

# Common Themes Among Morale and Depression Scales<sup>1</sup>

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This paper reports on the intra- and interbattery scaling of three morale and depression batteries comprised of self-reported items: PGC, G-H, and ZUNG. Responses to the three scales were sought from a sample of long-term residents of a state mental hospital. First, the batteries were factor analyzed separately to identify the intrabattery scales; then the resultant scales were compared using canonical correlation and super matrix factor analysis to identify the interbattery themes. These analyses resulted in the identification of a Clinical Depression domain across all three batteries and single independent themes in both the ZUNG and PGC batteries.

THE assessment of mood states has received considerable attention in both gerontology and psychiatry. Gerontologists, concerned with morale and life satisfaction, have emphasized variations among individuals along dimensions derived from hypotheses about theoretically and/or empirically relevant mood states (Lawton, 1972; Neugarten, Havighurst, & Tobin, 1961). Psychiatrists, concerned with clinical depressed states, have dealt with perceptions of distress, using self-report measures to corroborate and enrich interview assessments (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961; Lubin, 1966; Zung, 1965).

The number of inventories and scales from these two disciplines is large and growing. Salzman, Kochansky, Shader, and Cronin (1972) identified 39 mood inventories: 15 to measure depression, 9 for morale, and 15 for other dimensions or more general phenomena. McNair (1973), in a recent survey of 75 trials of the effectiveness of antidepressant drugs, reviewed ten individual scales and three miscellaneous categories of scales.

Self-report inventories are constructed on the premise that some segment of a person's mood state can be assessed through his or her response to a structured battery of items. Although each scale was developed from a specific frame of reference and validated on a distinct population, redundancy in item content and structuring

is inevitable, particularly in the areas of morale and depression. Since the inventories vary in number and phrasing of questions, response alternatives, time frame, and other dimensions, it is difficult to compare study findings. The existence of many similar instruments, however, suggests the desirability of interbattery comparisons and scale reductions. This paper describes the extent of interbattery similarity and uniqueness among one morale inventory (Philadelphia Geriatric Center Morale Scale) and two depression inventories (Gardner-Hetznecker Sign and Symptom Check List and Zung Self-Rating Depression Scale).

The items included in these scales reflect the discipline of their creators, gerontology or psychiatry. Lawton (1972) indicated that the PGC battery of items was designed to sort "out the components of morale."

In the definition used . . . the components . . . stressed are freedom from distressing symptoms, satisfaction with self, feeling of syntony between self and environment, and ability to strive appropriately while still accepting the inevitable. An effort was also made to anchor within the definition some of the characteristics which have been considered less central to morale.

Zung (1972), however, stated that his depression battery was

. . . constructed on the basis of the clinical diagnostic criteria most commonly used to characterize depression disorders in terms of the presence of a pervasive affective mood of feeling depressed, with concomitant physiological and psychological disturbances.

## STUDY POPULATION

When first interviewed, the study subjects were patients in a state mental hospital that was being phased out. The philosophy of care

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within the institution and the cessation of admissions during the phase-out led to a largely chronic residual population. In late 1972 120 patients were selected for transfer to a nearby state hospital and they comprise the study group on which this paper is based. Of these 120 patients, 89 responded to the self-report questions within the three morale-depression inventories during either the Time 1 (N=77) or the Time 2 (N=72) interview, 15 weeks apart. The median age of these 89 patients was 53 years with a range of 20 to 86 years. The male-female ratio was 51% to 49%, and the black-white ratio was 6% to 94%. Most were long-term state hospital patients: 99% had been hospitalized for 2 or more years, and 55% for over 9 years.

#### PROCEDURES

The three measures of mood state, the Philadelphia Geriatric Center Morale Scale (PGC), the Gardner-Hetznacker Sign and Symptom Check List (G-H), and the Zung Self-Rating Depression Scale (ZUNG), were selected on the basis of their reputation in their respective fields as well as their conceptual and structural differences. The PGC (Lawton, 1972) was developed to measure morale in the elderly and the ZUNG (Zung, 1965) was addressed to the question of depression in a more general but depressed population. The G-H (Hetznacker, Gardner, Odoroff, & Turner, 1966), a less well-known depression battery, while similar in content to both PGC and ZUNG, differs in structure since it does not consider response-set biases, i.e., both the 20-item ZUNG and the 22-item PGC batteries shift the wording of items between positive and negative poles, while the 17-item G-H is presented within a totally negative framework.

The PGC scale was scored according to Lawton, i.e., all items were dichotomized except one, which was reduced to a dichotomy, but was limited to the 17 items recently suggested by Morris and Sherwood (1975). The ZUNG and G-H batteries were reduced from the suggested four-point scales to three-point scales (never, or almost never; sometimes; often); and one item was omitted from each battery when they were administered to the study subjects. In the case of ZUNG, an item concerning sexual interest was dropped as suggested by Salzman et al. (1972). One G-H item, however, was inadvertently omitted from the schedule and should have been included.

In this type of study, the investigators are limited by the reluctance of subjects to repeatedly respond to similar questions and a balance must be struck between research needs and personal rights. The present study interspersed the three batteries of morale and depression items within a larger 1-hour interview schedule separated by questions aimed at other dimensions of the patient's experience. The trained interviewer (either a social worker or sociologist) read both the question and the specified response alternatives, and the respondent was asked to confine his reply accordingly.

The resultant individual item responses tended toward "J" shaped distributions, although many items had more flattened distributions. Only one item had over 80% of the responses within a single category.

#### STATISTICAL ANALYSES

The statistical comparison of the three morale-depression inventories was conducted in five stages, with each succeeding step building on the previous one.

(1) Each of the three inventories of items was factored separately to reveal its fundamental structure, and scales were developed based on items with high loadings for both Times 1 and 2. The total pool of items from the three inventories was not factored at this point because of possible presence of theoretically non-congruent or mathematically inappropriate items.

(2) The scales from Step 1 were compared on a pair-wise basis using canonical correlation to identify interscale similarities, as well as dissimilarities.

(3) The total pool of scales from Step 1 were also compared simultaneously using super matrix correlation to detect similar conceptual threads.

(4) Items from those scales found to be interrelated in Steps 2 and 3 were factored to uncover the strongest set representing the common theme. This set of items was identified as a new cross-inventory scale.

(5) Finally, the Step 1 scales and the cross-inventory scale from Step 4 were intercorrelated in their raw-score summated formats to demonstrate the extent to which they are statistically independent.

#### *Factor Analysis of Each Inventory*

Each of the three inventories was factored separately for Time 1 and 2 using the method of Principal Components followed by Varimax Rotation. The rotated factors involving the first two through six principal components were inspected for solutions both consistent across the two time periods and subject to meaningful interpretation.

In the G-H battery (Table 1) Factor 2, Dejection, a sense of emptiness, hopelessness, and deprecation, was the most similar at both times. Factors 1 and 3 were less clear, since

some items loaded at one time but not at the other. Nevertheless, because major anchor items appeared at each time, indicating a similarity in theme, if not in total structure, both factors were accepted. Factor 1 was labelled Impaired Thinking, difficulty in organizing thoughts; in concentration, and in ridding mind of unpleasant or nonsensical thoughts; and Factor 3, Guilt.

The factors for the PGC battery (Table 2), while not totally consistent, resemble the configuration previously reported by Morris and Sherwood (1975). Their suggested item selec-

tions are followed, indicating two factors: Tranquility, or its opposite, subjective discomfort, consisting of items measuring fear, control, and life acceptance; and Life Progression, consisting of measures of awareness of aging or life changes over time.

The ZUNG (Table 3) analysis resulted in the clearest rotated factor solution. Factor 1, labeled Agitation, contained items of irritability, restlessness, and despair. Factor 2, Self-satisfaction, included measures of personal enjoyment, usefulness, and hopefulness.

The presence of a multidimensional structur-

Table 1. Varimax Rotation of Three Principal Component Factors for G-H Battery of Items.

	Factor Loadings					
	Impaired Thinking		Dejection		Guilt	
	Time 1 <sup>a</sup>	Time 2 <sup>b</sup>	Time 1	Time 2	Time 1	Time 2
Wants to cry but can't	0.140	-0.019	*-0.547	-0.675	-0.108	-0.424
Fears something unpleasant is going to happen	-0.053	0.367	*-0.690	-0.455	0.294	-0.526
Has terrifying, anxiety-provoking dreams	0.215	0.747	*-0.516	-0.219	0.088	-0.037
Feels depressed (sad, gloomy, hopeless, low in spirit)	0.443	0.126	*-0.565	-0.800	0.006	-0.115
Future empty, bleak, no plans	0.336	0.288	*-0.632	-0.769	0.175	-0.620
Feels himself a failure, deprecates himself	0.239	0.380	*-0.529	-0.608	0.373	-0.323
Feels he causes suffering or harm to others	0.094	0.522	-0.422	-0.266	*0.695	-0.691
Feels he deserves punishment, feels guilt	0.166	0.669	-0.290	-0.381	*0.729	-0.198
Has trouble ridding mind of unpleasant or nonsensical thoughts	*0.472	0.462	-0.205	-0.293	0.234	-0.501
More than usual amount of daydreaming	*0.628	0.824	-0.173	0.062	0.408	-0.215
Unable to concentrate on tasks at hand	*0.806	0.214	-0.098	-0.380	0.240	-0.684
Has difficulty in keeping thoughts organized	*0.817	-0.040	-0.123	-0.341	0.087	-0.608
Feels distant, isolated from things and people	0.281	0.505	*-0.540	-0.442	*0.402	-0.325
Prefers being alone, seldom feels comfortable with anyone	0.170	0.290	0.088	0.122	*0.705	-0.696
Fears he is losing his mind	0.228	0.664	-0.103	-0.350	*0.672	-0.351
No one understands him	-0.294	0.337	*-0.546	-0.576	0.228	-0.303
Latent Root	2.652	3.492	3.007	3.540	2.738	3.031

<sup>a</sup> time 1 n = 77.

<sup>b</sup> time 2 n = 72.

\*Items defining the factor.

Table 2. Varimax Rotation of Principal Components<sup>a</sup> for PGC Battery of Items.

	Factor Loadings			
	Tranquility		Life Progression	
	Time 1	Time 2	Time 1	Time 2
Things keep getting worse as I get older	0.251	0.423	*-0.649	-0.462
I have as much pep as I did last year	0.136	0.199	*-0.582	0.508
Little things bother me more this year	*0.434	0.609	*-0.603	0.027
As you get older you are less useful	0.352	0.290	*-0.561	-0.561
I sometimes worry so much that I can't sleep	*0.714	0.607	-0.179	-0.192
As I get older, things are better, worse or same	-0.011	0.189	*-0.511	-0.326
I sometimes feel that life isn't worth living	0.424	0.474	*-0.365	-0.385
I am as happy now as I was when I was younger	-0.079	-0.001	*-0.184	-0.011
I have a lot to be sad about	*0.393	0.616	-0.197	-0.334
People had it better in the old days	0.054	-0.010	-0.202	-0.748
I am afraid of a lot of things	*0.736	0.759	-0.184	-0.325
I get mad more than I used to	*0.681	0.640	-0.288	-0.037
Life is hard for me most of the time	*0.494	0.730	-0.307	-0.189
How satisfied are you with your life today? (satisfied, not satisfied)	*0.279	0.492	0.098	0.205
I take things hard	*0.775	0.677	0.017	0.032
A person has to live for today and not worry about tomorrow	0.062	-0.154	-0.092	0.103
I get upset easily	*0.725	0.699	-0.282	-0.047
Latent Root	3.705	4.413	2.286	1.948

<sup>a</sup> Time 1 Based on 4 rotated factors.

Time 2 Based on 3 rotated factors.

\*Items defining the factor.

Table 3. Varimax Rotation of Principal Components for Zung Battery of Items.

	Factor Loadings			
	Agitation		Self-Satisfaction	
	Time 1	Time 2	Time 1	Time 2
I feel downhearted and blue	*0.680	0.622	0.149	0.353
Morning is when I feel the best	-0.048	-0.437	0.375	0.299
I have crying spells or feel like it	*0.738	0.773	0.087	0.012
I have trouble sleeping at night	*0.599	0.564	0.195	0.261
I eat as much as I used to	-0.072	-0.117	*0.431	0.375
I notice that I am losing weight	0.210	0.547	-0.159	-0.083
I have trouble with constipation	*0.674	0.700	0.031	-0.159
My heart beats faster than usual	*0.513	0.683	-0.014	-0.059
I get tired for no reason	*0.702	0.675	0.093	0.184
My mind is as clear as it used to be	0.012	0.033	*0.570	0.495
I find it easy to do the things I used to	0.007	-0.021	*0.734	0.774
I am restless and can't keep still	*0.714	0.629	0.077	0.244
I feel hopeful about the future	0.154	0.036	*0.705	0.597
I am more irritable than usual	*0.681	0.762	-0.205	-0.033
I find it easy to make decisions	0.130	0.045	*0.637	0.469
I feel that I am useful and needed	0.158	0.095	*0.701	0.751
My life is pretty full	0.067	0.082	*0.711	0.749
I feel that others would be better off if I were dead	*0.622	0.723	0.044	0.167
I still enjoy the things I used to do	0.068	0.257	*0.783	0.707
Latent Root	4.062	4.804	3.855	3.625

\*Items defining the factor.

ing for each of the scale batteries was substantiated further by K.R. 20 Alpha Reliability coefficients at Times 1 and 2. These values (Table 4) indicated the extent to which items used in interpreting the several scales (indicated by the asterisks in Tables 1, 2, & 3) were statistically dependent when summated in their raw score format. In an exploratory study, such as the present one, scales may be accepted as reliable if they attain a K.R. 20 value of .50 or greater (Nunnally, 1967). Each of these seven scales exceeded this value at both Times 1 and 2, and most of the coefficients were considerably higher.

#### Interscale Structuring—Canonical Correlation

Canonical correlational procedures were used to provide a measure of the pair-wise cross-inventory interrelationships between the scales generated within each of the three morale-depression batteries. To achieve this end, the canonical procedures generate prediction equations that determine the linear combinations of the items in one battery that are maximally related to the linear combination of items in the second battery. Canonical correlation can be seen as

... essentially a procedure for factoring two batteries simultaneously, in order to extract factors which are uncorrelated within their batteries but which provide maximum correlations of pairs of factors across batteries. That is, the first factor of each battery is

Table 4. KR-20 Alpha Reliabilities for Scales Identified through Factor Rotations.

	Time 1	Time 2
GH — Impaired Thinking	.766	.686
GH — Dejection	.774	.876
GH — Guilt	.748	.818
ZUNG — Agitation	.851	.870
ZUNG — Self-Satisfaction	.827	.785
PGC — Tranquility	.844	.848
PGC — Life Progression	.714	.690

located so that the canonical correlation of the first factor is maximized. The resulting coefficient is the largest product-moment correlation that can be developed between linear functions of the two batteries. It expresses the maximum redundancy of a pair of factors, one from each of the batteries. (Cooley & Lohnes).

Within the present body of data, the canonical correlation of the three G-H scales and the two PGC scales (at both Times 1 and 2) was greater than .72 and significant at less than the .001 level. Based on the canonical loadings (which are interpreted in the same way as factor loadings) from this comparison, all three of the G-H scales—Dejection, Impaired Thinking, and Guilt—were significantly related to both of the PGC scales, Tranquility and Life Progression. The level of redundancy between the G-H and ZUNG scales was slightly higher (.75 at Time 1 and .87 at Time 2) and significant at less than the .001 level, but in this instance the three G-H scales were related to

only one of the two ZUNG scales, Agitation. The remaining ZUNG scale, Self-satisfaction, was largely independent of the G-H scales. When the ZUNG scales were compared with the PGC scales, a similar finding emerged: first canonical (.80 here at Time 1 and .79 at Time 2) significantly (.001 at both time periods) related the PGC Tranquility and Life Progression scales to the ZUNG Agitation scale only. A second significant (.01 at both time periods), but weaker, relationship emerged between ZUNG Self-satisfaction and PGC Life Progression (a second canonical of .31 at Time 1 and .29 at Time 2).

These data provide a first indication of the considerable informational or conceptual overlap between the constructed scales from the three morale-depression inventories (the detailed substantiating tables are available from the senior author upon request). A more detailed exposition of these functional relationships is developed in the following super matrix factor analyses.

#### *Interscale Structuring— Super Matrix Factor Analysis*

The findings from the pair-wise canonical correlational analyses were substantiated and clarified through the application of super matrix factor analysis or simultaneous canonical correlation (Horst, 1961a, b), a procedure for simultaneously considering the interrelationships among the scales from all three morale-depression inventories. This procedure is much like canonical correlation, only in this instance the procedure generates the maximum correlation between linear functions of the scales from all three inventories simultaneously. The procedure, therefore, can be seen as involving the computation of principal components within each inventory and subsequently intercorrelating the resultant principal component scores of the sample members across the three inventories. The simultaneous correlation is a measure of the general overlap among the three inventories, and

. . . will always be equal to or less than the pair-wise maximum canonical correlation. This is true because simultaneous canonical correlation maximizes general overlap rather than pair-wise relationships (Jones & Jones, 1970).

For substantial simultaneous canonicals, the final interpretation falls upon the individual scale loadings, which are interpretable within the same frame of reference as factor loadings,

or the more normal canonical loadings, and are the correlation of the item with a constructed score.

Using this method, the first two roots from both points in time summarized the information overlap between the three batteries. Root one was substantial (.68 and .75 respectively) and captured most of the G-H items, the PGC Tranquility items, and to a lesser extent, the PGC Life Progression items and the ZUNG Agitation items. Root two, which was not large (.18 and .29, respectively), included the ZUNG Self-satisfaction items and the PGC Life Progression items—although the latter is true for Time 1 only. This analysis clearly demonstrated the existence of at least two themes across these three batteries, with the possibility that the PGC Life Progression scale might be a third independent component.

#### *Factor Analysis of Derived Scales*

The next step in the search for interbattery themes was to jointly factor analyze items from those scales shown to be similar by the two canonical correlation procedures. The items in the ZUNG Self-satisfaction scale were omitted from these computations, since evidence from the Super Matrix, canonical correlation, as well as the Varimax rotations, had indicated that they were in an independent domain.

The first principal component solution for items in the remaining six scales yielded consistently high loadings, with the exception of four of the six measures making up the PGC Life Progression scale. On the basis of this finding and the partial relationship of this scale with the ZUNG Self-satisfaction scale in the super matrix and canonical correlation, the six items in the PGC Life Progression scale were dropped from the pool. Thus, both the PGC Life Progression and the ZUNG Self-satisfaction scales were designated "independent" themes.

The items from the remaining five scales were factored again (Table 5). Five items from the G-H battery, three from the PGC, and four from the ZUNG had a loading of .6 or higher on the first principal component at both Times 1 and 2. This common theme was labeled Clinical Depression, since the items were similar to those used by a trained clinician in making a diagnosis of depression (the 12 items of the Clinical Depression scale are indicated by asterisks on Table 5). K.R. 20 Alpha Reliability computation based on these items resulted in a

Time 1 coefficient of .891 and a Time 2 of .908, indicating the presence of a highly internally consistent scale.

Table 5. Factor Loadings for First Principal Component for all Items in Following Scales.

G-H Impaired Thinking G-H Dejection G-H Guilt	PGC Tranquility	ZUNG Agitation	Time 2	
			Time 1	Time 2
G-H Wants to cry but can't			0.376	0.624
G-H Fears something unpleasant is going to happen			0.559	0.758
G-H Has terrifying, anxiety-provoking dreams			0.433	0.523
G-H Feels depressed, (sad, gloomy, hopeless, down in dumps)			0.500	0.582
G-H Future empty, bleak, no plans			0.611	0.574
*G-H Feels himself a failure			0.606	0.705
*G-H Feels he causes suffering or harm to others			0.674	0.805
*G-H Feels he deserves punishment, feels guilt			0.642	0.693
G-H Has trouble ridding mind of unpleasant thoughts			0.444	0.636
G-H More than usual amount of daydreaming			0.643	0.507
G-H Unable to concentrate on tasks at hand			0.578	0.752
G-H Has difficulty in keeping thoughts organized			0.514	0.540
*G-H Feels distant, isolated from things and people			0.667	0.721
G-H Prefers being alone, seldom feels comfortable with anyone			0.352	0.483
*G-H Fears he is losing his mind			0.623	0.759
G-H No one understands him			0.265	0.686
PGC Little things bother me more this year			0.519	0.481
PGC I sometimes worry so much that I can't sleep			0.519	0.595
PGC I have a lot to be sad about			0.531	0.504
*PGC I am afraid of a lot of things			0.638	0.656
*PGC I get mad more than I used to			0.753	0.598
*PGC Life is hard for me most of the time			0.602	0.611
PGC How satisfied are you with your life today? (satisfied, not satisfied)			0.412	0.456
PGC I take things hard			0.733	0.511
PGC I get upset easily			0.687	0.514
*ZUNG I feel downhearted and blue			0.690	0.722
*ZUNG I have crying spells or feel like it			0.677	0.753
ZUNG I have trouble sleeping at night			0.540	0.655
ZUNG I have trouble with constipation			0.466	0.631
ZUNG My heart beats faster than usual			0.452	0.494
ZUNG I get tired for no reason			0.628	0.587
*ZUNG I am restless and can't keep still			0.633	0.622
ZUNG I am more irritable than usual			0.565	0.687
*ZUNG I feel that others would be better off if I were dead			0.646	0.653
	Latent root		11.250	13.471

\*Items defining Clinical Depression scale.

Table 6. Time 1 and Time 2 Scale Distribution for: Clinical Depression.

Score Value	Time 1		Time 2	
	N	%	N	%
0 - 2	27	35.0	27	37.5
3 - 5	19	24.7	14	19.4
6 - 8	10	13.0	9	12.5
9 - 11	8	10.4	8	11.2
12 - 14	3	3.9	4	5.5
15 - 17	4	5.2	2	2.8
18 - 20	3	3.9	4	5.5
21 - 23	2	2.6	1	1.4
24	1	1.3	3	4.2
$\bar{X}$	=	6.117	=	6.556
Standard Deviation	=	6.152	=	6.747
Possible Range	=	0 - 24	=	0 - 24

IntertHEME Correlations

Zero-order correlations were computed for the three scales within their raw score summated formats. The shared variance (the zero-order correlation squared) at Time 1 between the Self-satisfaction and Life Progression scales was 25%, between Self-satisfaction and Clinical Depression, 8%, and between Life Progression and Clinical Depression, 36%. These relationships hold at both Times 1 and 2. The presence of the low levels of scale overlap indicates that the three internally consistent raw score summated versions of the scales capture unique components of the individual's inner mood state. The three themes of Clinical Depression, Self-satisfaction, and Life Progression, therefore, are both mathematically distinct and conceptually cohesive.

Sample Scale Distributions

The research team wished to know the distribution of the scores on the three independent scales within the study sample (Tables 6-8). The patients tended to be less depressed, or more satisfied, in the two presently oriented scales—Clinical Depression (Table 6) and ZUNG Self-satisfaction (Table 7)—and to show a negative orientation towards perceived life changes over time in the longitudinally based PGC Life Progression scale (Table 8).

Table 7. Time 1 and Time 2 Scale Distribution for: ZUNG Self-Satisfaction.

Score Value	Time 1		Time 2	
	N	%	N	%
0 - 2	22	28.5	26	36.2
3 - 5	15	19.5	25	34.7
6 - 8	14	18.2	7	9.7
9 - 11	17	22.1	9	12.5
12 - 14	7	9.1	5	6.9
15 - 16	2	2.6		
$\bar{X}$	=	6.013	=	4.375
Standard Deviation	=	4.275	=	3.777
Possible Range	=	0 - 16	=	0 - 16

Table 8. Time 1 and Time 2 Scale Distribution for: PGC - Life Progression

Score Value	Time 1		Time 2	
	N	%	N	%
0 - 2	27	35.0	24	33.3
3 - 5	12	15.6	8	11.2
6 - 8	20	26.0	23	31.9
9 - 11	10	13.0	11	15.3
12 - 14	8	10.4	6	8.3
$\bar{X}$	=	5.558	=	5.556
Standard Deviation	=	3.982	=	3.876
Possible Range	=	0 - 14	=	0 - 14

The ZUNG Self-satisfaction scale (Table 7) shows a significant Time 1 to Time 2 shift in means, suggesting on this dimension, but not on the other two, an increase in satisfaction at Time 2, 15 weeks after the initial data gathering. This may reflect a perceived benefit resulting from the move from one state hospital to another. The failure of this shift to be mirrored in all three scales is a further indication of the independence of the scales and suggests that these dimensions may be affected by unique sets of casual forces.

#### SUMMARY

Numerous studies have attempted to assess morale and depression. The instruments, however, often have reflected the researcher's orientation, making it difficult to determine the similarity in the intrapsychic states being measured. This paper has addressed the problem directly by seeking common themes among three scales selected from the gerontological and psychiatric fields: the Philadelphia Geriatric Center Morale Scale (PGC), the Gardner-Hetznecker Sign and Symptom Check List (G-H), and the Zung Self-Rating Depression Scale (ZUNG). Seven sets of items were produced through factor analyses, two of which represented independent themes, the Zung Self-satisfaction (asterisk items in Table 3) and the PGC Life Progression (asterisk items in Table 2). The other five focused on those aspects of morale and depression associated with psychic distress. These were determined to be mathematically similar and the construct was labeled Clinical Depression (asterisk items in Table 5). It included elements of the G-H Impaired Thinking, Dejection, and Guilt, the PGC Tranquility, and the ZUNG Agitation scales (asterisk items in Tables 1, 2, and 3).

The existence of this common theme across independently constructed scales suggests that depression and low morale, to some degree, represent an equivalent mood. The pooled scale items not only provide a more reliable measure of this state than the separate inventories, but constitute a more valid instrument for cross disciplinary studies. Any of the five scales falling within the Clinical Depression domain, however, could have been selected as the one measure of the common mood state. Within the

gerontological field, where the PGC battery is more prevalent, the PGC scale component might be designated the Clinical Depression indicator in either the Morris and Sherwood (1975) format or in one of the two formats suggested by Lawton (1975). An important and independent dimension would be added if the ZUNG Self-satisfaction domain also were administered.

#### REFERENCES

- Beck, A. T., Ward, C. H., Mendelson, M., Mock, J., & Erbaugh, J. An inventory for measuring depression. *Archives of General Psychiatry*, 1961, 4, 561-571.
- Cooley, W., & Lohnes, P. *Multivariate data analysis*. John Wiley & Sons, New York, 1971.
- Hetznecker, W., Gardner, E., Odoroff, C. L., & Turner, R. J. Field survey methods in psychiatry. *Archives of General Psychiatry*, 1966, 15, 427-438.
- Horst, P. Generalized canonical correlations and their application to experimental data. *Journal of Clinical Psychology*, 1961, Monograph Supplement 14, 615-620.
- (a)
- Horst, P. Relations among  $m$  sets of measures. *Psychometrika*, 1961, 26, 129-149. (b)
- Jones, K. J., & Jones, P. P. Contributions of the Rorschach to description of personality structure defined by several objective tests. *Psychological Reports*, 1970, 26, 35-45.
- Lawton, M. P. The dimensions of morale. In D. P. Kent, R. Kastenbaum, & S. Sherwood (Eds.), *Research planning and action for the elderly*. Behavioral Publications, New York, 1972.
- Lawton, M. P. The Philadelphia Geriatric Center morale scale: A revision. *Journal of Gerontology*, 1975, 30, 85-89.
- Lubin, B. Fourteen brief depression adjective checklists. *Archives of General Psychiatry*, 1966, 15, 205-208.
- McNair, D. M. Self-evaluations of anti-depressants. Prepared for the FDA-ACNP Task Force Subcommittee on Anti-depressants. Rev. Aug., 1973.
- Morris, J. N., & Sherwood, S. A retesting and modification of the Philadelphia Geriatric Center morale scale. *Journal of Gerontology*, 1975, 30, 77-84.
- Neugarten, B. L., Havighurst, R. J., & Tobin, S. S. The measurement of life satisfaction. *Journal of Gerontology*, 1961, 16, 134-143.
- Nunnally, J. C. *Psychometric theory*. McGraw-Hill, New York, 1967.
- Salzman, C., Kochansky, G. E., Shader, R. I., & Cronin, D. M. Rating scales for psychotropic drug research in geriatric patients. II. Mood ratings. *Journal of the American Geriatrics Society*, 1972, 20, 215-221.
- Zung, W. A self-rating depression scale. *Archives of General Psychiatry*, 1965, 12, 63-70.
- Zung, W. W. K. How normal is depression? *Psychosomatics*, 1972, May-June, 13, 27-31.