Journal of Consulting and Clinical Psychology
1984, Vol. 52, No. 1, 63-72

Development of a Scale to Measure Intense Ambivalence

Michael L. Raulin
State University of New York at Buffalo

A 45-item true–false scale to measure intense ambivalence was developed using a procedure that ensured high internal consistency with minimal method variance. Meehl has argued that intense ambivalence is characteristic of those subjects who are genetically predisposed to the development of schizophrenia. The scale was first validated by interviewing college students who scored high and in the normal range on the scale. Students who score high on the scale spontaneously report feeling ambivalent and behave ambivalently more often than control subjects. The scale was then given to schizophrenics, hospitalized depressed patients, psychology clinic clients, and normal control subjects. As predicted, schizophrenics scored higher than control subjects, and the psychology clinic clients scored in the middle range. The depressed patients, however, scored the highest of all the groups. Several directions for further research are discussed.

Bleuler (1911/1950) coined the term *ambivalence* to describe "the tendency to endow the most diverse psychisms with both a positive and negative indicator at one and the same time" (Bleuler, 1911/1950, p. 53). Bleuler considered ambivalence to be a fundamental symptom of schizophrenia. Fundamental symptoms are those that are presumably present in every case and are distinguished from accessory symptoms (e.g., delusions, hallucinations, etc.) that do not always occur in schizophrenia.

This article was based in part on the author's doctoral dissertation research at the University of Wisconsin and was supported by Grant MH31067 from the National Institute of Mental Health.

I wish to gratefully acknowledge the generous help and guidance of Loren Chapman on this project. I also wish to thank Michael Spierer and Marilyn Chapman-Broekema of the Dane County Mental Health Center, Robert Merrill and Carl Leuthod of the Tomah Veterans Administration Hospital, William Burckhardt of the University of Wisconsin Psychiatry Department, Roberta Ray and Jackie Splitter of the University of Wisconsin Psychology Department Clinic, Robert Belmaker and Harold Rosen of the Milwaukee Veterans Administration Medical Center, and Arlene Burrows and Joan DeLoach of the State University of New York Psychological Services Center for making subjects available for this research. Special thanks to Robert Adamski for his help in scoring transcripts.

Requests for reprints should be sent to Michael L. Raulin, Department of Psychology, State University of New York at Buffalo, 4230 Ridge Lea Road, Buffalo, New York 14226.

Theoretical Formulations and Past Research

Ambivalence plays a key role in a variety of theoretical formulations of schizophrenia. Freud argued that the regression to the level of the infant that is characteristic of schizophrenia reawakens the ambivalence that is normal in the very early stages of psychosexual development (Fenichel, 1945). Bleuler (1911/1950) argued that ambivalence is a direct consequence of the associative disturbance characteristic of schizophrenia. Fromm-Reichmann (1954) conceptualized schizophrenic ambivalence as a defense against intensely hostile impulses. Haley (1959) argued that schizophrenics may use the contradictory behavior characteristic of ambivalence to avoid defining relationships.

Meehl (1962, 1973) gave ambivalence a prominent role in his genetic theory of schizophrenia. Meehl believes that more people are schizotypes, that is, have a genetic predisposition for schizophrenia, than ever become schizophrenic. He suggested that the compensated schizotype can be identified by a number of distinctive characteristics shared by the decompensated schizophrenic patient, including intense ambivalence.

The phenomenon of ambivalence is widely acknowledged but seldom discussed. Most psychiatric textbooks, even those devoted exclusively to schizophrenia, mention ambivalence only in passing (Bleuler, 1924/1930;

Ewalt & Farnsworth, 1963; Freedman & Kaplan, 1967; Hoch & Zubin, 1966; D. D. Jackson, 1960; Jaspers, 1959/1962; Noyes & Haydon, 1940; Redlich & Freedman, 1966; Searles, 1960; Smith, 1960; Sullivan, 1962; Whitaker, 1958). No psychiatric text and only an occasional journal article (Kimberlin & Friesen, 1977; Scagnelli, 1975) discuss the implications of ambivalence for therapy. Given the limited interest in pursuing the theoretical implications of ambivalence in schizophrenia, it is not surprising that no scales are listed in Buros (1975), in Chun, Cobb, and French (1975), or in the *Psychological Abstracts* from 1950 to the present.

The Present Study

The present study sought to develop a true–false scale to measure the ambivalence that Meehl (1964) described as a sign of schizotypy. Particular care was taken in the development of the Ambivalence Scale to minimize the effects of social desirability and acquiescence response sets. The scale was initially validated as a measure of ambivalence by interviewing college students who score high and in the normal range on the scale. The scale was further validated by investigating the level of ambivalence in several pathological groups and a normal control group.

Development of the Scale

Item Writing

A two-page detailed description of ambivalence as defined by Meehl (1964) in his *Manual for use With Checklist of Schizotypic Signs* was prepared and given to the item writers for their guidance. In that description, intense ambivalence was defined as "the existence of simultaneous or rapidly interchangeable positive and negative feelings toward the same object or activity, with the added proviso that both the positive and negative feelings be strong" (p. 10).

Item writers were asked to try to balance the number of true-keyed and false-keyed items, to avoid the simple use of negation to obtain false-keyed items, and to avoid complex sentence structure, passive voice, or ambiguous wording. They were asked to make the wording as specific as possible to reduce the effects of acquiescence response sets, and to word items to minimize the effects of social desirability.

Pretesting of Items

From an initial pool of approximately 200 items prepared by 7 different item writers (4 graduate and 3 undergraduate research assistants), 75 items were selected that sampled widely from the content domain. These items were ones that I felt would correlate minimally with social desirability and acquiescence measures. Approximately half of the items were keyed in each direction. In addition to these items, 30 of the 33 items of the Crowne-Marlowe (1964) Social Desirability Scale, 55 of the 60 items of D. N. Jackson and Messick's (1962) DY-3 scale (which is a measure of acquiescence with minimal social desirability bias), and a 17-item Infrequency Scale modeled after D. N. Jackson's (1974) Infrequency Scale were also included in the testing. Three of the Social Desirability items were dropped because they overlapped with the DY-3 scale, and five of the original DY-3 items were omitted because they appeared to have pathological content. The Infrequency Scale was used to detect random responders. Any subject who scored in the infrequent direction on more than 2 of the 17 items was dropped from the sample. The subjects included 106 male and 122 female college students who were enrolled in an introductory psychology course.

Item Analysis and Selection

Item statistics were computed separately for male and female samples. Items were retained only if they were satisfactory for both sexes. The item statistics were used to guide the creation of a scale that would measure a very intense level of ambivalence and have a high level of internal consistency and discriminant validity. Therefore, items were retained only if they had a high correlation with the total Ambivalence score and low correlations with the Social Desirability and Acquiescence Scales (see D. N. Jackson, 1970) and if they had a low (less than 30%) frequency of endorsement.

On the basis of the statistical information from this first testing, some of the original items were dropped or rewritten and some new

items were written. The process was then repeated on a second (105 males and 127 females) and a third (173 males and 226 females) sample of college students, and 45 items were selected for the final version of the scale. Table 1 gives the psychometric properties of this 45-item Ambivalence Scale for the third sample and for two large cross-validation samples. As can be seen in Table 1, the Ambivalence Scale was relatively free of method variance for college students, with roughly 6% of the variance accounted for by acquiescence and 9% of the variance accounted for by social desirability in the cross-validation samples. Hence, method variance had been reduced significantly without compromising the integrity of the measure. Because ambivalence is inherently an undesirable trait, completely eliminating social desirability variance would mean measuring something other than ambivalence.

Test–Retest Reliability

Seventy-six subjects from the first cross-validation sample were given the Ambivalence Scale 10 to 12 weeks after the initial testing. This time was deemed to be sufficiently long to test the stability of the trait, yet short enough to avoid significant subject loss. The product-moment correlation for these two ambivalence scores was .81, which is about as high as could be expected given the coefficient alpha of the scale.

Interview Validation of the Scale With College Students

College students who had taken the Ambivalence Scale were interviewed to validate the scale as a measure of ambivalence. The purpose of this part of the study was to examine the relationship of the scores obtained on the Ambivalence Scale to interviewer ratings and behavioral measures of ambivalence.

Method

Subjects

Seventy-two college students (40 males and 32 females) were interviewed. Subjects were selected from the first cross-validation sample on the basis of their scores on three schizotypy scales: the Ambivalence Scale, a Physical Anhedonia Scale (Chapman, Chapman, & Raulin, 1976), and a scale of Perceptual Aberration (Chapman, Chapman, & Raulin, 1978). The Physical Anhedonia and Perceptual Aberration Scales had been developed earlier using the same methods as those described here. Subjects were designated as experimental or high-scoring subjects if they scored two standard deviations or more above the mean for college students on the 45-item Ambivalence Scale. The Physical Anhedonia and Perceptual Aberration Scales were not considered in the selection of experimental subjects. All three scales of schizotypy were used to select the control subjects in order to reduce the likelihood that any schizotypes would appear in the control group. Subjects were designated as potential control or low-scoring subjects if they scored no more than one half of one standard deviation above the mean on each of these scales of schizotypy. Different cut-off scores were used for men and women because there were slight differences between men and women in the distribution of scores on the various scales.

Table 1
Psychometric Properties of a 45-Item Test for Intense Ambivalence for Both Standardization and Cross-Validation Samples of College Students

			Cross-validation sample			
	Standardization sample		First		Second	
Variable	Males	Females	Males	Females	Males	Females
n	168[a]	226[a]	518[b]	659[b]	631[c]	718[c]
Coefficient alpha	.86	.87	.86	.87	.86	.88
M score	8.45	8.57	10.15	10.51	9.85	10.47
SD of scores	6.46	6.47	6.70	7.01	6.71	7.13
Social Desirability *r*	−.26	−.24			−.29	−.31
Acquiescence *r*	.22	.21			.23	.26

[a] This form was completed by 173 males and 226 females. Five males were dropped because of high infrequency scores.
[b] This form was completed by 520 males and 662 females. Two males and 3 females were dropped because of high infrequency scores.
[c] This form was completed by 636 males and 721 females. Five males and 3 females were dropped because of high infrequency scores.

Subjects were selected by another investigator to assure that I was blind to the scores of the subjects while interviewing and scoring the data. The interviews of the experimental and control subjects were intermixed so that any changes in interview style over time would not systematically affect comparisons between groups. The investigator telephoned 78 subjects, only one of whom refused to participate. Five other subjects were lost because they did not show up for the interview or because of equipment failure (1 experimental and 4 control subjects). This left 32 females (16 experimental and 16 control subjects) and 40 males (18 experimental and 22 control subjects) in the final sample. There were no significant differences between experimental and control subjects on age, education, or social class (Hollingshead, 1957).

The interview. A structured interview was constructed that touched briefly on several situations in which ambivalent feelings might be displayed. These included the subject's home and/or living situations and relationships with roommates, friends, parents, and the opposite sex. Several questions focused on the activities the subject enjoyed. At the conclusion of the interview, subjects were asked to describe themselves with five adjectives. None of the interview questions asked about ambivalent feelings directly; the questions simply provided a context in which feelings could be discussed. Each interview took about 15 min to complete and was tape recorded.

Interview Ratings

Immediately after the interview, the interviewer rated each subject on a 5-point scale for the level of ambivalence demonstrated or spontaneously reported in the interview (ambivalence rating). The Ambivalence Rating Scale ranged from a score of 1, indicating that the subject was *less ambivalent than most people,* to a score of 5, indicating *pathological ambivalence.* Normal ambivalence was 2 on the scale. Ratings were guided by detailed behavioral descriptions of each point on the scale. Because the interviewer used visual as well as verbal data to make this rating and only auditory tapes of the interviews were available, reliability was not evaluated for this rating.

Ratings of Interview Transcripts

I blindly scored verbatim transcripts of the 72 interviews for three different behavioral measures: number of contradictions in reporting feelings, number of contradictions in reporting material other than feelings, and number of times the subject described himself or herself in ambivalent terms. Again, a detailed scoring manual was developed prior to any scoring. We had predicted that the number of contradictions involving feelings and the number of ambivalent self-descriptions would both be indicators of ambivalence, whereas the number of contradictions in areas other than feelings would be more indicative of confusion or mild thought disorder.

A second rater, blind to the subject's Ambivalence Scale score and my ratings, scored 20 randomly selected transcripts of the interview (10 experimental and 10 control subjects). The interrater reliabilities ranged from .71 to .75 for the three behavioral measures. Although these reliability figures are somewhat low for behavioral measures, they are quite reasonable given the nature of the task. In order to detect contradictions by the subject, the rater had to recall everything the subject had said earlier in the interview. Even with the opportunity to page back and forth in the transcript (which averaged 10–12 typewritten pages), the task was a very demanding one.

Results

Interview Rating of Ambivalence

The ambivalence ratings made by the interviewer showed consistent differences between groups. For the males, the mean ambivalence ratings were 3.17 and 1.91 for ambivalent and control subjects, respectively, a difference that is statistically significant, $t(26) = 4.30$, $p < 001$. For the females, the mean ambivalence ratings were 2.81 and 2.13 for the ambivalent and control subjects, respectively, which is also statistically significant, $t(30) = 2.65$, $p < .02$. If a cut-off of 2 (normal ambivalence) is used, 74% of the ambivalent subjects are correctly identified with an 18% false positive rate.

Ratings of Interview Transcripts

Behavioral measures. Because males and females performed similarly on the behavioral measures, statistical tests are reported for the combined group. The experimental subjects contradicted themselves about their feelings more than twice as often as the control subjects (5.79 vs. 2.37), a difference that is highly significant, $t(70) = 4.97$, $p < .001$. There was no difference between experimental and control subjects (.53 vs. .32) on the number of contradictions not involving feelings, $t(70) = 0.95$. Finally, the ambivalent subjects were more likely than control subjects (0.71 vs. 0.16) to describe themselves as ambivalent, which was again highly significant, $t(70) = 3.66$, $p < .001$.

Descriptive measures. Because the interview was standardized, it was possible to extract a good deal of valuable descriptive material. The analyses reported are exploratory in nature. Our guiding hypothesis was that ambivalent subjects should have more difficulty in establishing and maintaining social relationships. Seven predicted differences (out of 26) emerged. Ambivalent subjects had more trouble with their roommates, were less likely to have close friends, had a lot of difficulty with parents (got along less well, trusted them less, felt they were less dependable, and were

upset by them more often), which was especially true for ambivalent male subjects, and found that their ambivalent feelings often interfered with their dating.

Comparison of Psychiatric Groups on the Ambivalence Scale

The second stage of construct validation involved giving the Ambivalence Scale to schizophrenics, hospitalized depressed patients, psychology clinic clients, and a normal control group. I hypothesized that the schizophrenics would score highest on the Ambivalence Scale and the normal control subjects would score the lowest. I also predicted that the psychology clinic clients and the depressed patients should fall in between the schizophrenics and the control subjects because a certain portion of these groups might be compensated schizotypes.

Method

Subjects

Schizophrenics. Ninety-seven schizophrenics (89 males, 8 females) from psychiatric units of four inpatient hospitals and two outpatient clinics were tested. All but one of the patients were Caucasian. All patients had a hospital or staff diagnosis of schizophrenia with no history of neurological problems or mental retardation. All schizophrenic subjects were questioned about past or present psychotic episodes using relevant sections of the Schedule for Affective Disorders and Schizophrenia—Lifetime Version (SADS–L) developed by Spitzer and Endicott (1975). All subjects reported experiencing at least one psychotic symptom (delusions, hallucinations, thought disorder) for at least a 2-week period. The mean Phillips (1953) score for this group was 15.6. The majority of the patients were chronic schizophrenics; the mean time since first psychiatric hospitalization was 10.1 years. Most patients were taking one or more antipsychotic medications.

Hospitalized depressed patients. The depressed patients included 13 males and 18 females drawn from inpatient psychiatric units of two large teaching hospitals. All but one of the patients were Caucasian. All patients had a score of 18 or higher on the Beck (1975) Depression Inventory at the time of testing and later received a discharge diagnosis that included depression. No patient had a history of neurological problems or mental retardation or a primary or secondary diagnosis of borderline or schizoid personality. The mean Beck score for these patients was 27.9, which represents a moderate-to-severe depression (Becker, 1974). The majority of these patients were first admissions (21 of 31). Most were taking some form of antidepressant or antipsychotic medication at the time of testing.

Psychology clinic clients. The psychology clinic clients included 66 males and 131 females drawn from three outpatient psychology clinics. All but 5 of these subjects were Caucasian. This was a heterogeneous sample of patients, the only inclusion criteria being that the subjects had voluntarily come to the clinic for help and had no history of psychosis, neurological problems, or mental retardation. Diagnoses, when available, ranged from personality disorders to anxiety reactions to marital disorders. About 30% of the subjects were university students. Most of these subjects were not taking medication for the problem that brought them to the clinic.

Normal control group. The normal control group included 104 males and 39 females. These subjects were obtained by approaching strangers in shopping centers and at a state fair, by door-to-door canvassing, by approaching students in student lounges at a local technical college, and by visiting local fire stations. An effort was made to gather a normal control sample of approximately the same age, social class, and male/female mix as the schizophrenic sample.

Subjects were dropped from the analysis if they had an infrequency score greater than 2 on a 13-item Infrequency Scale, an improved version of the scale described earlier. Twelve schizophrenics, 1 depressed patient, 5 psychology clinic clients, and 4 normal control subjects were dropped by this criterion. Table 2 presents the mean and standard deviation of age, education (last grade completed in school), and social class (Hollingshead, 1957) for each of the 4 groups.

Measures

Most subjects received a test protocol that included the Ambivalence, Infrequency, Perceptual Aberration, and Physical Anhedonia Scales, as well as the Social Desirability and Acquiescence Scales mentioned previously. On this protocol, items from the various scales were intermixed. A shorter version of this protocol (excluding the Physical Anhedonia items) was given to the normal control subjects. A different short version (this time excluding the Social Desirability and Acquiescence items) was given to 4 depressed patients and 147 psychology clinic clients. The second short form was used when subject time was a serious consideration. Using different forms for the various groups may have affected the results slightly, but I felt that this effect would be small compared to the effect of subject loss if a single large form had been given to all subjects regardless of their situation.

In addition to these scales described, the schizophrenic and depressed patients were given the Beck (1975) Depression Inventory and the schizophrenic subjects were given the Phillips (1953) Scale of Premorbid Adjustment.

Results

Ambivalence Scale

Table 3 gives the mean and standard deviation of scores on the Ambivalence Scale for the four groups. The differences between groups were highly significant, $F(3, 442) = 14.47$, $p < .001$. Because of the multitude of pairwise differences predicted, conservative Scheffé test probabilities are reported below.

Table 2
Demographic Characteristics of the Schizophrenic, Depressed, Clinic Patients, and Normal Control Groups

	Group			
Demographic variable	Schizophrenic	Depressed	Clinic clients	Normal control
Age				
M	35.6	35.5	27.1	31.3
SD	11.0	14.0	9.8	12.8
Ambivalence *r*	−.15	−.29	−.09	−.18
n	85	30	192	139
Education				
M	12.1	13.2	14.5	13.2
SD	2.5	3.0	2.4	1.9
Ambivalence *r*	−.21	−.19	−.06	−.15
n	85	28	192	139
Social class				
M	49.5	47.9	—	43.4
SD	19.1	19.0	—	12.0
Ambivalence *r*	.15	.37	—	.14
n	77	24	—	139
N	85	30	192	139

Note. Education refers to the last grade completed in school. Social class was computed using the Hollingshead two-factor index. Information on social class was not available for the majority of the psychology clinic clients, so no rating was listed. The total sample sizes shown are the number of subjects actually included in later analysis. Subjects dropped because of high infrequency scores are not included in this table.

As predicted, the schizophrenic subjects scored significantly higher on the Ambivalence Scale than the normal control subjects, $t(442) = 4.28$, $p < .001$. The psychology clinic clients fell between the schizophrenic and control subjects, scoring significantly higher than the controls, $t(442) = 3.05$, $p < .05$, but not significantly lower than the schizophrenics,

Table 3
Psychometric Properties of the Ambivalence Scale for Each of the Four Groups

	Group			
Variable	Schizophrenic	Depressed	Clinic client	Normal control
Ambivalence				
M	16.23	21.80	13.93	10.82
SD	8.78	10.29	10.27	7.35
Coefficient alpha	.89	.91	.94	.88
Social Desirability				
M	13.72	10.27	9.89	11.72
SD	6.10	5.70	3.83	5.19
Ambivalence *r*	−.35	−.31	−.15	−.37
Acquiescence				
M	30.80	28.69	29.04	29.67
SD	6.50	5.14	5.16	4.67
Ambivalence *r*	.24	.38	.19	.40
N	85	30	192	139

Note. The total sample sizes do not include 12 schizophrenics, 1 depressed patient, 5 psychology clinic clients, and 4 normal control subjects, all of whom were dropped because of high infrequency scores. Because of subject time constraints, 4 of the depressed patients and 147 of the psychology clinic clients received test forms that did not include the Social Desirability and Acquiescence Scales.

$t(442) = 1.92$. An unexpected finding was that the depressed patients scored significantly higher on the Ambivalence Scale than the normal control subjects, $t(442) = 5.95$, $p < .001$, the psychology clinic clients, $t(442) = 4.37$, $p < .001$, and the schizophrenic patients, $t(442) = 2.86$, $p < .05$.

Validity Scales

Table 3 also gives the mean and standard deviation of the Social Desirability and Acquiescence scores for the four groups. Social desirability is correlated negatively with ambivalence and there are significant differences between the groups on social desirability, $F(3, 291) = 6.27$, $p < .001$. However, the only group difference on the Ambivalence Scale that might be explained by social desirability response set is the difference between the schizophrenic and depressed patients. This is the only comparison where one group (the depressed patients) scores significantly higher than another group (the schizophrenics) on the Ambivalence Scale and significantly lower on the Social Desirability Scale. There is no way to partial out these effects within this design, so the best we can do is temper the conclusion drawn from this comparison.

Acquiescence is correlated positively with the Ambivalence Scale, but there are no significant differences between the groups of acquiescence, $F(3, 291) = 1.79$. Thus it seems unlikely that differences in acquiescence response set between groups could account for the differences in ambivalence scores.

Correlates of the Ambivalence Scale

Age, education, and social class are all virtually uncorrelated with the Ambivalence Scale. Each accounts for less than 4% of the variance in any of the groups. There are also no sex differences within any of the groups on the Ambivalence Scale. Time since first hospitalization showed a moderate correlation ($r = .30$) with Ambivalence scores for schizophrenics. This relationship is clarified by inspecting the mean ambivalence scores for the more acute patients (less than 1 year since first hospitalization, $n = 10$) and the more chronic patients (more than 5 years since first hospitalization, $n = 56$). The mean scores are 24.63 and 15.12 for the acute and chronic patients, respectively, which is highly significant, $t(64) = 3.21$, $p < .005$.

The Beck Depression Inventory was given to each patient in the depressed and schizophrenic groups. The mean Beck scores in these groups were 27.9 and 12.8 for the depressed and schizophrenic groups, respectively. These means correspond to a moderate-to-severe depression for the depressed group and no depression to very mild depression for the schizophrenic group (Becker, 1974). The Ambivalence Scale is positively correlated with the Beck scale. The correlation within the depressed group was only .18, but that value was almost certainly attentuated by the restriction of range imposed on the Beck scores by the selection criteria for the depressed group. The correlation within the schizophrenic sample was .52, the Beck scores accounting for over 25% of the variance of the ambivalence scores.

Unlike the Beck scores, Phillips scores of premorbid adjustment had no relationship to the ambivalence scores for the schizophrenic subjects ($r = .04$).

Other schizotypy scales. Two other schizotypy scales (Physical Anhedonia and Perceptual Aberration) were given to the three patient groups and the cross-validation samples of college students. A consistent finding for all groups is that perceptual aberration and physical anhedonia are uncorrelated, but ambivalence is correlated with both and in fact, depending on the group tested, shares 2 to 21% of the variance with the Physical Anhedonia Scale and 14 to 40% of the variance with the Perceptual Aberration Scale. The only exception to this finding is that ambivalence is uncorrelated with physical anhedonia for the depressed patients and for college students. Table 4 lists these correlations for the three patient groups and the normal control groups.

Discussion

The focus of the present study was the development of a true–false inventory to measure intense ambivalence, described by Meehl (1964) as a sign of schizotypy. The scale was developed using the procedures suggested by D. N. Jackson (1970) to minimize the effects of social desirability and acquiescence and to maximize the face validity of the scale.

The initial validation of the Ambivalence

Table 4
Correlation of Intense Ambivalence With Both Physical Anhedonia and Perceptual Aberration for Each of the Groups Tested

Group	Physical anhedonia	Perceptual aberration
Normal control[a]		.44
Schizophrenics	.46	.63
Depressed patients	.14	.58
Psychology clinic clients	.42	.53
Male college students	.17	.38
Female college students	.23	.47

[a] The normal control group did not receive the Physical Anhedonia Scale.

Scale using interview behavior and self-report strongly indicates that the scale is measuring a trait with some convergent validity. The high coefficient alpha indicates that the report of ambivalent feelings is consistent within subjects and the high test–retest reliability indicates that the trait is reasonably stable over time. All of these findings are critical because they demonstrate that it is possible to measure ambivalence with a self-report inventory. One might reasonably suppose that ambivalence is inherently unmeasurable with a self-report inventory because the subject's feelings are constantly changing over time. Although the behavioral data suggest the subject's feelings are constantly changing, the subject seems able to accurately report that process.

A more interesting construct validation question involves studying the relationship of ambivalence to psychopathology. As a first step in this direction, the scale was given to several psychiatric groups plus a normal control group in order to investigate the relationship of the ambivalence scores to several theoretically significant variables (i.e., premorbid history, level of depression, and other schizotypy scales). The data present a complex picture that suggests several lines for further investigation.

Clearly these data are not consistent with Bleuler's hypothesis that ambivalence is a fundamental symptom of schizophrenia (i.e., found in all schizophrenics), at least as it is measured by this scale. Fully two thirds of the schizophrenics were well within the normal range on the Ambivalence Scale. However, the fault may not lie with Bleuler. The current scale may not have adequately tapped the ambivalence (splitting) that Bleuler described. Another possible explanation is that the level of ambivalence in the current sample of patients was reduced by antipsychotic medication. Consistent with this hypothesis is the fact that acute patients (most of whom had only recently begun receiving medications) were much more likely to show high levels of ambivalence than chronic patients (70% of the acute patients were two standard deviations or more above the normal control group mean on the Ambivalence Scale).

If intense ambivalence is a sign of schizotypy, one would expect that schizophrenics would score higher on the scale than control subjects, and they do. It should be noted that this prediction is not technically required by Meehl's model because he argued that intense ambivalence is a sign of schizophrenic risk and it would not be unreasonable to expect premorbid characteristics to change during the course of a schizophrenic illness. The fact the acute schizophrenics score higher than chronic patients supports that cautionary note. Still this finding is encouraging. It is also encouraging to find that a group of clinic clients, which should contain a higher proportion of schizotypes than the population at large, score higher than the control group, but not as high as the schizophrenics. Nevertheless, a potential problem for this scale and for Meehl's model is the finding that depressed patients score significantly higher than even the schizophrenic sample on the Ambivalence Scale. This finding may have been an artifact of the difference between these groups on social desirability response set. However, because there is also a strong correlation between the Beck Depression Inventory and the Ambivalence Scale for the schizophrenics, it seems likely that ambivalence, or the self-report of ambivalence, is at least as much a part of a current depressive episode as it is a premorbid indicator of schizophrenia. Ambivalence may be a poor choice as a defining characteristic of schizotypy because these data suggest that it is a prominent symptom of depression as well. In fact the current data are consistent with the general proposition that ambivalence may be simply a transient feature of an acute psychotic disorder. Additional research is needed here. At the very least, these data suggest that the level of depression needs to be considered when

interpreting the scores on the current scale. Yet the substantial intercorrelations with two other measures of schizotypic signs (physical anhedonia and perceptual aberration) are consistent with Meehl's suggestion that intense ambivalence is a symptom of schizotypy. Clearly, researchers should use the Ambivalence Scale cautiously and in conjunction with other schizotypy scales and a measure of depression.

Another finding inconsistent with Meehl's model is the lack of a relationship between the Ambivalence Scale and the Phillips Scale of Premorbid Adjustment. Because ambivalence is proposed to be a sign of schizotypy (a genetic predisposition toward schizophrenia) and a much stronger genetic component is found in process schizophrenics (Kessler, 1980), a relationship between ambivalence and poor premorbid adjustment should theoretically exist. Premorbid history was related to scores on the Physical Anhedonia Scale (Chapman et al., 1976) and the Perceptual Aberration Scale (Chapman et al., 1978), but no such relationship was found for ambivalence.

Directions for Future Research

The present article details only the first steps in the study of the trait of intense ambivalence. The data thus far are encouraging, but many questions remain. Certainly, further study in this area is warranted. For example, the relationship of various schizotypic signs to each other and to other variables may well hold the key to the development of new taxonomies within the group labeled "schizotypes" by Meehl, "psychosis-prone" by the Chapmans, and "schizotypal personality disorder" by Spitzer, Endicott, and Gibbon (1979). There may be different subtypes of schizotypy, each distinguished by a particular pattern of scores on these scales.

If intense ambivalence truly indicates schizotypy, one would expect that intensely ambivalent individuals would be at a higher risk for developing schizophrenia and should exhibit a variety of other deficits described by various writers as characteristic of schizophrenics and/or borderline patients. Evaluating the risk for schizophrenia will require a longitudinal study, but less time-consuming designs can answer questions about current symptoms or deficits that may be suggestive of later pathology. Chapman and his associates (Chapman, Chapman, Raulin, & Edell, 1978; Chapman, Edell, & Chapman, 1980; Edell & Chapman, 1979; Haberman, Chapman, Numbers, & McFall, 1979; Numbers & Chapman, 1982) have been investigating the relationship of several such symptoms to scores on Physical Anhedonia and Perceptual Aberration Scales in a college student population.

Several questions about the relationship of ambivalence to depressive disorders remain to be answered. It would be interesting to see if the high level of ambivalence found in depressives is a transient effect of the depression or a stable characteristic of the depressive-prone subject. Does the depressive who is intensely ambivalent show a premorbid schizotypic personality pattern? Are there consistent features that predict which depressives will be ambivalent? And finally, are there any qualitative differences between the schizophrenic ambivalence and the ambivalence of the depressive that are not recognized by the current scale? All of these questions require further research.

References

Beck, A. T. (1975). *Depression: Clinical, experimental, and theoretical aspects.* New York: Harper & Row.

Becker, J. (1974). *Depression: Theory and research.* New York: Wiley.

Bleuler, E. (1950). The fundamental symptoms. In E. Bleuler (Ed.), *Dementia Praecox; or the group of schizophrenias* (pp. 14–54; J. Ziskin, Trans.). New York: International University Press. (Original work published 1911)

Bleuler, E. (1930). *Textbook of psychiatry* (A. A. Brill, Trans.). New York: Macmillan. (Original work published 1924)

Buros, O. K. (Ed.). (1975). *Personality tests and reviews II.* Highland Park, NJ: Gryphon Press.

Chapman, L. J., Chapman, J. P., Raulin, M. L. (1976). Scales for physical and social anhedonia. *Journal of Abnormal Psychology, 85,* 374–382.

Chapman, L. J., Chapman, J. P., & Raulin, M. L. (1978). Body-image aberration in schizophrenia. *Journal of Abnormal Psychology, 87,* 399–407.

Chapman, L. J., Chapman, J. P., Raulin, M. L., & Edell, W. S. (1978). Schizotypy and thought disorder as a high risk approach to schizophrenia. In G. Serban (Ed.), *Cognitive deficits in the development of mental illness* (pp. 351–360). New York: Brunner/Mazel.

Chapman, L. J., Edell, W. S., & Chapman, J. P. (1980). Physical anhedonia, perceptual aberration, and psychosis proneness. *Schizophrenia Bulletin, 6,* 639–653.

Chun, K., Cobb, S., & French, R. P., Jr. (1975). *Measures of psychological assessment.* Ann Arbor, MI: University of Michigan, Institute For Social Research.

Crowne, D. P., & Marlowe, D. (1964). *The approval motive: studies in evaluative dependence.* New York: Wiley.

Edell, W. S., & Chapman, L. J. (1979). Anhedonia, perceptual aberration, and the Rorschach. *Journal of Consulting and Clinical Psychology, 47,* 377–384.

Ewalt, J. R., & Farnsworth, D. L. (1963). *Textbook of psychiatry.* New York: McGraw-Hill.

Fenichel, O. (1945). *The psychoanalytic theory of neurosis.* New York: Norton.

Freedman, A. M., & Kaplan, H. I. (Eds.). (1967). *Comprehensive textbook of psychiatry.* Baltimore, MD: William & Wilkins.

Fromm-Reichmann, F. (1954). Psychotherapy of schizophrenia. *American Journal of Psychiatry, 111,* 410–419.

Haberman, M. C., Chapman, L. J., Numbers, J. S., & McFall, R. M. (1979). Relationship of social competence to scores on two scales of psychosis proneness. *Journal of Abnormal Psychology, 88,* 675–677.

Haley, J. (1959). An interactional description of schizophrenia. *Psychiatry, 22,* 321–332.

Hoch, P. H., & Zubin, J. (Eds.). (1966). *Psychopathology of schizophrenia.* New York: Grune & Stratton.

Hollingshead, A. B. (1957). *Two-factor index of social position.* Unpublished manuscript.

Jackson, D. D. (Ed.). (1960). *The etiology of schizophrenia.* New York: Basic books.

Jackson, D. N. (1970). A sequential system for personality scale development. In C. N. Speilberger (Ed.), *Current topics in clinical and community psychology,* (Vol. 2, pp. 61–96). New York: Academic Press.

Jackson, D. N. (1974). *Manual for the Personality Research Form.* Goshen, NY: Research Psychologists Press.

Jackson, D. N., & Messick, S. (1962). Response styles on the MMPI: Comparison of clinical and normal samples. *Journal of Abnormal and Social Psychology, 65,* 285–299.

Jaspers, K. (1962). *General psychopathology* (7th ed.). (J. Hoenig & M. W. Hamilton, Trans.). Chicago: University of Chicago Press. (Original work published 1959)

Kimberlin, C., & Friesen, D. (1977). Effects of client ambivalence, trainee conceptual level, and empathy training condition on empathic responding. *Journal of Counseling Psychology, 24,* 354–358.

Kessler, S. (1980). Schizophrenia: A review. *Schizophrenia Bulletin, 6,* 404–416.

Meehl, P. E. (1962). Schizotaxia, schizotypy, schizophrenia. *American Psychologist, 17,* 827–838.

Meehl, P. E. (1964). *Manual for use with checklist of schizotypic signs.* Minneapolis, MN: University of Minnesota Medical School, Psychiatric Research Unit.

Meehl, P. E. (1973). *Psychodiagnosis: Selected papers.* Minneapolis, MN: University of Minnesota Press.

Noyes, A. P., & Haydon, E. M. (1940). *A textbook of psychiatry* (3rd ed.). New York: MacMillan.

Numbers, J. S., & Chapman, L. J. (1982). Social deficits in hypothetically psychosis-prone college women. *Journal of Abnormal Psychology, 91,* 255–260.

Phillips, L. (1953). Case history data and prognosis in schizophrenia. *Journal of Nervous and Mental Disease, 117,* 515–525.

Redlich, F. C., & Freedman, D. X. (1966). *The theory and practice of psychiatry.* New York: Basic Books.

Scagnelli, J. (1975). Therapy with eight schizophrenic and borderline patients: Summary of a therapy approach that employs a semi-symbiotic bond between patient and therapist. *Journal of Clinical Psychology, 31,* 519–525.

Searles, H. F. (1960). *The nonhuman environment in normal development and in schizophrenia.* New York: International Universities Press.

Smith, J. A. (1960). *Psychiatry: Descriptive and dynamic.* Baltimore, MD: William & Wilkins.

Spitzer, R. L., & Endicott, J. (1975). *Schedule for Affective Disorders and Schizophrenia—Lifetime Version (SADS-L).* Unpublished manuscript. (Available from J. Endicott, New York State Psychiatric Institute, Research Assessment and Training Unit, 722 West 168th Street, Room 341, New York, New York 10032)

Spitzer, R. L., Endicott, J., & Gibbon, M. (1979). Crossing the border into borderline personality and borderline schizophrenia: The development of criteria. *Archives of General Psychiatry, 36,* 17–24.

Sullivan, H. S. (1962). *Schizophrenia as a human process.* New York: Norton.

Whitaker, C. (Ed.). (1958). *Psychotherapy of chronic schizophrenic patients.* Boston: Little, Brown.

Received September 21, 1982
Revision received April 25, 1983 ■