Multivariate Experimental Clinical Research, Volume 6, No. 2, 1982, 47-54

TRANSDIAGNOSTIC SYMPTOMS OF DEPRESSION IN ALCOHOLISM[1]

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ABSTRACT

Principal components analyses were performed on the intercorrelations among the 21 items of the Beck Depression Inventory (BDI) and 15 items of NIAAA's alcohol Impairment Index for 101 men admitted for alcoholism treatment at a large, metropolitan community mental health center. An interbattery principal-components analysis performed among the five salient components initially found for the BDI and the four identified for the Impairment Index revealed one significant canonical variate representing affective and somatic symptoms. The symptoms reflecting cognitive distortions in self-appraisal in the BDI did not significantly load on the interbattery component, and the results were discussed as indicating that intrapunitive cognitive distortions in self-concept may afford a better picture of the severity of depression in alcoholics than affective and somatic symptoms.

INTRODUCTION

The problems encountered in attempting to isolate symptoms concurrent with a primary diagnosis of depression or alcoholism have been observed by a number of clinicians and researchers (Gibson & Becker, 1973; Woodruff, Guze, Clayton, & Carr, 1973; Benensohn & Resnick, 1974; Cadoret & Winokur, 1974; Fine & Steer, 1977; Freed, 1978; Hamm, Major, & Brown, 1979). For example, the Impairment Index used by NIAAA in its Treatment Monitoring System (Eagleston & Mothershead, 1974) to assess the behavioral impairment related to excessive alcohol usage asks questions about sleep disturbance, loss of appetite, and work difficulties along with direct inquiries about drinking practices. The Beck Depression Inventory (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), one of the most validated and widely used self-report instruments of depression (Becker, 1974), also requests descriptions about the severity of these latter three symptoms

since problems in these areas are also associated with the syndrome of depression. Signs and symptoms may be defined as transdiagnostic if they occur in two or more syndromes and are considered to be important indicators of such syndromes. The presence of such shared symptomatology in depression and alcoholism cautions (Gibson & Becker, 1973; Steer, Shaw, Beck, & Fine, 1977) that transdiagnostic signs and symptoms may be pervasive throughout other psychiatric disorders as well.

Regardless of whether or not the symptoms are transdiagnostic, depression, whether primary or secondary, is one of the most frequent affective disorders found in alcoholic individuals (Keeler, Taylor, & Miller, 1979) and Lipson, 1979, has called for a clearer understanding of the affective disorders and problems associated with alcoholism. Perhaps, there is a depressive syndrome which is unique to alcoholism *per se*, and its differentiation from other manifestations of alcoholism, or as a primary depressive episode, might constitute an important advance in the treatment of the alcoholic patient. It might be more effective to treat the depression first, if it is precipitating the alcoholism abuse as a form of self-medication (Chafetz, 1976), then to treat the alcoholism and depression concurrently. In the case of autonomous alcoholism, the depression may result from losses and difficulties arising from the alcoholism (Fine & Steer, 1977); a course of inpatient detoxification might be more effective than trying to treat the depression on a protracted outpatient basis.

The purposes of the present study were (1) to study the relationships among the symptoms presented by two widely used self-report instruments for assessing depression and alcohol impairment and (2) to identify any common (transdiagnostic) dimensions between them.

METHOD

SUBJECTS

The sample represented 101 men who had consecutively been admitted to the Alcoholism Program of a large, metropolitan community mental health center. The subjects were 25 day-hospital patients and 76 outpatients. The mean age was 36.91 (SD = 10.50), and the mean educational attainment was 10.42 (SD = 3.37) years. The marital status was complex: 13.9% were married; 3.0% were widowed; 16.8% were divorced; 22.7% were separated; and 43.6% had never married. The racial composition was 29.7% white and 70.3% black. Previous inpatient hospitalization for alcoholism treatment was reported by 51.5%, and the mean number of years self-reported for heavy drinking was 11.86 (SD = 8.80).

INSTRUMENTS

The self-report instruments used to explore the transdiagnostic symptoms in alcoholism and depression were NIAAA's Impairment Index (Eagleston & Mothershead, 1974) and the Beck Depression Inventory (BDI) (Beck et al., 1961).

The Impairment Index consists of 15 questions about self-perceived problems attributed to excessive drinking during the past month. The items are rated on 2-or 4- point scales yielding total scores ranging from 0-42.

The BDI was chosen as the self-report instrument for depression because it

has been previously used in several studies of depression in alcoholism. It is a 21-item self-report instrument composed of four alternative statements ranging in severity from 0-3, and its total scores may range from 0-63. The BDI was self-administered to the patients after an intensive clinical interview had been performed as part of the standard intake process. The patients were asked to volunteer for the study, and the BDI was then administered to the volunteers. The patients' mean BDI score was 12.80 (SD = 10.46) and the mean Impairment Index score was 14.36 (SD = 11.59). The correlation between the BDI and Impairment Index scores was .34 ($p < .001$). According to the diagnostic criteria presented by Beck (1972), the men had described themselves as mildly depressed, and the mean Impairment Index score was comparable to other patients seeking treatment in NIAAA's Alcoholism Treatment Centers (Eagleston & Mothershead, 1974).

DATA ANALYSIS

Since the relationship between the Impairment Index and BDI scores was moderate (r = .34) and the study wanted to determine whether or not the two instruments contained distinct dimensions which, in turn, were related to each other, principal components analyses were, separately, performed on the Pearson product-moment correlations among the 21 BDI and 15 Impairment Index items. Scree tests were employed for determining how many components to retain for rotation. Five components were chosen for the BDI, whereas four were kept for the Impairment Index.

A univocal varimax solution was next used to search for simple structure (Skinner, 1978) in which a tentative hypothesis matrix of 1s and 0s was employed for replacing the initial varimax loadings ≥ .50 in the pattern matrices for both the BDI and Impairment Index. A least-squares fit of the original component matrices to the hypothesis matrices was then performed.

A varimax solution was chosen for two reasons, even though the correlations among the BDI's and Impairment Index's items were moderate and would suggest that an oblique solution might be more appropriate. First, the majority of the factor analyses of the BDI (Beck & Beamesderfer, 1974) have been performed using a varimax solution, and reference to previous solutions would be aided by using a similar approach in the current exploratory analysis. Second, to facilitate the interpretation of the last stage of analysis when interbattery components were to be identified, the varimax solution was considered to afford a clearer perspective of whether or not distinct transdiagnostic dimensions had emerged rather than trying to assess relationships existing among potential second- or even third-order factors.

RESULTS

As Table 1 indicates, the resultant loadings for the BDI did display simple structure with 61.0% of the total variance being explained, and only two symptoms, Crying and Body Image Change, did not load saliently (> .50) on any of the five resultant components (Table 1).

TABLE 1

UNIVOCAL VARIMAX-ROTATED COMPONENTS OF THE BECK DEPRESSION INVENTORY SUBSCALES SORTED BY SALIENT LOADINGS OR ALCOHOLIC MEN

Subscale	Component I	II	III	IV	V	h^2
Sadness	.79					.76
Suicidal Ideas	.78					.66
Pessimism	.72					.74
Loss of Appetite	.63					.71
Indecisivenss	.62					.65
Social Withdrawal	.55					.50
Self-dislike		.76				.70
Expectation of Punishment		.67				.57
Sense of Failure		.66				.63
Guilt		.62				.50
Dissatisfaction		.61				.56
Self-accusations		.58				.46
Loss of Libido			.84			.74
Work Difficulty			.57			.68
Somatic Preoccupation			.51			.53
Irritability				.79		.68
Weight Loss				.56		.48
Fatigibility					.69	.69
Insomnia					.62	.60
Crying						.38
Body-Image Change						.58
% of Total Variance	19.8	16.5	9.8	7.5	7.4	61.0
% of Common Variance	32.4	27.0	16.1	12.3	12.2	100.0

NOTE: Loadings ≥ .50 were considered as salient, and those loadings < .50 have been suppressed (N = 101).

Simple structure also emerged with respect to the Impairment Index (Table 2) in which all 15 items were found to load saliently on one of the four components. Only the item, "Drinking in the Morning," loaded on Components I and II. The varimax solution for the Impairment Index explained 64.9% of the total variance.

The relationship among the components were then further studied by the use of an interbattery principal-components analysis contained in Skinner's (1978) EXPLORE program to determine if salient transdiagnostic components existed

across the two instruments (Table 3). Only one significant canonical variate emerged across the two instruments, and this interbattery component received its highest symptom loadings from the BDI's first and third components and the Impairment Index's first and fourth components. The BDI's first and third component's highest symptom loadings were Sadness, Suicidal Ideas, Pessimism, Loss of Libido, Work Difficulty and Somatic Preoccupation, whereas the Impairment Index's highest salient loadings were for Longest Period of Drinking, Loss of Control, Times Drunk, Lapses of Memory and Presence of Drinking Alone. The pattern of symptoms being represented by the interbattery component suggested that the common dimension underlying both instruments was affective and somatic in nature.

TABLE 2

UNIVOCAL VARIMAX-ROTATED COMPONENTS OF THE IMPAIRMENT INDEX SUBSCALES SORTED BY SALIENT LOADINGS FOR ALCOHOLIC MEN

	Component				
Subscale	I	II	III	IV	h^2
Longest Period of Drinking	.79				.67
Loss of Control	.78				.75
Times Drunk	.74				.67
Fighting	.68				.52
Lapses of Memory	.60				.68
Drinking at Work	.57				.49
Drink in Morning	.53	.62			.70
Longest Time Not Drinking		.81			.67
Missing Work		.72			.69
Missing Meals		.65			.66
Illness		.56			.54
Sleep Difficulties			.69		.63
Hallucinations			.66		.65
Shakes			.64		.64
Drinking Alone				.87	.77
% of Total Variance	24.8	20.0	12.1	8.0	64.9
% of Common Variance	38.2	30.9	18.6	12.3	100.0

NOTE: Loadings ≥ .50 were considered as salient, and those loadings < .50 have been suppressed (N = 101).

TABLE 3

FIRST PRINCIPAL-FACTOR VARIMAX-ROTATED LOADINGS OF BECK DEPRESSION INVENTORY AND IMPAIRMENT INDEX COMPONENTS FOR ALCOHOLIC MEN

Component	Interbattery Component
Beck Depression Inventory	
I.	.67
II.	.24
III.	.45
IV.	.02
V.	.14
Impairment Index	
I.	.60
II.	.09
III.	.32
IV.	.51

NOTE: Canonical $R = .46$, $X^2 (20) = 34.45$, $p < .05$.

DISCUSSION

The results have several implications for the specification of transdiagnostic symptoms in depression and alcoholism. The interbattery principal-components analysis of the univocal varimax-rotated components of the BDI and Impariment Index indicated that these instruments were measuring a single affective and somatic dimension. Importantly, the cognitive symptoms representing intrapunitive self-appraisals, i.e., Self-dislike, Sense of Failure, etc., of the BDI were not highly associated with the canonical variate relating the two instruments, nor with the Impairment Index's social functioning component.

It is important to note that the principal components of the BDI found here were similar to those reported by Steer et al. (1977) for black alcoholic men, but differed from other clinical populations. Factor analyses of the BDI for non-alcoholic samples have consistently found three factors reflecting Negative Attitude-Suicide, Physiological Manifestations and Performance Difficulties (Beck & Beamesderfer, 1974). However, Steer et al. (1977) found that the primary factors underlying alcoholics' depressions represented Cognitive-affective Impairment, Retarded Depression and Escapism; the physiological and performance difficulties do not constitute separate dimensions of depression in alcoholics as they did in non-alcoholic patients.

Furthermore, when Cattell and Baggaley's (1960) Salient Variable Similarity Index (S-index) for matching factors was calculated between Steer et al.'s (1977) Cognitive Impairment factors and the BDI Components I and II found here. The S-index was significant ($p < .01$) with Component II, but not with Component I.

The alcoholics' intrapunitive cognitive complaints replicated, but the affective ones did not.

The present results suggest that the depressive symptoms which were unrelated to the alcoholism symptoms represented cognitive distortions in self-concept. Perhaps, an optimal method for assessing depression in an alcoholic is just to rate the extent of self-dislike, expectation of punishment, sense of failure, guilt, personal dissatisfaction, and self-accusation (BDI Component II) without regarding affective and somatic symptoms. Truly depressed alcoholics would be expected to achieve higher cognitive dysfunctioning scores than nondepressed alcoholics.

The contention that certain symptoms were transdiagnostic in both alcoholism and depression was suggested; these common symptoms appeared to be affective and somatic in nature stressing aspects of role dysfunctioning. The symptoms which appeared to be unique to depression emerged as cognitive. Further work needs to be done in identifying the types of cognitive distortions within the alcoholic beyond those displayed by the blatant cognitive impairment shown in intoxicated states. Such specification might lead to more effective ways of challenging these cognitive distortions therapeutically and accelerating treatment.

FOOTNOTES

[1]The present research was supported by NIAAA Grant #AA03016-02.

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