Gottschalk Depression Scale

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A Depression Scale Applicable to Verbal Samples

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Abstract. A depression scale scored through the content analysis of verbal samples is described. A classification is provided of the type of content analysis used in the development of this scale. The rationale for various mathematical transformations used in deriving the scores is given. The construct of depression is discussed, and measurement problems occurring in its assessment are outlined. The content analysis approach to measurement of psychological and behavioral dimensions is seen as a combination of self-report and independent observer rating scale methods. The place of normative scores with such measurement tools is explained. Reliability of scoring and construct validation data using the depression scale are presented.

Key Words. Depression scale, content analysis, verbal behavior, normative, construct validation.

Many measures of psychological dimensions have been developed, and these measures can be broadly classified into three categories: self-report scales, independent observer rating scales, and content analysis scales. The strengths and weaknesses, in terms of measurement errors, inherent in these three kinds of assessment approaches have been described by others (Gottschalk, 1984; Lolas, in press). For the purposes of this article, it is sufficient to say, by way of an overview of these methods, that the content analysis approach combines the personal and subjective strengths of self-report measures with the objective and impartial strengths of the rating of the magnitude of psychological dimensions by independent observers.

No validated content analysis measure of depression has been developed, though the use of the content analysis of verbal behavior has been applied to the measurement of many psychological dimensions: for example, anxiety (Gleser et al., 1961), hostility (Gottschalk et al., 1963), social alienation-personal disorganization (Gottschalk and Gleser, 1969), cognitive impairment (Gottschalk et al., 1979*a*, 1983*a*, 1983*b*, 1983*c*), hope (Gottschalk, 1974), pawn and origin—locus of control (Westbrook and Viney, 1980), and positive emotions (Gottschalk et al., 1961; Westbrook, 1976). This article describes a depression scale we have developed which is applicable to verbal samples.

There are a number of different ways of classifying content analysis (Pool, 1959; Marsden, 1965; Gottschalk and Gleser, 1969; Viney, 1983). One useful classification system includes classical, pragmatic, and linguistic analysis.

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Classical content analysis does not limit content analysis to lexical content but may include investigation of the musical, pictorial, plastic, and gestural systems of communication (Berelson, 1952). In the classical model, the units are coded to categories descriptive of the content itself. With the classical model, once the units are coded, further inferences may be made about the internal state of the communicator, and these inferences are subject to validation only by other procedures. Following the classical model, the statement "she is fearful" would be coded to the category "she (other) afraid," and only subsequently could one hypothesize that such a statement might indicate some anxiety in the speaker. The classical model places a premium on objectivity, but such precision often leads to superficiality of results.

In the so-called *pragmatic* model (Marsden, 1965), content units are coded into categories descriptive of some condition of the communicator or of the relationship between the communicator and his verbal behavior itself. Inference is used at the time of coding, and is the basis of coding relevant semantic and syntactical content units to the categories of the content analysis system. For example, to code the statement "she is fearful" to signify that the speaker is fearful follows the pragmatic model. The pragmatic model aims to realize psychological meaningfulness by working with complex clinical constructs. It uses the skills and knowledge of the clinician while formalizing the conditions under which these skills are used in order to ensure procedural rigor. In brief, the pragmatic model promotes research with psychodynamic constructs, such as anxiety and depression, for which behavioral cues cannot always be easily specified.

Linguistic analysis looks for behavioral cues in syntactical, grammatical, and paralinguistic variables through a nonquantitative approach or with appropriate statistical techniques. Dittmann and Wynne (1961) explored the relationship between linguistic phenomena and affect. They found that linguistic features could be identified reliably but were not related to affect, and paralinguistic features could not be identified within acceptable standards of statistical reliability.

The approach presented here to the content analysis of depression, as well as to other psychological and behavioral dimensions we have developed (Gottschalk and Gleser, 1969; Gottschalk, 1979), follows to a large extent the pragmatic model. Clinical inferences have been used in the categories to be coded. However, nonprofessional technicians and even the computer (Gottschalk and Bechtel, 1982), can be trained to do the coding with approximately the same level of reliability that can be coded from "manifest" lexical content categories. Moreover, the system presented here is unusual from a theoretical point of view in that it borrows from several different bodies of theory—learning theory, linguistic theory, and psychodynamic theory are all involved. The theoretical approach being used is, hence, an *eclectic* one.

The problem of quantification has been dealt with by including both frequency and nonfrequency aspects of specific types of statements to assess intensity. The frequency of occurrence per 100 words of various themes considered to signify some aspect of depression and communicated in each grammatical clause is one method of assaying the magnitude of depression. Another method of indicating the magnitude of a psychological dimension, not based on frequency of occurrence of a verbal category but based on a linguistic or semantic cue, occurs in language through the use of

adjective or adverb modifiers or through the connotation of a word itself (Gottschalk et al., 1969, p. 33). For example, the use of a comparative adverb, such as "very" *depressed,* would augment the assigned weight for *depressed* by one point.

Methods

The method used in the present study was to elicit 5-minute verbal samples from the subject by using standard, purposely ambiguous instructions, to simulate a projective test procedure. Each subject received the following instructions: This is a study of speaking and conversational habits. Upon a signal from me, I would like you to speak for 5 minutes about any interesting or dramatic personal life experience you have had. Once you have started, I will be here listening to you, but I would prefer not to reply to any questions you may feel like asking until the 5-minute period is over. Do you have any questions you would like to ask me now before we start? If not, then, you may start talking.

Some of the depression subscales are content analysis scales whose reliability and validity have been intensively studied and reported elsewhere—namely, anxiety (Gleser et al., 1961; Gottschalk et al., 1961; Gottschalk and Gleser, 1969), hostility (Gottschalk et al., 1963; Gottschalk and Gleser, 1969), and hope (Gottschalk and Gleser, 1969; Gottschalk, 1974).

To correct for skewness of the frequency distribution of affect scores and to obtain scores that approximate an interval scale when using the Gottschalk-Gleser anxiety and hostility scales, already established mathematical transformation methods are used (Gottschalk et al., 1969). The sum of the products is obtained of the frequency of use of relevant verbal categories and the numerical weights assigned to each thematic category.[1] To this sum is added 0.5 to avoid the discontinuity occurring whenever no scorable items appear in some verbal samples. The resulting sum is multiplied by 100 and divided by the number of words spoken, giving a corrected score. A further transformation—namely, the square root of the corrected score—is made to obtain the final score. The mathematical formula used to derive the anxiety and hostility scores and the respective subscale scores of these affects per 100 words =

$$\sqrt{\frac{100\,(f_1w_1 + f_2w_2 + f_3w_3 \ldots f_nw_n + 0.5)}{N}}$$

where f_n is the frequency per unit of time of any relevant type of thematic verbal reference, w_n is the weight applied to such verbal statements, and N is the number of words per unit time.

All of the following depression subscales use the above procedure for obtaining a score: I. Hopelessness, II. Self-accusation, III. Psychomotor retardation, IV. Somatic concerns, V. Death & mutilation depression, VI. Separation depression, VII. Total hostility outward.

Several of these seven major depression subscale scores have their own minor subscales. II. *Self-accusation* is composed of three subscales: II.A. Guilt depression; II.B. Shame depression; and II.C. Hostility inward. V. *Death & mutilation depression* is composed of two subscales: V.A. Death depression and V.B. Mutilation depression. VII. *Total hostility outward* is composed of two subscales: VII.A. Overt hostility outward and VII.B. Covert hostility outward. These minor subscale scores are also obtained by summing the products of the frequency of use of the relevant verbal categories and the numerical weights assigned to each thematic category, adding 0.5, multiplying by 100, dividing by the number of words spoken, and obtaining the square root of this number, giving a corrected score (per 100 words spoken). The scores on the II. Self-accusation scale, V. Death & mutilation depression scale, and VII. Total hostility outward scale are not obtained by simple addition of their respective subscales. Rather, the sum of the relevant verbal categories multiplied by the weights of the verbal categories is

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1. These weights were initially assigned to each thematic category on the basis of clinical psychiatric judgment; some of the weights were subsequently changed to correspond to empirical findings when independent criterion measures for a psychological or behavioral item so indicated.

added only once to 0.5, multiplied by 100, divided by the number of words spoken in the verbal sample, and then square-rooted.

The total depression score is obtained by summing all seven depression major subscale scores. A copy of the content analysis depression scale is presented in Appendix I.

Results

Normative Depression Scores for Adults and Children. Normative depression scores, derived from the content analysis of speech for nonpsychiatric populations, provide a measure of the typical or average for a group of people in some situations. The methods of eliciting verbal behavior—for example, a request to the prospective speaker to free-associate versus to talk about all the sad or catastrophic events the speaker has experienced—result in speech samples that, on the average, differ in the amount of depressive content. Similar effects of changing the instructions for eliciting speech on other affect scores have been observed by others (Gift et al., 1985; Koch and Schofer, 1986). Likewise, the milieu or context in which the verbal behavior is brought forth can influence the content of speech—for example, speech from a patient in a hospital bed versus speech from the same patient talking in an office or residence (Gottschalk and Gleser, 1969). Considerable evidence has been accumulated, however, that 5-minute speech samples elicited from normative groups of individuals located in widely distributed geographical areas in the United States by a standardized procedure—namely, to "talk about any interesting or dramatic personal life experiences" (see standardized instructions) (Gottschalk et al., 1969)—have mean scores across normative groups that are not significantly different from one group to another for anxiety, hostility outward, hostility inward, and ambivalent hostility (Gottschalk and Gleser, 1969; Gottschalk et al., 1983*c*). More surprising, perhaps, is the fact that mean anxiety and hostility scores, derived by the Gottschalk-Gleser method from 5-minute speech samples elicited by the same standardized procedure from normative groups from the United States are not significantly different from comparable scores obtained from normative groups in Hamburg, Germany ($n = 355$) (Schofer et al., 1979) or Australia ($n = 140$) (Viney and Manton, 1981). The relative stability of mean affect scores obtained from the content analysis of verbal behavior elicited by standardized instructions from large groups of normative individuals from diverse national geographical areas and from individuals whose native language is English or German provides baseline scores that can be used to determine what is a high or low score for this or that psychological dimension using these content analysis scales.

Table 1 gives the depression scores obtained from a normative sample of 29 white adult males and 29 white adult females, employees of the Kroger Company in Cincinnati, Ohio, who were adjudged free of medical illnesses and psychiatric disorders, not on the basis of any standardized questionnaire or test, but on the basis of a work record from the Kroger Personnel Division indicating rare absences over 3 years for health reasons of any kind.

Table 2 gives the distribution of depression scores on a normative sample of 16 white boys and 16 white girls presumed to be "healthy" by the City of Laguna Beach School System. Table 3 gives the distribution of depression scores by school grades.

Table 1. Comparison of depression scores obtained from speech samples from 3 groups of adults[1]

	Groups					
	Normative adults			Detoxified chronic alcoholics	Depressed outpatients	
	Males	Females	Total	Males	Males	Females
Number of subjects	29	29	58	50	4	6
Age (years)	32.4±10.2	28.8± 9.8	30.6±10.1	43.3± 9.2	40.2± 9.3	
Depression scales						
I. Hopelessness	0.90±0.31	1.05±0.38	0.95±0.35	1.03±0.42	1.66±0.51	
II. Self-accusation	1.03±0.58	1.41±0.76	1.22±0.70	1.52±0.91	2.42±1.06	
II.A. Guilt depression	0.37±0.21	0.41±0.18	0.39±0.20	0.65±0.49	1.00±0.81	
II.B. Shame depression	0.79±0.53	1.18±0.78	0.99±0.69	0.78±0.56	1.69±0.64	
II.C. Hostility inward	0.64±0.38	0.75±0.33	0.70±0.35	1.13±0.71	1.36±0.72	
III. Psychomotor retardation	0.35±0.10	0.41±0.19	0.38±0.15	0.38±0.15	0.46±0.25	
IV. Somatic concerns	0.34±0.10	0.46±0.17	0.40±0.16	0.56±0.34	0.46±0.22	
V. Death & mutilation	0.93±0.65	0.57±0.40	0.75±0.57	0.65±0.43	0.87±0.80	
V.A. Death depression	0.65±0.50	0.48±0.28	0.56±0.41	0.56±0.34	0.63±0.40	
V.B. Mutilation depression	0.70±0.50	0.46±0.35	0.58±0.44	0.46±0.28	0.72±0.67	
VI. Separation depression	0.86±0.63	0.71±0.35	0.79±0.51	0.76±0.44	1.22±0.70	
VII. Hostility outward	1.06±0.56	0.77±0.33	0.91±0.48	1.04±0.42	1.44±0.93	
VII.A. Overt hostility outward	0.72±0.36	0.69±0.31	0.70±0.34	0.87±0.42	1.24±0.79	
VII.B. Covert hostility outward	0.81±0.51	0.50±0.19	0.65±0.41	0.58±0.31	0.75±0.62	
Total depression	5.48±1.87	5.39±1.53	5.43±1.70	5.94±1.67	8.53±3.51	
Mean words/5- minute speech samples	561	473	517	526	516	

1. Data are presented as mean ± SD.

Comparisons Between Depression Scale Scores of Normative, Sober Chronic Alcoholic, and Depressed Individuals. Individuals who are classified as being depressed following the APA *DSM-III* classification (American Psychiatric Association, 1980) should have significantly higher depression scale scores than nondepressed, psychiatrically normative individuals if this content analysis scale is valid. Likewise, some investigators (Winokur et al., 1970; Goodwin, 1976) have reported that sober chronic alcoholics come from families in which the prevalence of depression is higher than in normative families, and these investigators have suggested that alcohol abuse may be a depressive equivalent. Hence, a comparison of depression scale scores of normative, sober chronic alcoholic, and depressed individuals should show significantly higher depression scores for the chronic alcoholic and depressed subjects than for the normative subjects.

In this first validation study, 10 male depressed outpatients, at the University of California, Irvine, Medical Center, who were classified by *DSM-III* as having

Table 2. Normative depression scores for children derived from speech samples[1]

	Normative children		
	Males	**Females**	**Total**
Number of subjects	16	16	32
Age (years)	11.6 ± 3.4	12.2 ± 3.2	11.9 ± 3.3
Depression scales			
I. Hopelessness	0.98 ± 0.54	1.15 ± 0.53	1.06 ± 0.53
II. Self-accusation	1.11 ± 0.86	1.25 ± 0.75	1.18 ± 0.80
II.A. Guilt depression	0.47 ± 0.18	0.50 ± 0.53	0.48 ± 0.27
II.B. Shame depression	0.83 ± 0.80	0.85 ± 0.83	0.84 ± 0.80
II.C. Hostility inward	0.77 ± 0.45	0.72 ± 0.30	0.74 ± 0.38
III. Psychomotor retardation	0.41 ± 0.16	0.42 ± 0.28	0.42 ± 0.22
IV. Somatic concerns	0.54 ± 0.32	0.51 ± 0.33	0.52 ± 0.32
V. Death & mutilation	0.88 ± 0.78	0.86 ± 0.79	0.87 ± 0.77
V.A. Death depression	0.52 ± 0.33	0.56 ± 0.35	0.54 ± 0.34
V.B. Mutilation depression	0.84 ± 0.70	0.75 ± 0.70	0.79 ± 0.69
VI. Separation depression	1.02 ± 0.75	0.94 ± 0.43	0.98 ± 0.60
VII. Hostility outward	1.23 ± 0.62	1.19 ± 0.46	1.21 ± 0.54
VII.A. Overt hostility outward	0.89 ± 0.49	0.88 ± 0.45	0.80 ± 0.46
VII.B. Covert hostility outward	0.84 ± 0.60	0.80 ± 0.39	0.82 ± 0.50
Total depression	6.16 ± 2.82	6.37 ± 2.37	6.24 ± 2.56
Mean words/5-minute speech samples	440	473	456

1. Data are presented as mean ± SD.

Table 3. Mean scores on total depression scale for normative children by school grade

Grade	*n*	Males	*n*	Females
K-3	4	5.88	4	5.00
4-6	4	7.75	4	6.74
7-9	4	5.57	4	8.36
10-12	4	5.81	4	5.01

depressive disorders, including such diagnoses as dysthymic disorder and major depressive disorder, gave 5-minute speech samples elicited by the standard instructions to speak about any interesting or dramatic personal life experiences (Gottschalk et al., 1969). Also, a group of 50 detoxified alcoholic male patients in the Alcoholism Treatment Program, Veterans Administration Hospital, Long Beach, California, gave 5-minute speech samples in response to these standardized instructions. A group of nondepressed, normative adults (29 males and 29 females) also gave 5-minute speech samples that were elicited by the same instructions. This sample was randomly selected from a previously described group of 94 physically healthy, gainfully employed white males and females between the ages of 20 and 50 years old, working for the Kroger Company, Cincinnati, Ohio (Gottschalk and Gleser, 1969); the group had not been screened for psychiatric disorders by any objective test.

rived from speech

e children	
ales	Total
16	32
± 3.2	11.9 ± 3.3
± 0.53	1.06 ± 0.53
± 0.75	1.18 ± 0.80
± 0.53	0.48 ± 0.27
± 0.83	0.84 ± 0.80
± 0.30	0.74 ± 0.38
± 0.28	0.42 ± 0.22
± 0.33	0.52 ± 0.32
± 0.79	0.87 ± 0.77
± 0.35	0.54 ± 0.34
± 0.70	0.79 ± 0.69
± 0.43	0.98 ± 0.60
± 0.46	1.21 ± 0.54
± 0.45	0.80 ± 0.46
± 0.39	0.82 ± 0.50
± 2.37	6.24 ± 2.56
73	456

scale for

Females
5.00
6.74
8.36
5.01

mic disorder and major by the standard instruc- experiences (Gottschalk atients in the Alcoholism Long Beach, California, zed instructions. A group ales) also gave 5-minute his sample was randomly ically healthy, gainfully nd 50 years old, working Gleser, 1969); the group ctive test.

The typescripts of all speech samples were blindly scored on the depression scale by content analysis technicians who were found capable of scoring on this content analysis scale with a reliability of 0.85 or better. The mean depression scores obtained from these three groups of subjects are given in Table 1. The mean depression scores for the normative, alcoholic, and depressed subjects are, respectively, 5.43 ± 1.70, 5.94 ± 1.67, and 8.53 ± 3.51. These means are significantly different ($F = 11.44$; $df = 2,115$). The alcoholic group's mean depression score (5.94) is significantly higher ($p < 0.05$) than the normative group's score (5.43), and the depressed patients' mean depression score (8.53) is significantly higher than those of the normative group ($p < 0.01$) and the alcoholic group ($p < 0.01$) by the Scheffé test (Nie et al., 1975). A more detailed presentation dealing with the psychological differences, as assessed by speech content analysis, between this group of 50 male detoxified chronic alcoholics and a normative nonalcoholic group of males has been published elsewhere (Gottschalk et al., 1983*c*).

Comparisons Between Depression Scale Scores From a Group of Normative Children and a Group of Hyperactive (Attention Deficit Disorder) Children. Some investigators contend that there is a subgroup of hyperactive children who have a depression that is masked by their behavioral disorder (Malmquist, 1971; Carlson and Cantwell, 1980).

To test this hypothesis, depression scores on a group of normative, nondepressed children were compared to depression scores obtained from a group of hyperactive children. Speech samples, from which the depression scores were derived, were elicited by standard instructions (Gottschalk and Gleser, 1969). Mean depression scores from the group of hyperactive children were significantly higher ($p < 0.05$) than those from the group of normative children (see Table 4). The hyperactive children also showed elevated scores, derived by content analysis of the same verbal samples, on anxiety, social alienation-personal disorganization, and cognitive impairment (Gottschalk et al. (1984).

Table 4. Psychological scores derived from content analysis of speech from boys with attentional deficit disorder (hyperactive type) as compared to normative (nonhyperactive) boys

	Attentional deficit disorder ($n = 13$)		Normative ($n = 16$)			
	Mean scores	SD	Mean scores	SD	t	p[1]
Total depression	8.37	2.99	6.16	2.80	2.40	0.025
Hopelessness	1.66	0.54	0.98	0.52	2.32	0.025
Self-accusation	2.08	1.22	1.11	0.84	2.51	0.010
Psychomotor retardation	0.60	0.47	0.41	1.60	2.09	0.025
Cognitive impairment	4.04	1.15	2.75	1.28	2.86	0.005
Social alienation-personal disorganization	3.07	1.37	-0.78	1.50	1.86	0.040

1. One-tailed test.

Depression Scores, Using Different Criterion Measures, From Depressed Patients. A group of 29 inpatients at the University of California, Irvine, Medical Center were diagnosed as having some type of depressive disorder based on *DSM-III* criteria. Five-minute speech samples were elicited by standard instructions and scored blindly by content analysis technicians. The Beck Depression Inventory (Beck and Beamesderfer, 1974), the Zung Depression Scale (Zung, 1965), and the Hamilton Rating Scale for Depression (Hamilton, 1967) were also administered to these depressed patients on the same day that the patient gave a 5-minute speech sample from which depression scores were derived.

The mean depression subscale scores obtained from the 5-minute verbal samples given by this group of 29 depressed inpatients are reported in Table 5. The mean (± SD) total depression score (8.31 ± 2.30) from this group of depressed inpatients is quite significantly higher than the mean total depression score (5.43 ± 1.70) obtained from the normative group of 58 adults (see Table 5) ($t = 6.77$; $df = 85$).

Both Pearson product-moment correlations and Kendall nonparametric correlations were obtained between content analysis depression scores (total depression and major subscale scores) and scores from all criterion measures, i.e., the Zung, Beck, and Hamilton scales. Since there were no essential differences in these correlations, only Pearson product-moment correlations are reported.

The correlations of the Gottschalk total depression scores with the total depression scores on the Zung, Beck, and Hamilton scales, from this group of 29 patients, were noted and reached a convincing level of significance ($p < 0.05$) with the Zung, Beck,

Table 5. Depression scores from a group of depressed inpatients[1]

	Depressed inpatients		
	Total	**Females**	**Males**
Number of subjects	29	18	11
Age (years)	36.5 ± 16.1		
Depression scales			
I. Hopelessness	1.62 ± 0.49	1.76 ± 0.49	1.40 ± 0.43
II. Self-accusation	2.26 ± 0 84	2.45 ± 0.86	1.95 ± 0.76
II.A. Guilt depression	0.86 ± 0.68	0.90 ± 0.62	0.79 ± 0.80
II.B. Shame depression	1.33 ± 0.73	1.46 ± 0.85	1.12 ± 0.45
II.C. Hostility inward	1.47 ± 0.64	1.59 ± 0.67	1.27 ± 0.58
III. Psychomotor retardation	0.49 ± 0.36	0.51 ± 0.41	0.45 ± 0.25
IV. Somatic concerns	0.58 ± 0.29	0.65 ± 0.33	0.48 ± 0.18
V. Death & mutilation	0.88 ± 0.68	0.95 ± 0.80	0.77 ± 0.46
V.A. Death depression	0.68 ± 0.53	0.69 ± 0.61	0.66 ± 0.38
V.B. Mutilation depression	0.65 ± 0.56	0.65 ± 0.61	0.65 ± 0.51
VI. Separation depression	1.22 ± 0.76	1.28 ± 0.83	1.11 ± 0.65
VII. Hostility outward	1.26 ± 0.66	1.29 ± 0.79	1.20 ± 0.41
VII.A. Overt hostility outward	1.03 ± 0.61	1.11 ± 0.71	0.90 ± 0.37
VII.B. Covert hostility outward	0.74 ± 0.39	0.69 ± 0.40	0.82 ± 0.37
Total depression	8.31 ± 2.30	8.89 ± 2.41	7.38 ± 1.85

1. Data are presented as mean ± SD.

and Hamilton total depression scores (see Table 6) and, in addition, with highly relevant test items of all three concurrent criterion measures.

Table 6. Pearson correlations of Gottschalk total depression scores and total depression scores from the Zung, Beck, and Hamilton scales ($n = 29$)

	Zung Scale	Beck Scale	Hamilton Scale
Gottschalk total depression scores	0.39	0.32	0.45

The semantic similarities in what is measured by the Gottschalk depression subscales with test items from the Beck, Zung, and Hamilton scales can be estimated by examining the spectrum of Pearson product-moment correlations of each Gottschalk depression subscale with these test items (Gottschalk et al., 1979*b*). It is realized that some of the intercorrelations might have occurred by chance because so many comparisons were run, and so one must consider that these findings are approximations. Careful examination of the intercorrelations of test items from the criterion measures and the seven depression subscales nevertheless provides a coherent, consistent, and plausible picture of the theoretical construct assessed by these subscales. Significant correlations ($p < 0.05$) occurred with many test items; many other test items had nonsignificant low correlations in the expected and predicted direction with the various depression subscales. Some of the representative intercorrelations between our seven depression subscale scores and various Zung, Beck, and Hamilton depression scale test items are as follows:

I. Hopelessness. The higher subjects scored on this content analysis subscale, the higher they scored on the following test items: *Zung*—I do not enjoy (0.25), I do not feel useful (0.20), my heart beats faster (0.28); *Beck*—I look ugly (0.24); *Hamilton*—mental retardation (0.23), more psychic anxiety (0.35), more diurnal variation (0.28), more paranoid (0.27).

II. Self-Accusation. The higher subjects scored on this content analysis subscale, the higher they scored on the following test items: *Zung*—wish I were dead (0.28), do not feel useful (0.20); *Beck*—feel I am a failure (0.27), feel disappointed (0.30), like to destroy self (0.28), believe I look ugly (0.25); *Hamilton*—feel depressed (0.27), have more anxiety (0.28), feel paranoid (0.25).

III. Psychomotor Retardation. The higher subjects scored on this content analysis subscale, the higher they scored on the following items: *Zung*—do not have a clear mind (0.24), do not eat okay (0.24); *Beck*—feel loss of interest in others (0.25), do not work well (0.31), feel too tired (0.25); *Hamilton*—feel depressed (0.26), think of suicide (0.26), don't have insight (0.28), feel paranoid (0.24).

IV. Somatic Concerns. The higher subjects scored on this content analysis subscale, the higher they scored on these test items: *Zung*—am constipated (0.26), things are not easy to do (0.21), do not enjoy life (0.30); *Beck*—feel disappointed (0.21), have trouble making decisions (0.27), feel tired (0.23); *Hamilton*—feel mental retardation (0.23), have somatic anxiety (0.30), have general symptoms (0.23).

V. Death and Mutilation Depression. The higher subjects scored on this content analysis subscale, the higher they scored on the following test items: *Zung*—feel sad (0.25), do not have a clear mind (0.36), do not feel useful (0.28), wish I were dead (0.29); *Beck*—feel sad and blue (0.21), feel guilt (0.30), have trouble making decisions (0.21); *Hamilton*—have insomnia (0.21), have somatic anxiety (0.23), have weight loss (0.33), have diurnal variation (0.21), feel paranoid (0.29).

VI. Separation Depression. The higher subjects scored on this content analysis subscale, the higher they scored on the following test items: *Zung*—have weight loss (0.26), feel restless (0.29), heart beats faster (0.32), do not feel useful (0.22); *Beck*—feel sad and blue (0.25), feel disappointed (0.30); *Hamilton*—feel agitation (0.26), do have weight loss (0.22).

VII. Hostility Outward. The higher subjects scored on this content analysis subscale, the higher they scored on the following test items: *Zung*—do not cry (0.31), do not feel useful (0.28), do not enjoy a full life (0.21), wish I were dead (0.25); *Beck*—feel sad and blue (0.24), feel a failure (0.24), feel disappointed (0.26), feel ugly (0.28); *Hamilton*—feel hypochondriacal (0.25), have somatic anxiety (0.29), have weight loss (0.22).

Discussion

A description is provided of a measure of depression obtained by means of the content analysis of verbal behavior. Normative and construct validation studies give strong evidence that this measure assays major features of the depressive syndrome, which is subdivided into seven subscales or dimensions.

An earlier preliminary version of this depression scale included another subscale labeled "Ambivalent Hosility," and articles have been published using this earlier version of the depression scale (Gottschalk et al., 1983*c*, 1984). Subsequent construct validation studies of a concurrent criterion measure type suggested that the Ambivalent Hostility subscale was not uniformly correlated with other measures of the depressive syndrome and, hence, it was eliminated.

The content analysis approach to the measurement of psychological and behavioral measures embodies the characteristics and strengths of both self-report and independent observer rating methods. For this reason, it minimizes the measurement errors inherent in these methods when they are used independently (Gottschalk, 1984).

This depression scale is now ready for broad applications to the assessment of the depressive syndrome in its many forms and manifestations.

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Appendix I. Depression Scale

Weights		
	I.	**Hopelessness**[1]
-1		1. References to not being, not wanting to be, or not seeking to be the recipient of good fortune, good luck, God's favor, or blessing
-1		2. References to self or others not getting or receiving help, advice, support, sustenance, confidence, esteem (a) from others, (b) from self
-1		3. References to feelings of hopelessness, losing hope, despair, lack of confidence, lack of ambition, lack of interest; feelings of pessimism, discouragement (a) others, (b) self
	II.	**Self-accusation**
		A. *Guilt depression.*[2] References to adverse criticism, abuse; condemnation, moral disapproval, guilt, or threat of such experienced by:
-3		a. Self (3)
-2		b. Others (2)
-1		c. Denial (1)
		B. *Shame depression.*[3] References to ridicule, inadequacy, shame, embarrassment, humiliation, overexposure of deficiencies or private details, or threat of such experienced by:
-3		a. Self (3)
-2		b. Others (2)
-1		c. Denial (1)
		C. *Hostility directed inward*[4]
-4		a. References to self attempting or threatening to kill self, with or without conscious intent
-4		b. References to self wanting to die, needing or deserving to die
-3		a. References to injuring, mutilating, disfiguring self or threats to do so, with or without conscious intent
-3		b. Self-blaming, expressing anger or hatred to self, considering self worthless or of no value, causing self grief or trouble, or threatening to do so (similar to Guilt depression, II.A.4; Shame depression, II.B.5)
-2		a. References to self needing or deserving punishment, paying for one's sins, needing to atone or do penance
-2		b. Adversely criticizing, depreciating self; references to regretting, being sorry or ashamed for what one says or does; references to self as mistaken or in error
-2		c. References to feelings of deprivation, disappointment, lonesomeness
-1		a. References to feeling disappointed in self; unable to meet expectations of self or others
-1		b. Denial of anger, dislike, hatred, blame, destructive impulses from self to self
-1		c. References to feeling painfully driven or obliged to meet one's own expectations and standards
	III.	**Psychomotor retardation**
-1		References to general retardation and slowing down in thinking, feeling, or action

1. Derived from negative portion of Hope scale.
2. Same as Guilt anxiety of Anxiety scale.
3. Same as Shame anxiety of Anxiety scale.
4. Same as Hostility Directed Inward scale.

Weights	
	IV. Somatic Concerns
-1	A. *Hypochondriacal component.* References to bodily malfunctioning or physical problems in total body or any parts or systems
-1	B. *Sleep disturbances.* References to any disturbances in sleeping
-1	C. *Sexual disturbances.* References to sexual malfunctioning of any kind, including menstrual disturbances or complaints
-1	D. *Gastrointestinal disturbances.* References to appetite disturbances, changes in bowel habits, abdominal discomforts
-1	E. *General somatic symptoms,* including heaviness in limbs, back, or head, backaches, headaches, muscle aches, loss of energy, fatigability, and loss of weight
	V. Death & mutilation depression[5]
	A. *Death depression.* References to death, dying, threat of death, or anxiety about death experienced by or occurring to:
-3	a. Self (3)
-2	b. Animate others (2)
-1	c. Inanimate objects (1)
-1	d. Denial of death anxiety (1)
	B. *Mutilation depression.* References to injury, tissue or physical damage, or anxiety about injury or threat of such experienced by or occurring to:
-3	a. Self (3)
-2	b. Animate others (2)
-1	c. Inanimate objects destroyed (1)
-1	d. Denial (1)
	VI. Separation depression[6]
	References to desertion, abandonment, ostracism, loss of support, falling, loss of love or love object, or threat of such experienced by or occurring to:
-3	a. Self (3)
-2	b. Animate others (2)
-1	c. Inanimate objects (1)
-1	d. Denial (1)
	VII. Hostility outward[7]
	A. **Hostility outward—Overt**
-3	a. Self killing, fighting, injuring other individuals or threatening to do so
-3	b. Self robbing or abandoning other individuals, causing suffering or anguish to others, or threatening to do so
-3	c. Self adversely criticizing, depreciating, blaming, or expressing anger or dislike of other human beings
-2	a. Self killing, injuring, or destroying domestic animals, pets, or threatening to do so
-2	b. Self abandoning, robbing domestic animals, pets, or threatening to do so
-2	c. Self criticizing or depreciating others in a vague or mild manner
-2	d. Self depriving or disappointing other human beings
-1	a. Self killing, injuring, destroying, robbing wildlife, flora, inanimate objects, or threatening to do so

5. Same as Death & Mutilation anxiety of Anxiety scale.
6. Same as Separation anxiety of Anxiety scale.
7. Same as Hostility outward scale.

Weights	VII. Hostility outward (cont'd)
-1	b. Self adversely criticizing, depreciating, blaming, expressing anger or dislike of subhuman, inanimate objects, places, situations
-1	c. Self using hostile words, cursing, mention of anger or rage without referent
	B. Hostility outward—Covert
-3	a. Others (human) killing, fighting, injuring other individuals, or threatening to do so
-3	b. Others (human) robbing, abandoning, causing suffering or anguish to other individuals, or threatening to do so
-3	c. Others adversely criticizing, depreciating, blaming, or expressing anger or dislike of other human beings
-2	a. Others (human) killing, injuring, or destroying domestic animals, pets, or threatening to do so.
-2	b. Others (human) abandoning or robbing domestic animals, pets, or threatening to do so.
-2	c. Others (human) criticizing or depreciating other individuals in a vague or mild manner
-2	d. Others (human) depriving or disappointing other human beings
-2	e. Others (human or domestic animals) dying or killed violently in death-dealing situations or threatened with such
-2	f. Bodies (human or domestic animals) mutilated, depreciated, defiled
-1	a. Wildlife, flora, inanimate objects, injured, broken, robbed, destroyed, or threatened with such (with or without mention of agent)
-1	b. Others (human) adversely criticizing, depreciating, expressing anger or dislike of subhuman, inanimate objects, places, situations
-1	c. Others angry, cursing without reference to cause or direction of anger; also instruments of destruction not used threateningly
-1	d. Others (human, domestic animals) injured, robbed, dead, abandoned, or threatened with such from any source including subhuman and inanimate objects, situations (storms, floods, etc.)
-1	e. Subhumans killing, fighting, injuring, robbing, destroying each other, or threatening to do so
-1	f. Denial of anger, dislike, hatred, cruelty, and intent to harm