequently employed as initial targets for clustering in an iterative nonhierarchical k-means cluster analysis, the identification of reliable clusters is more likely to be robust. Furthermore, the use of a hierarchical approach here followed by a nonhierarchical one limits the imposing a hierarchical structure upon patients for whom there is no prior evidence that a hierarchical structure is warranted (Borgen & Barnett, 1987). The present approach also tends to discourage identifying types that are spuriously composed of equal numbers of patients. The base rates for different psychiatric disorders are extremely discrepant (American Psychiatric Association, 1987), and we considered it highly unlikely that our psychiatric outpatients would be equally represented with respect to the Beck instrument types.

During the third stage of analysis, two k-means iterative-partitioning cluster analyses were, separately, conducted with SAS' FASTCLUS procedure (SAS Institute, 1983) to assign all of the 125 nonideators and all of the 75 ideators to mean standard-score profiles based upon the initial target profiles that had been identified by Ward's minimum-variance technique. The outliers who had temporarily been excluded during the estimation of the seed clusters were returned to their respective ideator and nonideator samples. In the k-means method, centroids for the set of target profiles were first calculated; each patient was then assigned to the nearest centroid based on the Euclidean distance ( $d$ ) between the centroids represented by either the sum of the patient's four Beck scores for the ideators or the sum of the three scores for the nonideators; the centroids were next recalculated; and each patient was reassigned to a new profile if its present centroid was no longer the nearest one. This iterative process continued until no more reassignments were possible. (See Aldenderfer and Blashfield (1984) or Borgen and Barnett (1987) for more detailed information.) The k-means cluster analyses supported the existence of three nonideator and ideator types. Visual inspection of the nonideators' assignments to the three and four cluster solutions indicated that there was more separation among the profile centroids for the three cluster solution than there was for the four cluster solution.

Table 2 presents the means, standard deviations, and standardized cluster means for the three types of nonideators and ideators, and Figure 1 shows the mean standardized cluster scores of the nonideator and ideator types as bar graphs.

As Table 2 and Figure 1 indicate, 55 (44.0%) of the 125 nonideators were assigned to a type whose mean BDI, BHS, and BAI scores were below the respective mean scores of these instruments for the total sample of nonideators. Therefore, this cluster was called the *below average* type. The 45 (35.0%) inpatients in

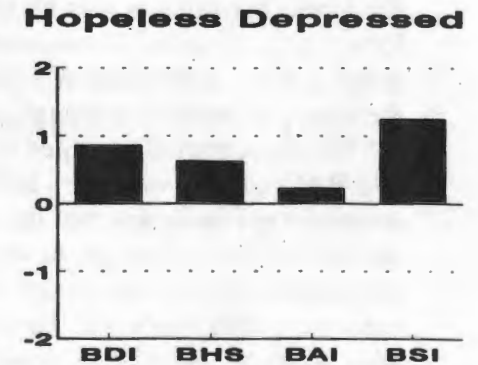
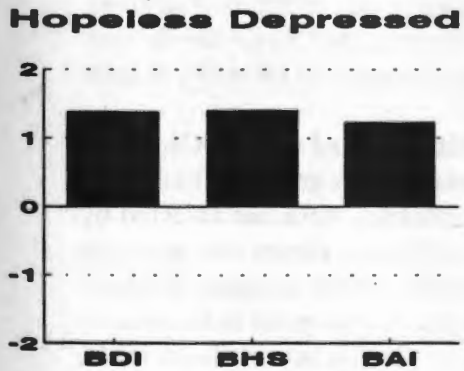
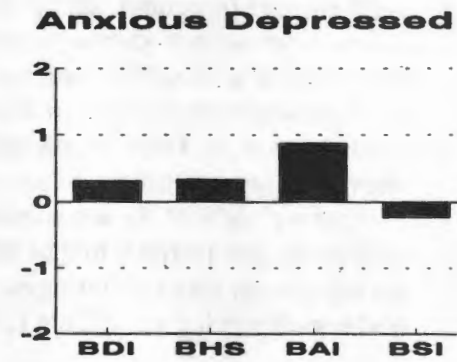
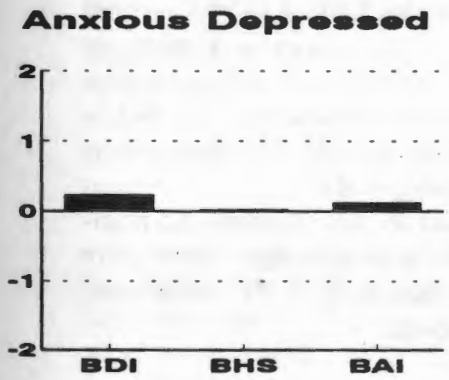
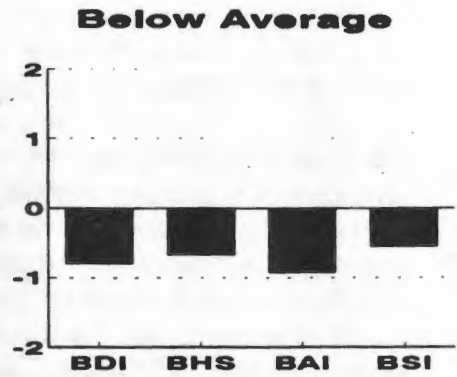
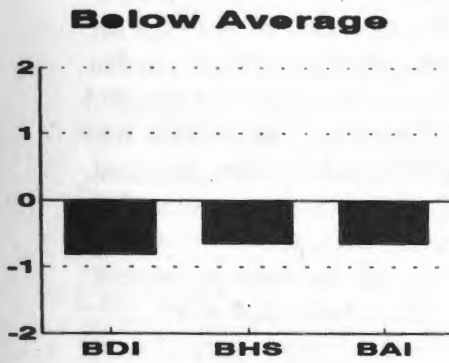
TABLE 2  
 MEANS, STANDARD DEVIATIONS, AND STANDARDIZED CLUSTER MEANS FOR THE BECK INSTRUMENTS BY SUICIDE NONIDEATOR AND IDEATOR TYPES

Type	Instrument	n	M	SD	Standardized Cluster M
<u>Nonideator (N = 125)</u>					
Below average	BDI	55	10.71	9.04	-0.81
	BHS		3.71	3.84	-0.65
	BAI		9.11	7.17	-0.65
Anxious depressed	BDI	45	19.27	7.69	0.23
	BHS		5.47	3.31	0.02
	BAI		15.78	9.80	0.12
Hopeless depressed	BDI	25	26.80	13.08	1.38
	BHS		9.64	5.49	1.40
	BAI		23.28	13.07	1.22
<u>Ideator (N = 75)</u>					
Below average	BDI	30	23.27	10.76	-0.79
	BHS		9.93	5.82	-0.67
	BAI		15.30	8.82	-0.92
	BSI		13.23	6.71	-0.55
Anxious depressed	BDI	27	32.37	10.43	0.31
	BHS		13.56	4.44	0.33
	BAI		33.44	10.54	0.87
	BSI		14.44	5.02	-0.23
Hopeless depressed	BDI	18	39.11	10.80	0.86
	BHS		15.28	4.75	0.62
	BAI		26.11	7.46	0.22
	BSI		24.28	6.80	1.25

Note.- BDI = Beck Depression Inventory, BHS = Beck Hopelessness Scale, BAI = Beck Anxiety Inventory, and BSI = Beck Scale for Suicide Ideation

the second most frequent type of nonideator had an elevated BDI score and slightly elevated mean BHS and BAI scores. This cluster represented an *anxious depressed* type of nonideator. Finally, the 25 (20.0%) nonideators in the third cluster had high mean BDI, BHS, and BAI scores. Because the mean BHS score was slightly higher than the mean BDI score, this cluster was interpreted as a *hopeless depressed* type.





**Nonideators**

**Ideators**

Figure 1. Types of Nonideators and Ideators

## MULTIVARIATE EXPERIMENTAL CLINICAL RESEARCH

With respect to the ideators (Table 2 & Figure 1), there were 30 (40.0%) inpatients whose mean BDI, BHS, BAI, and BSI scores were all below those for the entire group of ideators. This profile was, therefore, considered to reflect a *below average* type of ideator. There were 27 (36.0%) ideators in the second type, and the mean BDI, BHS, and BAI scores were all above average, but the BSI was slightly below average. Although the mean BDI and BHS scores were elevated, the highest mean score was for the BAI. Consequently, this cluster represented an *anxious depressed* type of ideator. All four of the mean Beck scores for the 18 (24.0%) ideators in the third cluster were above average, but the most prominently elevated score was for the BSI. Although this profile indicated extremely severe suicidal ideation, the high levels of depression and hopelessness were clinically considered to be most important. This cluster, therefore, represented a *hopeless depressed* type of ideator who described severe suicidal ideation.

Having identified three types of ideators and nonideators with the Beck instruments, we wanted to ascertain whether or not these types were differentiated with respect to gender, ethnicity, age, and diagnosis. As Table 3 shows, neither the nonideator nor ideator types were differentiated with respect to ethnicity or diagnosis of a mood or nonmood disorder. Although gender did not discriminate the types of nonideators, it did differentiate the types of ideators. The *below average* type in Table 3 was more like to be male than female, and the *anxious depressed* type was more likely to be female than male ( $p < .05$ ).

Oneway ANOVAs were independently performed for the ideators and nonideators to determine whether the types differed with respect to age. There were no significant mean differences among the types of ideators,  $F(2, 72) = 0.99$ , ns., and nonideators,  $F(2, 122) = 1.72$ , ns., with respect to age.

## DISCUSSION

The present study indicated that different types of psychiatric inpatients can be identified by profiles of BDI, BHS, BAI, and BSI scores. The overall severity of the Beck instruments was higher in the ideators than it was in the nonideators. However, a series of cluster analytic techniques indicated that three similar patterns of Beck instrument scores existed in both nonideators and ideators, despite the mean differences in overall levels of severity.

The most prevalent types of nonideators and ideators had mean BDI, BHS, and BAI scores which were below the overall means of both groups. This *below average* type indicates that the shapes of the Beck profiles were not affected by the overall level of symptom severity involved in dividing inpatients into nonideators and ideators, even though ideators described more severe psychopathology than the nonideators did. However, this profile stresses that even in inpatients who admit to suicidal ideation, there are those who do not report depressive, hopeless, and anxious symptoms. It may be that this type of ideator should be of special concern to clinicians because these patients may conceal their thoughts and plans from others. Because the *below average* type of ideator does not describe much symptom distress, he or she may not be as noticeable as someone who is complaining a lot. In any event, a detailed inquiry into the nature of these ideators' cognitions should be undertaken to discover why they are willing to admit to suicidal ideation and deny other symptomatology, especially depression.

TABLE 3  
 TYPES OF NONIDEATORS AND IDEATORS BY  
 GENDER, ETHNICITY, AND DIAGNOSIS

Type	Gender			
	Women		Men	
	n	(%)	n	(%)
<b>Nonideator</b>				
Below average	28	(50.9)	27	(49.1)
Anxious depressed	23	(51.1)	22	(48.9)
Hopeless depressed	14	(56.0)	11	(44.0)
	$\chi^2 (2, N = 125) = 0.20$			
<b>Ideator</b>				
Below average	8	(26.7)	22	(73.3)
Anxious depressed	18	(66.7)	9	(33.3)
Hopeless depressed	9	(50.0)	9	(50.0)
	$\chi^2 (2, N = 75) = 9.24^*$			

Type	Ethnicity			
	White		Black	
	n	(%)	n	(%)
<b>Nonideator</b>				
Below average	49	(89.1)	6	(10.9)
Anxious depressed	39	(86.7)	6	(13.3)
Hopeless depressed	22	(88.0)	3	(12.0)
	$\chi^2 (2, N = 125) = 0.14$			
<b>Ideator</b>				
Below average	25	(83.3)	5	(16.7)
Anxious depressed	20	(74.1)	7	(25.9)
Hopeless depressed	17	(94.4)	1	(5.6)
	$\chi^2 (2, N = 75) = 3.14$			

Type	Diagnosis			
	Mood		Other	
	n	(%)	n	(%)
<b>Nonideator</b>				
Below average	24	(43.6)	31	(56.4)
Anxious depressed	17	(37.8)	28	(62.2)
Hopeless depressed	16	(64.0)	9	(36.0)
	$\chi^2 (2, N = 125) = 4.61$			
<b>Ideator</b>				
Below average	14	(46.7)	16	(53.3)
Anxious depressed	17	(63.0)	10	(37.0)
Hopeless depressed	10	(55.6)	8	(44.4)
	$\chi^2 (2, N = 75) = 1.53$			

Note. Bonferroni adjusted level of significance (alpha / 3): \*  $p < .05$



## MULTIVARIATE EXPERIMENTAL CLINICAL RESEARCH

The second most prevalent type of ideator and nonideator had above average levels of depression and hopelessness, but the mean level of anxiety was higher than the mean level of hopelessness. This profile represented an *anxious depressed* type, and this type of ideator was more likely to be female than male. The existence of this *anxious depressed* profile provides further support for those researchers who contend that the presence of simultaneous anxiety and depression should be recognized as a separate diagnostic category (Clark, 1989; Watson & Kendall, 1989).

The least frequent type of ideator and nonideator described high depression and hopelessness and had extremely high suicidal ideation in the ideators. This type of extremely suicidal ideator no doubt represents an inpatient who should be placed on suicidal precautions. Furthermore, these hopeless and depressed types reflect the strong positive relationship between depression and hopelessness that many studies have previously reported (Beck, 1986). The elevated hopelessness may have important clinical significance because hopelessness has repeatedly been found to be a better predictor of suicidal behavior (Dwyer & Kreitman, 1984; Minkoff, Bergman, Beck, & Beck, 1973; Silver, Bohnert, Beck, & Marcus, 1971; Wetzel, Margulies, Davis, & Karam, 1980) and eventual suicide (Beck, Brown, Berchick, Stewart, & Steer, 1990; Beck, Steer, Kovacs, & Garrison, 1985; Fawcett, Scheftner, Fogg, Clark, et al., 1990) than depression is. The *hopeless depressed* nonideator and ideator types reflect the inpatients who are at the highest risk for eventual suicide, and clinicians should not consider the absence of current suicidal ideation as minimizing the risk of a future suicide attempt.

Future research should examine whether the types of inpatients found here with the Beck instruments are applicable to a broader variety of clinical populations, such as outpatients, drug abusers, alcoholics, adolescents, and the elderly. The stability of these types over time has not been tested, and the ability of the typologies to differentiate individual psychiatric disorders from one another has not been studied. Further research should be conducted with different ethnic groups drawn from diverse socioeconomic strata and representing different treatment modalities.

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### Footnote

1. Requests for reprints should be sent to the senior author at the UMDNJ-School of Osteopathic Medicine, Department of Psychiatry, 401 Haddon Ave., Camden, NJ 08103-1489.