

A Ten-Year Longitudinal Study of Intense Ambivalence as a Predictor of Risk for Psychopathology

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The predictive validity of the Intense Ambivalence Scale was examined in a 10-year longitudinal study of 362 psychometrically identified psychosis-prone and control participants. Elevated scores on the Intense Ambivalence Scale predicted psychotic-like and depressive symptoms, and the development of psychotic illnesses at the 10-year follow-up assessment (after the removal of variance for membership in the psychosis-prone and control groups). Elevated scores on the scale were also associated with substance abuse, schizotypal symptoms, and impaired functioning at both the initial and follow-up assessments. The Intense Ambivalence Scale did not differentially enhance the predictive power of the Perceptual Aberration or the Magical Ideation Scales.

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The present study investigates the validity of the Intense Ambivalence Scale (Raulin, 1984) as a predictor of the development of psychopathology in a 10-year longitudinal study of young adults. The participants were assessed as part of the Chapman et al. (1994) longitudinal study of psychosis proneness. The Intense Ambivalence Scale taps features that were historically described as characteristic of schizotypic and borderline states. Therefore, it is hypothesized that the scale will predict the development of a variety of psychological disturbances, including symptoms consistent with psychosis proneness or schizotypy.

Concept of Ambivalence

The term ambivalence was coined by Eugen Bleuler (1911/1950) in the same text in which he introduced the term schizophrenia. Bleuler defined ambivalence as the “tendency to endow the most diverse psychisms with both a positive and negative indicator at the same time” (p. 53). He argued that ambivalence was one of the four fundamental symptoms of schizophrenia that are present in every patient with the disorder. Meehl (1962) described ambivalence as one of the four core symptoms of schizotypy (his term for the personality organization that provides the underlying liability for the development of schizophrenia). In more recent formula-

tions, Meehl (1989, 1990) assigned ambivalence a secondary role as a manifestation of aversive drift in schizotypic individuals.

Despite being described as a fundamental symptom of schizophrenia by Bleuler and a core symptom of schizotypy by Meehl, ambivalence has received little attention during the 90 years since it was defined. This is due, in part, to the inconsistent use of the term ambivalence (Sincoff, 1990). The original description by Bleuler had clear behavioral referents, whereas the current use of the term typically refers to an internal dynamic state. Interestingly, one of the closest concepts to Bleuler's original definition of ambivalence is Kernberg's (1977) concept of splitting (Raulin and Brenner, 1993). The fluctuating “all good” and “all bad” representations of people, engaged in by Kernberg's borderline patients, is remarkably similar to Bleuler's description of ambivalence. Kernberg argued that splitting was a defensive maneuver, designed to avoid psychic deterioration that might lead to psychosis, whereas Bleuler argued that it was a fundamental feature of those at risk for schizophrenia.

The patients originally studied by Kernberg were referred to as suffering from borderline schizophrenia—a condition believed to be on the border between neurosis and psychosis. Kernberg was impressed with the fact that most of the group never developed psychosis, whereas Meehl was impressed with the fact that the risk for psychosis in this group was elevated compared with the general population (Raulin and Brenner, 1993). These disparate viewpoints contributed to the creation of the separate DSM-III (American Psychiatric Association, 1980) diagnoses of borderline and schizotypal personal-

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ity disorders, respectively. Not surprisingly, because these scholars were initially studying roughly the same group of patients, the comorbidity for borderline and schizotypal personality disorders approaches 50% (Serban et al., 1987).

Measurement of Ambivalence

Raulin (1984) developed the 45-item Intense Ambivalence Scale to tap the ambivalence that Meehl (1962, 1964) argued was central to schizotypy. A cross-sectional interview study (Raulin, 1984) demonstrated that the scale identified individuals who displayed divergent feelings toward key people in their lives more frequently than control participants. Patients with schizophrenia scored significantly higher on the scale than control participants, but not significantly higher than a group of outpatient clinic clients. Furthermore, hospitalized depressed patients scored significantly higher on the scale than the patients with schizophrenia. These data suggested that the scale may measure ambivalence that is a generalized symptom of psychopathology found in patients with a variety of psychiatric conditions.

The development of the Intense Ambivalence Scale was part of a larger effort by the Chapmans and their colleagues to develop measures of schizotypal signs that might identify individuals at increased risk for schizophrenia and related conditions. The identification of such high-risk individuals should facilitate the identification of relevant etiological factors and may hasten the development of prophylactic interventions. Chapman et al. (1994) reported that the Perceptual Aberration Scale (Chapman et al., 1978) and the Magical Ideation Scale (Eckblad and Chapman, 1983) identified individuals with an increased risk for psychosis at a 10-year follow-up assessment. These scales tap mild and transient experiences that in their extreme form are consistent with positive symptoms of schizophrenia.

The current study examines the predictive validity of the Intense Ambivalence Scale using data from Chapman et al.'s (1994) 10-year longitudinal study. The study includes participants identified by the Perceptual Aberration and Magical Ideation (Per-Mag) Scales and control participants in order to examine the predictive validity of the Intense Ambivalence Scale in a sample of psychosis-prone and healthy young adults. The study investigates whether the Intense Ambivalence scale: a) predicts increased risk of psychopathology at the initial and 10-year follow-up assessments, b) specifically predicts psychotic-like and schizotypal features, and c)

TABLE 1
Demographic Characteristics of the High-Risk and Control Subjects at the Follow-up Assessment

| | Group | | | |
|---------------------------|----------------------|------|----------------------|------|
| | Per-Mag (N = 191) | | Control (N = 153) | |
| | Mean | SD | Mean | SD |
| Age | 30.0 | 1.7 | 30.0 | 1.8 |
| Years between assessments | 10.6 | 1.0 | 10.6 | 0.9 |
| Percent followed-up | 94 | | 96 | |
| Percent male | 46 | | 53 | |
| Years of education | 16.2* | 1.6 | 16.5 | 1.5 |
| Global Adjustment Scale | 68.5*** | 12.2 | 75.0 | 12.3 |

*** $p < .001$; * $p < .05$.

differentially potentiates this risk in psychosis-prone young adults.

Methods

Participants

Participants were selected from the Chapmans' longitudinal study of psychosis proneness at the University of Wisconsin-Madison (please refer to Chapman et al. [1994] for a complete description of this project). They included 203 individuals who received a standard score of at least +1.96 on the Perceptual Aberration and/or Magical Ideation Scales and 159 control participants who had standard scores less than +.5 on each of the scales. Participants were originally selected from college students enrolled in Introductory Psychology classes between 1978 and 1981. The participants were limited to Caucasian students because norms on the scales were not available for ethnic minorities and because of the unavailability of minority students at the University of Wisconsin-Madison. The participants provided informed consent at every assessment. They received course credit at the initial assessment and were paid for their participation at the follow-up evaluation. Ninety-four percent of the Per-Mag participants and 96% of the control participants were reassessed at the 10-year follow-up. Table 1 provides demographic information for the groups at the follow-up assessment.

Materials and Procedures

Mass-Screening Scales. The Intense Ambivalence Scale is a 45-item, true-false, self-report questionnaire. The scale has excellent internal consistency (coefficient alpha = .87) and good test-retest reliability (.81 over 10 to 12 weeks in college students; .78 over a 1-year period in schizophrenia patients). It has minimal method variance (6% overlap with acquiescence and 9% with social desirability). The Perceptual Aberration and Magical Ideation Scales

have good to excellent internal consistency (coefficient alpha of .82 to .89). These two scales are highly correlated in college student samples (.70) and therefore high-scoring subjects are typically assigned to a single Per-Mag group (Chapman et al., 1982). The Intense Ambivalence Scale and the Perceptual Aberration Scale correlate .38 in male college students and .47 in female college students (Raulin, 1984), suggesting that the Intense Ambivalence Scale captures some unique variance that is not accounted for by the Perceptual Aberration Scale.

Initial Evaluation. Participants were administered a comprehensive diagnostic interview after the mass screening. The initial interview consisted of a modified version of the Schedule for Affective Disorders and Schizophrenia-Lifetime Version (SADS-L; Spitzer and Endicott, 1977) and the Social Adjustment Scale (SAS; Weissman and Paykel, 1974). The SADS-L was modified in order to obtain additional information about psychotic-like experiences.

Ten-Year Follow-up Evaluation. The follow-up interview consisted of a modified version of the SADS-L and portions of Loranger's (1988) Personality Disorder Exam (PDE) that assess schizotypal, schizoid, and paranoid personality disorders. The PDE provides diagnoses of personality disorders, as well as dimensional ratings of symptom severity. The diagnostic interview assessed psychopathology and functioning dating back to the time of the initial screening. Participants were assessed on the Global Adjustment Scale (Endicott et al., 1976), which provides a rating of overall adjustment ranging from marked psychopathology to superior functioning. Participants were also rated on a six-point scale on the establishment of intimate relationships.

The Wisconsin Manual for Assessing Psychotic-like Experiences (Chapman and Chapman, 1980; Kwapil et al., 1996) was used to assess the degree of deviancy of psychotic symptoms and psychotic-like experiences at both assessments. The manual provides criteria for rating seven classes of experiences on a continuum from normal to markedly psychotic. The classes of experiences include: a) transmission of thoughts, b) passivity experiences, c) auditory experiences, d) thought withdrawal, e) aberrant beliefs, f) visual experiences, and g) olfactory experiences. Kwapil et al. (1999) reported that the Wisconsin Manual is especially useful for identifying risk for psychotic illnesses.

The diagnostic interviews lasted approximately 2 hours and were tape recorded. Interrater reliability data were not available for the structured interviews. However, the interviews, scoring, and diagnoses were conducted by psychologists and advanced graduate students with extensive training in

TABLE 2
Intense Ambivalence Scale Scores by Group and Gender

| | Group | | | | | |
|--------|----------------------|------|----------------------|------|--------------------|------|
| | Per-Mag (N = 203) | | Control (N = 159) | | Total (N = 362) | |
| | Mean | SD | Mean | SD | Mean | SD |
| Male | 8.13 | 6.38 | 3.14 | 3.18 | 5.86 | 5.79 |
| Female | 7.32 | 5.30 | 3.23 | 3.47 | 5.66 | 5.32 |
| Total | 7.52 | 5.84 | 3.18 | 3.31 | 5.76 | 5.55 |

TABLE 3
Zero-Order Correlations of Intense Ambivalence Score with Outcome Measures at the Initial and Follow-up Assessments for the Per-Mag and Control Participants Combined

| Initial Assessment (N = 362) | | Follow-up Assessment (N = 344) | |
|---------------------------------|--------|-----------------------------------|---------|
| Psychotic-like experience | .27*** | Psychotic-like experiences | .30*** |
| Schizotypy rating | .39*** | Psychotic illness | .14** |
| Manic symptoms | .24*** | PDE Schizotypal | .21*** |
| Depressive symptoms | .32*** | PDE Paranoid | .26*** |
| Social Adjustment Scale | .31*** | PDE Schizoid | -.01 |
| Alcohol abuse rating | .27*** | Manic symptoms | .15*** |
| Drug abuse rating | .19*** | Depressive symptoms | .23*** |
| | | Global Adjustment | -.20*** |
| | | Intimate Relationships | -.03 |
| | | Alcohol abuse rating | .18** |
| | | Drug abuse rating | .19*** |

*** $p < .001$; ** $p < .01$.

clinical assessment. The interviewers and raters were unaware of participants' group membership and any hypotheses regarding ambivalence and psychopathology.

Results

Comparison of Groups and Gender on Ambivalence

Table 2 presents means and standard deviations for a group by gender comparison on Intense Ambivalence score. Neither the interaction ($F[1,358] = 1.01$) nor the main effect for gender ($F[1,358] = .72$) was statistically significant. The Per-Mag group had significantly higher scores on the Intense Ambivalence Scale than did the control group ($F[1,358] = 74.24, p < .001$).

Intense Ambivalence Scores and Ratings of Psychopathology

Table 3 presents the zero-order correlations of scores on the Intense Ambivalence Scale with measures of psychopathology and adjustment at the initial and follow-up assessments for the combined Per-Mag and control groups. Elevated scores on the

scale were associated with ratings of schizophrenia-spectrum, mood, and substance use symptoms. Intense ambivalence was associated with social impairment at the initial interview but did not predict the quality of intimate relationships at the follow-up assessment.

Multiple regression analyses were computed in order to examine whether Intense Ambivalence Scores differentially predicted psychopathology in the Per-Mag and control groups. A dummy code representing Per-Mag and control group membership was entered in the first step, followed by Intense Ambivalence Score at the second step, and the group by scale interaction in the final term. This method was used for measures of psychopathology and adjustment at both assessments. The increment in R^2 at each step is presented in Tables 4 and 5. The dummy or group coding was used instead of the actual scores on the Perceptual Aberration and Magical Ideation Scales because the subject selection criteria created a discontinuous distribution of scores on the two scales.

The pattern of results was consistent at both the initial and follow-up assessments. In accordance with previous findings from this sample (Chapman et al., 1994), the Per-Mag group exceeded the control group on ratings of psychopathology. Consistent with the zero-order correlations, elevated scores on the Intense Ambivalence Scale were associated with symptoms of psychopathology (above the effects accounted for by Per-Mag group membership). Interestingly, intense ambivalence predicted the development of psychotic illnesses (both mood and nonmood) at the 10-year follow-up after removal of the effects of the Per-Mag Scales (none of the participants were psychotic at the time of the initial assessment).

In general, however, the Intense Ambivalence Scale did not differentially potentiate the predictive power of the Per-Mag Scales (as demonstrated by the nonsignificant increments in variance accounted for by the interaction term). The group-by-scale interaction was significant for ratings on the Global Adjustment Scale at the follow-up assessment and demonstrated a trend toward significance for ratings of depression at the initial interview. However, these findings should be interpreted cautiously given the small effect sizes and the large number of analyses conducted.

Prediction of Psychopathology at the Follow-up Assessment

As noted previously, the Intense Ambivalence Scale predicted the development of psychotic ill-

TABLE 4
Increment in R^2 due to Group Membership, Intense Ambivalence Score, and Group by Ambivalence Interaction for Measures of Psychopathology at the Initial Assessment

| Dependent Measure | Group* | Intense Ambivalence | |
|----------------------------|---------------------|---------------------|--------------|
| | | Ambivalence | Interaction* |
| | <i>df</i> = (1/360) | (1/359) | (1/358) |
| Psychotic-like experiences | .202*** | .008* | .002 |
| Schizotypy rating | .239*** | .042*** | .000 |
| Mania | .057*** | .023*** | .002 |
| Depression | .073*** | .053*** | .007* |
| Social Adjustment Scale | .064*** | .050*** | .003 |
| Drug abuse rating | .017** | .021** | .002 |
| Alcohol abuse rating | .051*** | .040*** | .002 |

*Dummy coding for group membership in the Perceptual Aberration-Magical Ideation or control groups.

*Interaction of group membership and score on the Intense Ambivalence Scale.

*** $p < .001$; ** $p < .01$; * $p < .10$.

TABLE 5
Increment in R^2 due to Group Membership, Intense Ambivalence Score, and Group by Ambivalence Interaction for Measures of Psychopathology at the Follow-up Assessment

| Dependent Measure | Group* | Intense Ambivalence | |
|-------------------------------|---------------------|---------------------|--------------|
| | | Ambivalence | Interaction* |
| | <i>df</i> = (1/342) | (1/341) | (1/340) |
| Psychotic-like experiences | .100*** | .033*** | .006 |
| Psychotic illness | .011* | .012* | .005 |
| Schizotypal Dimensional Score | .073*** | .012* | .003 |
| Schizoid Dimensional Score | .001 | .000 | .002 |
| Paranoid Dimensional Score | .039*** | .039*** | .000 |
| Mania | .027*** | .008 | .000 |
| Depression | .039*** | .028*** | .003 |
| Global adjustment | .066*** | .012* | .014* |
| Intimate relationship | .004 | .000 | .002 |
| Drug abuse rating | .048*** | .012* | .000 |
| Alcohol abuse rating | .019* | .017* | .001 |

*Dummy coding for group membership in the Perceptual Aberration-Magical Ideation or control groups.

*Interaction of group membership and score on the Intense Ambivalence Scale.

*** $p < .001$; * $p < .05$.

nesses at the follow-up assessment (as none of the participants were psychotic at the initial assessment). To determine whether the Intense Ambivalence Scale predicted the development of psychotic-like, schizotypal, depressive, and substance abuse symptoms at the follow-up assessment beyond the presence of such symptoms at the initial assessment, additional regression analyses were performed. For each type of symptom, the rating at the initial assessment was entered at the first step, fol-

lowed by the group coding for the Per-Mag and control groups at the second step, and by the Intense Ambivalence Scale score at the final step. The group-by-scale interaction term was not included because the previous analyses did not indicate the presence of a significant interaction term. The rating scales for psychotic-like, depressive, alcohol abuse, and drug abuse symptoms were identical at both assessments; however, the schizotypal symptom rating systems differed. The rating system at the initial interview was based upon Meehl's (1964) criteria for schizotypy, whereas the PDE ratings are based on DSM-III-R (American Psychiatric Association, 1987) criteria for schizotypal personality disorder. Table 6 displays the results of these analyses, which indicate that scores on the Intense Ambivalence Scale predicted worsening psychotic-like and depressive symptoms at the 10-year follow-up assessment.

The relationship between scores on the Intense Ambivalence Scale and ratings of depression and psychotic-like experiences was further examined to determine whether the scale identified individuals who were at risk for both conditions or, conversely, whether it identified individuals who were at risk for only one or the other such condition (the rating of depressive symptoms and psychotic-like experiences in the entire sample at the follow-up correlated .26, $p < .001$). Two regression analyses were computed—one with psychotic-like experiences as the dependent measure and the other with depressive symptoms. In the former, group coding was entered at the first step, followed by depressive symptoms, Intense Ambivalence Scale score, and depression-by-ambivalence interaction. The second analysis used the rating of psychotic-like experiences at the second step and the psychotic-like-by-ambivalence interaction at the final step. In both analyses, each of the first three steps accounted for a significant increment in variance, but the interaction terms were not significant.

Effects of Gender on Predictions. To determine whether there was an interaction between gender and scores on the Intense Ambivalence Scale, additional regression analyses were computed for each of the dependent variables at the initial and follow-up assessment. The group coding for the Per-Mag and control groups was entered at the first step, followed by the code for gender at the second step, the Intense Ambivalence Scale score at the third step, and the gender-by-scale interaction term at the final step. The interaction term did not attain significance in any of the analyses indicating that the Intense Ambivalence Scale was not differentially predictive of psychopathology in male and female subjects.

TABLE 6

Increment in R² due to Symptoms at the Initial Assessment, Group Membership, and Intense Ambivalence Score, for Measures of Psychopathology at the Follow-up Assessment

| Dependent Measure | Initial Ratings* | Group* | Intense Ambivalence |
|----------------------------|------------------|---------|---------------------|
| | df = (1/342) | (1/341) | (1/340) |
| Psychotic-like experiences | .137*** | .027** | .025** |
| Schizotypy | .097*** | .019** | .004 |
| Depression | .064*** | .019** | .014* |
| Drug abuse rating | .078*** | .034*** | .005 |
| Alcohol abuse rating | .127*** | .003 | .004 |

*Symptom rating at the initial assessment.

*Dummy coding for group membership in the Perceptual Aberration-Magical Ideation or control groups.

*** $p < .001$; ** $p < .01$; * $p < .05$.

Discussion

The present study extends the initial construct validation work of Raulin (1984) by assessing the predictive validity of the Intense Ambivalence Scale in a 10-year longitudinal study. Consistent with previous findings (Raulin, 1984) and descriptions in the literature regarding the relationship between ambivalence and schizophrenic pathology (Bleuler, 1911/1950; Meehl, 1962), elevated scores on the Intense Ambivalence Scale were associated with the development of clinical psychosis and psychotic-like experiences at a 10-year longitudinal assessment. However, the risk for psychosis was not specific to schizophrenia and the scale also identified risk for a broader range of psychopathology.

Historically, numerous researchers and clinicians have commented on the role of ambivalence in the etiology and maintenance of schizophrenia. However, there have been very few attempts to define and study schizophrenic ambivalence. This lack of serious study undoubtedly has resulted in part from the lack of adequate operationalization of the construct and the fact that the term was largely co-opted by psychoanalytic theorists since Bleuler first described it.

The Intense Ambivalence Scale was initially developed as part of a larger project to develop self-report scales that would identify individuals at heightened risk for schizophrenia. Based upon initial findings and changes in the diagnostic criteria, this effort was broadened to identify psychosis-prone individuals (Chapman and Chapman, 1985). Numerous studies have supported the validity of this high-risk research method (Chapman et al., 1994; Kwapil, 1998; Lenzenweger, 1998). The results of the present study lend partial support to the Intense Ambivalence Scale as a predictor of psychosis proneness. Elevated scores on the scale predicted

the development of psychotic illnesses and worsening psychotic-like symptoms 10 years later and were associated with the presence of schizotypal symptoms at both assessments. However, elevated scores on the scale were also associated with a variety of symptoms of psychopathology at both assessments, suggesting that it may predict a general risk for psychopathology rather than a specific risk for psychosis-proneness.

The Intense Ambivalence Scale predicted psychopathology and impaired adjustment beyond the effects of the Perceptual Aberration and Magical Ideation Scales. However, this improvement in prediction generally was additive, not multiplicative, as the Intense Ambivalence Scale tended not to differentially improve the prediction of psychopathology in the psychosis-prone individuals relative to the control participants. The present findings appear consistent with Meehl's recent formulation that ambivalence is a secondary, rather than a fundamental symptom of schizotypy.

To the extent that the Intense Ambivalence Scale predicts risk for psychosis, it seems to predict risk for positive, rather than negative, schizotypy or psychosis proneness. The scale was not associated with schizoid symptoms or impairment in the establishment of intimate relationships at the follow-up assessment. Surprisingly, the scale was associated with impaired social adjustment at the initial assessment. This was in contrast to a previous report that individuals who scored deviantly high on the scale did not demonstrate impairment in social interest or activity (Friedland et al., 1984). The findings may be due in large part to the fact that the measure of social functioning administered at the initial assessment tapped impairment in social relationships, whereas the measure employed at the follow-up assessed establishment of intimate relationships.

Recognizing the possibility that the Intense Ambivalence Scale may predict a general risk for psychopathology, Raulin and colleagues (see Raulin and Brenner, 1993) examined the individual discrimination of each item in the original Intense Ambivalence Scale for schizophrenic and depressed patients. They found that the items that discriminated schizophrenic patients had a matter-of-fact tone and seemed to emphasize the simultaneous experience of contradictory emotions or the rapid and almost random change of emotions back and forth over time (e.g., "Love and hate tend to go together."). In contrast, the items that discriminated the depressed patients had a strong emotional tone and usually represented a change from positive to negative feelings (e.g., "I can think of someone right now that I thought I could trust, but now I know I can't").

Based upon these findings, Raulin and Brenner (1993) derived a new scale, termed the Schizotypal Ambivalence Scale, which included 12 items from the original scale and seven new items. Unfortunately, it was not possible to examine the predictive validity of the Schizotypal Ambivalence Scale (or the individual items of the Intense Ambivalence Scale) in the present study. However, the present findings support the investigation of the predictive validity of the Schizotypal Ambivalence Scale.

The study of the relationship between ambivalence and schizophrenia and other psychopathology has been clouded by a lack of operational definitions and careful study. The Intense Ambivalence Scale and the Schizotypal Ambivalence Scale provide psychometrically-sound methods for operationalizing and investigating this construct.

References

- American Psychiatric Association (1987) *Diagnostic and statistical manual of mental disorders* (3rd ed, rev). Washington, DC: Author.
- American Psychiatric Association (1980) *Diagnostic and statistical manual of mental disorders* (3rd ed). Washington, DC: Author.
- Bleuler EP (1950) *Dementia praecox or the group of schizophrenias*, J Zinkin (Trans). New York: International Universities Press. (Original work published in 1911).
- Chapman LJ, Chapman JP (1980) Scales for rating psychotic and psychotic-like experiences as continua. *Schizophr Bull* 6:476-489.
- Chapman LJ, Chapman JP (1985) Psychosis proneness. In M Alpert (Ed), *Controversies in schizophrenia: Changes and constancies*. New York: Guilford Press.
- Chapman LJ, Chapman JP, Kwapil TR, Eckblad M, Zinser MC (1994) Putatively psychosis-prone subjects 10 years later. *J Abnorm Psychol* 103:171-183.
- Chapman LJ, Chapman JP, Miller EN (1982) Reliabilities and intercorrelations of eight measures of proneness to psychosis. *J Consult Clin Psychol* 50:187-195.
- Chapman LJ, Chapman JP, Raulin ML (1978) Body-image aberration in schizophrenia. *J Abnorm Psychol* 87:399-407.
- Eckblad M, Chapman LJ (1983) Magical ideation as an indicator of schizotypy. *J Consult Clin Psychol* 51:215-225.
- Endicott J, Spitzer RL, Fleiss JL, Cohen J (1976) The Global Assessment Scale: A procedure for measuring overall severity of psychiatric disturbance. *Arch Gen Psychiatry* 33:766-771.
- Friedland TJ, Raulin ML, Rourke P (1984) Intense ambivalence: Its relationship to schizotypy and psychotic-like experiences. Presented at the 1984 meeting of the Eastern Psychological Association.
- Kernberg O (1977) The structural diagnosis of borderline personality organization. In P Hartocollis (Ed), *Borderline personality disorder: The concept, the syndrome, the patient* (pp 87-121). New York: International Universities Press.
- Kwapil TR (1998) Social anhedonia as a predictor of the development of schizophrenia-spectrum disorders. *J Abnorm Psychol* 107:558-565.
- Kwapil TR, Chapman LJ, Chapman J (1999) Validity and usefulness of the Wisconsin Manual for rating psychotic-like experiences. *Schizophr Bull* 25:363-375.
- Kwapil TR, Chapman LJ, Chapman JP, Miller MB (1996) Deviant olfactory experiences as indicators of risk for psychosis. *Schizophr Bull* 22:371-382.
- Lenzenweger MF (1998) Schizotypy and schizotypic psychopathology: Mapping an alternative expression of schizophrenia

- liability. In MF Lenzenweger RH Dworkin (Eds), *Origins and development of schizophrenia*. Washington, DC: American Psychological Association.
- Loranger AW (1988) *Personality Disorder Examination (PDE) manual*. Yonkers, NY: DV Communications.
- Meehl PE (1962) Schizotaxia, schizotypy, schizophrenia. *Am Psychol* 17:827-838.
- Meehl PE (1964) Manual for use with checklist of schizotypic signs. (Report No. PR-73-5), Minneapolis: University of Minnesota, Research Laboratories of the Department of Psychiatry.
- Meehl PE (1989) Schizotaxia revisited. *Arch Gen Psychiatry* 46:935-944.
- Meehl PE (1990) Toward an integrated theory of schizotaxia, schizotypy, and schizophrenia. *J Pers Disord* 4:1-99.
- Raulin ML (1984) Development of a scale to measure intense ambivalence. *J Consult Clin Psychol* 52:63-72.
- Raulin ML, Brenner V (1993) Ambivalence. In CG Costello (Ed), *Symptoms of schizophrenia* (pp 201-226). New York: Wiley.
- Serban G, Conte HR, Plutchik R (1987) Borderline and schizotypal personality disorders: Mutually exclusive or overlapping? *J Pers Assess* 51:15-22.
- Sincoff J (1990) The psychological characteristics of ambivalent people. *Clin Psychol Rev* 10:43-68.
- Spitzer RL, Endicott J (1977) Schedule for Affective Disorders and Schizophrenia-Lifetime Version (SADS-L). New York: New York State Psychiatric Institute.
- Weissman MM, Paykel ES (1974) *The depressed woman*. Chicago: University of Chicago Press.

