Social Perceptions and Borderline Personality Disorder: The Relation to Mood Disorders

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We used the Social Analysis of Social Behavior (SASB) to compare the social perceptions of borderline, unipolar, and bipolar-depressed inpatients. As predicted, borderline subjects differed from bipolar-depressed and unipolar subjects in their social perceptions. Borderline subjects viewed their relationships to their mother, hospital staff, and other patients as more hostile and autonomous than did mood disordered subjects. The results are discussed in terms of an integrative theory of borderline personality that considers the psychobiology of interpersonal relationships and attachment disruptions.

The status of borderline personality disorder as a valid diagnostic construct and its relationship to affective disorders has been a topic of considerable discussion and research (Akiskal, 1992; Gunderson & Phillips, 1991). Some writers have suggested that borderline personality represents an atypical but primary disturbance of affect (Liebowitz, 1987; Liebowitz & Klein, 1981) or, more recently, the product of an irritable cyclothymic temperament that is highly heritable, endoreactive, and best viewed as part of a spectrum of bipolar disorders (Akiskal & Akiskal, 1992). Akiskal and his colleagues (Akiskal & Akiskal, 1992; Akiskal, Chen, et al., 1985; Akiskal, Yerevanian, Davis, King, & Lemmi, 1985) have highlighted this position by suggesting that borderline personality disorder may be best conceptualized as "borderline manic-depressive psychosis" because of its similarity to the primary affective disorders in terms of phenomenology, biological correlates, and family history. Alternatively, other researchers have suggested that borderline personality is a valid and distinct construct that displays no greater association to affective disturbance than other personality disorders (Barasch, Frances, Hurt, Clarkin, & Cohen, 1985) and differs from affective disorders in object relations (Westen, Lohr, Silk, Gold, & Kerber, 1990), phenomenology (Gunderson & Phillips, 1991), and response to treatment (Soloff, George, Nathan, & Perel, 1986; Soloff, George, Nathan, Schulz, et al., 1986).

Benjamin (1987a; 1993) has acknowledged that temperament may be important in the development of personality disorders, but theorized that interpersonal relationships play a more prominent role in the etiology of borderline personality. Specifically, she has hypothesized that the borderline person experiences early interpersonal attack, neglect, and threats of abandonment that are not associated with nonborderline mood disorders. Recent findings that borderline personality disordered persons experience high levels of sexual and physical abuse (Herman, Perry, & van der Kolk, 1989; Wonderlich & Swift, 1990) and perceive their families as conflicted and non-empathic (Ogata, Silk, & Goodrich, 1990; Soloff & Millward, 1993; Wonderlich & Swift, 1990) are consistent with this interpersonal theory.

In this study we were interested in testing the hypothesis that borderline personality disordered persons differ from affective disordered subjects in their perceptions of both parental and nonparental relationships. To provide a precise test of the idea that borderline personality disorder occupies a logical position on the bipolar spectrum, we included both unipolar and, as suggested by Akiskal, Chen, et al. (1985), bipolar comparison groups. We specifically predicted that borderline subjects would be more likely than unipolar or bipolar subjects to see their parental relationships and selected current relationships as attacking and neglectful.

The inclusion of unipolar and bipolar depressed comparison groups further allowed us to test a set of secondary hypotheses regarding the unipolar–bipolar distinction. Early reviews of this distinction concluded that in spite of numerous clinical and neurobiological differences between unipolar and bipolar depressed individuals (see DePue & Monroe, 1978, for a review), the separation of unipolar and bipolar disorders as qualitatively distinct disorders has not been supported (Gershon, 1978; Khouri & Akiskal, 1986; Taylor & Abrams, 1980). In a more recent review, Goodwin and Jamieson (1990) suggested that bipolar and recurrent unipolar depressions are best viewed as two subgroups of manic–depressive illness rather than separate and distinct illnesses (Goodwin & Jamieson, 1990). Although several studies have examined unipolar–bipolar differences in personality traits (e.g., Hirschenfeld, Klerman, Keller, & Clayton, 1986; Matussek & Feil, 1983; Strandman, 1978), very little is known about differences between these disorders in terms of social perceptions. On the basis of clinical descriptions of bipolar patients as controlling or manipulative (e.g., Cohen, Baker, Cohen, Fromm-Reichmann, & Weigert, 1954; Janowsky, El-Yousef, & Davis, 1974) and of personality trait studies that suggest that bipolar subjects are characterized by high levels of
Structural Analysis of Social Behavior (SASB)

SASB (Benjamin, 1974) is a complex model of interpersonal relationships and their intrapsychic representations based on Sullivan's (1953) interpersonal theory and the complex models of Leary (1957) and Schaefer (1965). As can be seen in the cluster version of the model (see Figure 1), the model consists of three complex surfaces, each of which represents a different relational focus. The Focus on Other surface (top panel in Figure 1) represents transitive action directed toward another person, such as control or attack. The middle panel in Figure 1, Focus on Self, represents intransitive states or reactions to another person, such as submission or withdrawal. Whereas the Other and Self surfaces represent interpersonal processes, the Intrapsychic or Introspection surface (bottom panel in Figure 1) represents the internalization of important interpersonal relationships. This intrapsychic concept, referred to as an introspect, is theoretically similar to the idea of self-concept.

Each surface is organized around two orthogonal dimensions termed affiliation (horizontal), which ranges from attack (left) to loving attachment (right) and interdependence (vertical), which ranges from independence (top) to enmeshment (bottom). Any interpersonal transaction or intrapsychic event can be characterized in SASB by determining its focus and varying combinations of affiliation and interdependence. For example, parental overprotectiveness is considered to be transitive action, highly controlling, and only slightly affiliative, so the best fit is Cluster 5 on the Other surface, Watching and Controlling. If a child's complementary reaction is simple compliance, as is often the case in enmeshed relationships, the best fit is Cluster 5 on the Self surface, Deferring and Submitting.

The SASB model differs from other complex models in at least three major ways. The first is that the SASB model describes three types of interpersonal focus, and other such models do not attend to focus at all. Like all other complex models, the SASB model does assign love and hate to the horizontal axis. However, the second difference between the SASB and other complex models is in the definition of the vertical axis. Whereas models based on Leary (1957) place submission opposite dominance on the vertical axis, the SASB model holds (after Schaefer, 1965) that autonomy is the opposite of dominance. As a consequence of this variation, the SASB model is able to define differentiation, a psychological concept that is theoretically important in dynamic psychology and vital to the definition of normalcy. Varying types of differentiation are described by the parts of the SASB model that include autonomy.

A third distinctive feature of the SASB model is that its intrapsychic surface adds the ability to draw connections between social perceptions and self-concept. Sullivan (1953) emphasized that the self-concept arises from experiences with important others, and the SASB model is the only complex model that can test this psychodynamic concept.
Table 1

Demographic Information on Clinical Subjects

<table>
<thead>
<tr>
<th>Variable</th>
<th>Bipolar</th>
<th>Unipolar</th>
<th>Borderline</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>14</td>
<td>39</td>
<td>31</td>
</tr>
<tr>
<td>Age (in years)</td>
<td>37.3</td>
<td>32.1</td>
<td>27.8</td>
</tr>
<tr>
<td>SD</td>
<td>9.5</td>
<td>12.3</td>
<td>6.4</td>
</tr>
<tr>
<td>Gender (% women)</td>
<td>61.2</td>
<td>64</td>
<td>90</td>
</tr>
<tr>
<td>Marital status (% married)</td>
<td>62.2</td>
<td>33</td>
<td>23</td>
</tr>
<tr>
<td>Educational level (in years)</td>
<td>15.1</td>
<td>15.1</td>
<td>14.5</td>
</tr>
<tr>
<td>SD</td>
<td>2.3</td>
<td>2.7</td>
<td>2.0</td>
</tr>
<tr>
<td>Shapley-Hartford score</td>
<td>30.2</td>
<td>31.9</td>
<td>29.4</td>
</tr>
<tr>
<td>SD</td>
<td>4.6</td>
<td>5.6</td>
<td>6.1</td>
</tr>
<tr>
<td>Socioeconomic status</td>
<td>17.8</td>
<td>25.0</td>
<td>19.6</td>
</tr>
<tr>
<td>SD</td>
<td>24.5</td>
<td>28.2</td>
<td>27.3</td>
</tr>
</tbody>
</table>

if these preexisting group differences confounded the diagnostic group effect, preliminary analyses were conducted. Although the diagnostic groups differed in mean age, age was significantly correlated with only 6% (2 of 36) of the dependent measures (ratings of various social relationships) when diagnostic groups were collapsed. Also, age did not significantly correlate with any of the dependent measures in the unipolar group and on only 3% (1 of 36) and 16% (6 of 36) of the dependent measures for the borderline and bipolar groups, respectively. Thus, it was concluded that age showed a minimal relation to the dependent variables.

Because there were such a small number of borderline men, it was not possible to perform gender comparisons within each diagnostic group on the various social perception measures in the study. However, in order to assess whether or not gender was associated with the dependent measures, we performed a series of 2 X 2 chi-square analyses on an independent sample of 130 college students. We examined the association of gender and the valence of the dependent measures (positive or negative) that reflected the nature or quality of the relationship rating included in the study (see Measures). Because these students were not patients, it was not possible to include the ratings of staff and other patients in these analyses, but these comparisons were conducted for ratings of introject, mother, and father. This resulted in 20 chi-square analyses of which only 2 were statistically significant. Men were more likely than women to view their fathers as attacking (p < .05) and themselves as nonsubmissive to their fathers (p < .05). Given that gender seemed to have such a minor influence on the ratings and that the gender effects that were significant (ratings of the paternal relationship) in no way corresponded with the primary findings of the study, it seemed unlikely that gender could account for the group differences that were discovered in the study.

Measures

Interpersonal Adjective Scales - Revised (IAS-R; Higgins, Hopp, & Phillips, 1988). The IAS-R is a checklist of 126 adjectives that are assigned to 16 groups of items (plus a -P) arranged on a circumplex model. The underlying model, based on Leary (1957), has a horizontal axis that ranges from love to hate and a vertical axis that goes from dominance to submit. The groups are usually paired so that there are eight final scores, which are termed, as follows: PA (ambitious and dominant), NO (agreeable and extraverted), LM (warm and agreeable), JK (unassuming and ingenuous), HI (hatred and submissive), FG (aloof and introverted), DE (cold and quarrelsome), and BC (arrogant and calculating). Wiggins et al.'s (1988) version of the simple circumplex was chosen for this study because it has been exhaustively validated and has consistently yielded good circumplex order in many contexts. The IAS-R is a trait measure.

Structural Analysis of Social Behavior Rating Scales (Benjamin, 1983). Subjects also completed the 1983 version of Benjamin's SASB questionnaire for selected relationships. These included: introject at best, introject at worst, mother or mother surrogate as remembered for respondent's ages 3-10, father or father surrogate as remembered for respondent's ages 5-10, hospital staff (the primary nurse), and other patients on the ward at the time of hospitalization. Each relationship was assessed from four perspectives of the subject: He or she focuses on me; he or she reacts to me; I focus on him or her; and I react to him or her.

The long form of the SASB questionnaire used in this study provides 36 items per surface to represent each of the full SASS model points. A given interpersonal relationship (e.g., the relationship with one's mother) is assessed by rating 144 items. There are 36 items to measure the mother's transitive focus on the rater and 36 for the mother's intrasitive reactions to the rater. Thirty-six more items are devoted to the rater's transitive focus on the mother, and 36 estimate the rater's intrasitive reaction to the mother. For example, the item "She accuses and blames me and tries to get me to admit I am wrong" is transitive, and it contributes to Cluster 6 on the transitive surface (Beitzing and Blaming). The complementary item "I bury my rage and resentment and slyly appeal to her to avoid her disapproval" is intrasitive, and it contributes to Cluster 6 on the intrasitive surface (Sulk and Scurriness). Each item was rated on a 0 (not at all characteristic of the relationship) to 100 (perfectly characteristic of the relationship) scale marked at 10-point intervals. Item scores were summed and averaged to yield a score for each of the eight clusters on the SASS surface that was rated.

Each subject's cluster scores from each surface of the model were correlated with theoretical curves that reflected the interpersonal parameters of interest: attack, hostile recall, control, and submission (Benjamin, 1984). The score for each interpersonal parameter is called a pattern coefficient and ranges from 1.00 to -1.00 and reflects how well the subject's cluster scores fit the theoretical curves for each parameter. For example, the attack coefficient is depicted by a S-shaped curve on the Other surface with low scores on friendly Clusters 2, 3, and 4 but high scores on hostile Clusters 6, 7, and 8 (see Figure 2). An S-shaped curve on the Self surface underlies the hostile recall coefficient. Thus, the attack coefficient represents transitive actions that range from friendliness (-1.00) to attack (+1.00), whereas the hostile recall coefficient depicts intrasitive behaviors that range from friendliness (-1.00) to hostile detachment (+1.00). Similarly, the control coefficient is the correlation of the subjects' cluster scores on the Other surface with an inverted U curve that theoretically reflects interpersonal control. Specifically, the control coefficient reflects high scores on clusters that depict interpersonal control (e.g., Clusters 4, 5, and 6) and low scores on clusters that depict interpersonal autonomy (e.g., Clusters 8, 1, and 2; see Figure 2). An inverted U curve on the Self surface underlies the submission coefficient.1

1 This description of pattern coefficients is a simplification. More complete information appears in Benjamin (1984), and full detail is available in Benjamin (1988). Readers who wish to follow the subsequent discussions of bimodality in depth are encouraged to read the Appendix to this article for additional detail about pattern coefficients.
are markedly different from most of those in other comparison groups. If they are, the findings have clinical as well as statistical significance.

Results

Interpersonal Adjective Scales—Revised

Multivariate analyses of the IAS-R octant data failed to produce significant group differences. \( \lambda = 0.775, F(16, 134) = 0.78, p < .33 \). Octant scores were combined to yield LOV (horizontal axis) and DOM (vertical axis) scores, with the formulas recommended by Wiggins, Phillips, and Trapnell (1989). Again, diagnostic groups were not differentiated significantly: \( \lambda = 0.999, F(4, 146) = 1.79, p < .13 \), although the DOM scores displayed a nearly significant group difference, \( F(2, 74) = 2.87, p < .06 \). The Bipolar group felt most dominant (standard score, \( M = 0.263 \)), and the Borderline, the least (standard score, \( M = -0.311 \)). Finally, the angular location and vector lengths were compared, but results were not statistically significant, \( \lambda = 0.904, F(4, 146) = 0.19, p < .12 \).

Structural Analysis of Social Behavior Questionnaires

Preliminary review of graphs of the SASB pattern coefficient revealed that persons in all three groups tended to perceive others as clearly attacking or friendly, controlling or freedom giving, and submissive or autonomous. Figures 3 and 4 respectively display this bimodality in the attack and submission coefficients. The top of Figure 3 shows that these patients saw their mothers either as hostile or friendly. The top of Figure 4 suggests that they saw their mothers as either submissive or as autonomous. The bimodal distributions in this sample of inpatients were not unique. The lower panels of Figures 3 and 4 show that a sample of 133 normal college students who took the questionnaire for purposes of self-growth also displayed this bimodality.

Figures 3 and 4 respectively present the frequency distributions for the mothers’ attack and submission pattern coefficients. The top panels present the results for the three diagnostic groups, and the lower panels present the results for the normal comparison group and for subjects created by a random generator. Two features are important to note, and they are described statistically next.

First, the ratings from patients and normal subjects conformed to circumplex order. The magnitudes of the attack and submission pattern coefficients were noticeably larger for the patients and normal subjects than for the random data sets. The large magnitudes (and the variations in quality, discussed later) caused the distributions in the real data sets to assume bimodal form.

Rather than cumulating at extremes, the cases in the random distribution were more likely to fall in the middle. They showed little order in their patterns. There was, however, a noticeable gap in the region close to zero. This discernible absence of pat-

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4 The figure was made from data produced by the random normal generator from SYSTAT. The mean was at 50, and the standard deviation at 10. A tally of subjects’ use of scale in a larger psychiatric sample (N = 191) yielded a mean of 40 and a standard deviation of 10. When the SYSTAT generator was set at a mean of 40 instead of 50, there was no effect on this figure because patterns were unaffected by elevation of profile. When the SYSTAT generator was set to random uniform, a very similar figure was obtained.
tern coefficients with a value at or near zero created a small artifactual bimodality. It was the direct result of the pooling procedure that was used to define the pattern coefficients. The attack pattern coefficient was based on the largest correlation between a subject's data and two possible theoretical curves that reflected attack. Submission pattern coefficients were selected in the same manner from three possible curves for submission. This selection procedure inflated the value of the coefficients, pushing them away from zero even in a random population. When this selection operation was omitted, the distribution for each component single pattern coefficient was continuous and normal in the random data sets. There was no gap around the zero region. In the actual data sets, distributions for single pattern coefficients remained bimodal (though less extreme).

Second, diagnostic groups differed in the quality (sign), not the magnitude of the patterns. For example, in Figure 3, it is clear that the distribution of attack patterns for subjects with borderline personality disorder was skewed to the right, which indicated that many of them saw their mothers as very hostile. The other groups, most especially the normal subjects, had distributions strongly skewed to the right, which indicates most of them saw their mothers as very friendly. Similar differences in quality appeared for mothers' submission. Figure 4 shows that the distribution for the borderline patients was skewed in the negative direction, and this suggests many saw their mothers as authoritarian. By contrast, more members of other diagnostic groups (especially bipolar patients) and normal subjects saw their mothers as submissive, that is, as responsive to the raters' influence.

Differences in the magnitude of pattern coefficients were tested by performing a one-way-between-groups (borderline vs. unipolar vs. bipolar) multivariate analysis of variance on the absolute values. Absolute values were normally distributed about the respective group means. This analysis failed to reveal
differences among diagnostic groups, $\lambda = .26, F(64, 64) = 0.96$, $p < .56$. However, when a group of 39 randomly generated computer subjects was added to the design, the multivariate analysis of variance on the absolute values of the coefficients was highly significant, $\lambda = .04, F(96, 207) = 3.98, p < .0001$. In short, the magnitudes of pattern coefficients among patient groups were not different. However, differences between the magnitudes of the actual and the random pattern coefficients were highly significant. For example, the mean absolute value of the submission coefficients for patients' ratings of mother averaged .76 ($SD = .20$). The value for normal subjects averaged .87 ($SD = .15$). By contrast, the mean value for maternal submission in the random data set was .40 ($SD = .20$). Differences between random and actual data were even greater for the attack patterns. There are many such orderly and interesting variations in the degree of articulation (magnitudes of coefficients) for different relationships. For example, in contrast to the modest magnitudes for submission in Figure 4, the coefficients that assessed raters' own submission to their mothers were very large.

Differences in quality of relationships were reflected by the signs of the pattern coefficients and were analyzed by nonparametric methods. Differences in the quality of the social perceptions were assessed by a $3 \times 2$ chi-square test (three diagnostic groups by sign of the pattern). Results for the attack and hostile recoil pattern coefficients are presented in Table 2.

Inspection of Table 2 reveals significant differences among the diagnostic groups in ratings of introject at worst and in the relationships with mother, ward staff, and other patients. For every significant $3 \times 2$ chi-square result, subsequent $2 \times 2$ chi-square tests showed that the borderline group was significantly more hostile than the other two. No significant differences were detected between unipolar and bipolar persons on this measure. The hostility of the borderline group was particularly marked in the relationship with the mother; all four aspects of this relationship yielded significant differences (i.e., mother attacked, mother recoiled, I attacked, and I recoiled).

The only significant contrast that did not separate the borderline group from the other two was the rating of introject at
Table 2
Percentages of Subjects Who Showed Hostile Patterns in Various Relationships

<table>
<thead>
<tr>
<th>Rating</th>
<th>Bipolar</th>
<th>Unipolar</th>
<th>Borderline</th>
<th>Significance</th>
<th>Normative group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introject attacks (best)</td>
<td>31.6</td>
<td>30.7</td>
<td>50.0</td>
<td>ns</td>
<td>1.0</td>
</tr>
<tr>
<td>Introject attacks (worst)</td>
<td>69.2b</td>
<td>94.7b</td>
<td>100.0b</td>
<td>p &lt; .01</td>
<td>52.0</td>
</tr>
<tr>
<td>Mother attacked me</td>
<td>7.6b</td>
<td>28.9b</td>
<td>67.9b</td>
<td>p &lt; .001</td>
<td>9.0</td>
</tr>
<tr>
<td>Mother recoiled from me</td>
<td>15.4a</td>
<td>21.1a</td>
<td>46.4a</td>
<td>p &lt; .05</td>
<td>5.0</td>
</tr>
<tr>
<td>I attacked mother</td>
<td>0.0a</td>
<td>5.3a</td>
<td>32.1a</td>
<td>p &lt; .01</td>
<td>5.0</td>
</tr>
<tr>
<td>I recoiled from mother</td>
<td>15.4a</td>
<td>23.7a</td>
<td>67.9a</td>
<td>p &lt; .001</td>
<td>10.0</td>
</tr>
<tr>
<td>Father attacked me</td>
<td>15.4</td>
<td>28.9</td>
<td>44.8</td>
<td>ns</td>
<td>13.0</td>
</tr>
<tr>
<td>Father recoiled from me</td>
<td>0.0</td>
<td>7.9</td>
<td>20.7</td>
<td>ns</td>
<td>15.0</td>
</tr>
<tr>
<td>I attacked father</td>
<td>15.4</td>
<td>15.8</td>
<td>17.2</td>
<td>ns</td>
<td>5.0</td>
</tr>
<tr>
<td>I recoiled from father</td>
<td>7.7</td>
<td>31.6</td>
<td>51.7</td>
<td>ns</td>
<td>18.0</td>
</tr>
<tr>
<td>Staff attacks me</td>
<td>0.0</td>
<td>3.0</td>
<td>14.3</td>
<td>ns</td>
<td>—</td>
</tr>
<tr>
<td>Staff recoils from me</td>
<td>0.0</td>
<td>0.0</td>
<td>7.1</td>
<td>ns</td>
<td>—</td>
</tr>
<tr>
<td>I attack staff</td>
<td>0.0</td>
<td>0.0</td>
<td>7.1</td>
<td>ns</td>
<td>—</td>
</tr>
<tr>
<td>I recoil from staff</td>
<td>0.0a</td>
<td>9.1a</td>
<td>35.7a</td>
<td>p &lt; .01</td>
<td>1.0</td>
</tr>
<tr>
<td>Patients attack me</td>
<td>0.0a</td>
<td>0.0a</td>
<td>22.2a</td>
<td>p &lt; .01</td>
<td>1.0</td>
</tr>
<tr>
<td>Patients recoil from me</td>
<td>0.0</td>
<td>3.2</td>
<td>14.8</td>
<td>ns</td>
<td>—</td>
</tr>
<tr>
<td>I attack patients</td>
<td>0.0</td>
<td>3.1</td>
<td>7.1</td>
<td>ns</td>
<td>—</td>
</tr>
<tr>
<td>I recoil from patients</td>
<td>0.0</td>
<td>6.2</td>
<td>38.5</td>
<td>ns</td>
<td>—</td>
</tr>
</tbody>
</table>

Note. Dissimilar superscripts indicate significant 2 × 2 chi-square tests for assessing specific differences between diagnostic groups in the percent of subjects who showed positive attack or hostile recoil coefficients. The significance column indicates the significance of chi-square tests of the overall 3 × 2 tables.

worst. Self-attack was most likely in the borderline and the unipolar depressed groups. Fewer bipolar depressed subjects depressed, attacked, and neglected themselves.

Table 3 presents the results of the 3 × 2 chi-square tests of distributions of the control and submission pattern coefficients. Inspection of the table shows that the tendency to be enmeshed (i.e., to be controlling or submissive rather than independent) was different for the three groups. The 3 × 2 chi-square tests were significant for ratings of the relationship with mother, ward staff, and other patients. In relation to the mother, subsequent 2 × 2 chi-square tests established that fewer borderline patients described their mother as controlling or submissive or themselves as submissive to her. In the introject ratings, borderline subjects also were less likely than unipolar or bipolar subjects to show (normative) self-control at their best.

On the remaining ratings, the continuum of interdependent (enmeshment to differentiation) provided a different constellation of significant differences among these three groups. In pe

Table 3
Percentage of Subjects Who Showed Enmeshed Patterns in Various Relationships

<table>
<thead>
<tr>
<th>Rating</th>
<th>Bipolar</th>
<th>Unipolar</th>
<th>Borderline</th>
<th>Significance</th>
<th>Normative group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introject controls self (best)</td>
<td>92.3a</td>
<td>94.7a</td>
<td>73.3b</td>
<td>p &lt; .05</td>
<td>97.0</td>
</tr>
<tr>
<td>Introject controls self (worst)</td>
<td>46.2</td>
<td>28.9</td>
<td>13.3</td>
<td>ns</td>
<td>69.0</td>
</tr>
<tr>
<td>Mother controlled me</td>
<td>100.0a</td>
<td>86.8a</td>
<td>71.4b</td>
<td>p &lt; .05</td>
<td>97.0</td>
</tr>
<tr>
<td>Mother submitted to me</td>
<td>69.2a</td>
<td>50.0b</td>
<td>25.0b</td>
<td>p &lt; .05</td>
<td>61.0</td>
</tr>
<tr>
<td>I controlled mother</td>
<td>46.5</td>
<td>23.7</td>
<td>46.2</td>
<td>ns</td>
<td>46.0</td>
</tr>
<tr>
<td>I submitted to mother</td>
<td>100.0a</td>
<td>92.1a</td>
<td>60.7a</td>
<td>p &lt; .001</td>
<td>94.0</td>
</tr>
<tr>
<td>Father controlled me</td>
<td>69.2</td>
<td>76.3</td>
<td>79.3</td>
<td>ns</td>
<td>88.0</td>
</tr>
<tr>
<td>Father submitted to me</td>
<td>46.2</td>
<td>39.5</td>
<td>41.0</td>
<td>ns</td>
<td>35.0</td>
</tr>
<tr>
<td>I controlled father</td>
<td>38.5</td>
<td>21.1</td>
<td>27.6</td>
<td>ns</td>
<td>31.0</td>
</tr>
<tr>
<td>I submitted to father</td>
<td>92.3</td>
<td>81.6</td>
<td>75.9</td>
<td>ns</td>
<td>84.0</td>
</tr>
<tr>
<td>Staff controls me</td>
<td>90.9</td>
<td>84.8</td>
<td>85.7</td>
<td>ns</td>
<td>—</td>
</tr>
<tr>
<td>Staff submits to me</td>
<td>72.7a</td>
<td>27.3a</td>
<td>32.1b</td>
<td>p &lt; .05</td>
<td>1.0</td>
</tr>
<tr>
<td>I control staff</td>
<td>27.3a</td>
<td>3.0a</td>
<td>25.0b</td>
<td>p &lt; .05</td>
<td>1.0</td>
</tr>
<tr>
<td>I submit to staff</td>
<td>81.8</td>
<td>93.9</td>
<td>82.1</td>
<td>ns</td>
<td>—</td>
</tr>
<tr>
<td>Other patients control me</td>
<td>27.3</td>
<td>9.4</td>
<td>25.9</td>
<td>ns</td>
<td>—</td>
</tr>
<tr>
<td>Other patients submit to me</td>
<td>54.5a</td>
<td>16.1b</td>
<td>11.1b</td>
<td>p &lt; .01</td>
<td>—</td>
</tr>
<tr>
<td>I control other patients</td>
<td>18.2</td>
<td>3.1</td>
<td>30.8</td>
<td>ns</td>
<td>—</td>
</tr>
<tr>
<td>I submit to other patients</td>
<td>45.4</td>
<td>31.2</td>
<td>30.8</td>
<td>ns</td>
<td>—</td>
</tr>
</tbody>
</table>

Note. Dissimilar superscripts indicate significant 2 × 2 chi-square tests for assessing specific differences between diagnostic groups in the percent of subjects who showed positive control or submit coefficients. The significance column indicates the significance of 3 × 2 chi-square tests.
ceived control over staff, the borderline group was more like the bipolar group. Both were more likely to feel they were in control of staff than were members of the unipolar depressed group. The bipolar disordered group was distinct from both the borderline and the unipolar groups in their reports that staff and other patients submitted to them. The bipolar group tended to see both staff and other patients as submissive to them, whereas the unipolar patients were less likely to report this perception. Significantly more bipolar persons also felt they controlled the staff, in comparison with the unipolar group.

Discussion

There were two major findings in this study. First, even though groups did not differ in level of depression, borderline persons' social perceptions of past and present relationships frequently differed from unipolar and bipolar subjects. In particular, borderline subjects were most likely to see their maternal relationships as hostile and highly autonomous. Borderline patients were also more likely than either mood disordered group to see current relationships as characterized by hostility; specifically, they viewed themselves as hostilely recoiled from staff and attacked by other patients. These findings are consistent with other data that indicate that borderline persons view their families as more hostile and noncohesive than other depressed persons (Ogata et al., 1990; Soloff & Millward, 1983), especially in perceptions of mothers (Paris & Frank, 1989; Paris, Nowlis, & Brown, 1988; Wonderlich & Swift, 1990); they also experience pervasive social dysfunction in current relationships (Modestin, 1987). Introspect ratings also suggested that borderline lines showed less normative self-control than either mood disordered group while in their best states and more self-attack than bipolar in their worst states. These findings are consistent with theoretical speculation that borderline persons internalize hostile abandoning relationships in a manner that results in increased self-attack and self-abandonment (Benjamin, 1987a, 1993).

Second, bipolar subjects were more likely than unipolar subjects to see both staff and other patients as submissive to them. Bipolar subjects were also more likely to perceive themselves as controlling the staff than unipolar subjects. Although these findings provide some support for a distinction between unipolar and bipolar depression in social perceptions, the developmental hypothesis that bipolar persons remember having more control over their parents was not supported.

Borderline Personality: Part of the Bipolar Spectrum

Although there have been reported similarities between borderline and mood disordered subjects in neurobiological variables and family history (Akiskal, Chen, et al., 1985; Akiskal, Yerevanian, et al., 1985), our findings do not support the idea that this disorder is similar to primary bipolar or unipolar disorder at the level of interpersonal perceptions. In fact, borderline persons tended to view relationships in a manner that is almost diametrically opposed to our bipolar group (hostile and autonomous vs. nonhostile and interdependent). Other recent comparisons of borderline to bipolar subjects also reveal significant psychosocial differences in abuse histories (Herman, Perry, & van der Kolk, 1989) and psychological conflicts and defenses (Perry & Cooper, 1986). Also, there are family studies that failed to find a higher than expected prevalence rate of bipolar disorder diagnoses in the families of borderline probands (e.g., Loranger, Oldham, & Tufis, 1982; Zanarini, Gunderson, Marino, Schwartz, & Frankenburg, 1988). Collectively, our data and these other findings are inconsistent with the idea that borderline personality disorder is fundamentally related to bipolar disorder. Although our findings do not rule out the possible temperamental similarity between borderline and mood disordered persons, they do imply that borderline disorder is distinguished from the mood disorders at the level of social perceptions. Whether similar differences would be found if borderline individuals were compared with cyclothymics or some other subclinical affective disturbance remains unclear.

One explanation of such differences between the groups is that borderline persons are distinguished from mood disordered persons in terms of actual life experiences, such as hostile relationships, sexual and physical abuse, and overall attachment disturbance that influences their current social behavior. A model of borderline personality that integrates temperament factors with such individual experience is consistent with recent behavioral genetic findings that indicate that although genetic factors contribute substantially to personality and psychopathology, nonshared or unique environmental factors account for a substantial portion of variation in personality and psychopathology (Dunn & Plomin, 1990; Kendler, Neale, Kessler, Heath, & Eaves, 1992a, 1992b, 1992c; Loehlin & Nichols, 1976; Plomin, 1986; Plomin, Chipuer, & Loehlin, 1990; Plomin & Daniels, 1987; Reiss, Plomin, & Hetherington, 1991). Unique experiences with parents, siblings, peers, and other nonshared environmental processes or events play a substantial role in the development of personality and psychopathology (Baker & Daniels, 1990; Daniels, 1986; Dunn & Plomin, 1990).

In order to compare the conclusions reached by the statistical analysis of pattern coefficients to those based on Structural Analysis of Social Behavior cluster scores, further analyses were conducted. One way between-groups analyses of variance with post hoc Duncan multiple range tests supported the major conclusions derived by the nonparametric analyses of pattern coefficients. Borderline persons were differentiated from those in the two mood disorder groups by the pervasive hostility in ratings of their introject at best and worst and of their relationship to mother as hostile, of the staff as hostilely recoiled, and of other patients as attacking. Cluster score analyses also revealed that borderline subjects saw their relationship with their fathers as more attacking and recoiled (Cluster 7) and more enmeshed (Cluster 5) than did the mood disordered subjects. This finding was only a trend in the nonparametric analysis of pattern coefficients. Analyses of autonomy versus enmeshment in these relationships also generally parallel the primary analyses. The borderline group again differed significantly from mood disorder groups in perceptions of their mothers as noncontrolling and nonsubmissive. They were also significantly less inclined to see themselves as submitting to their mothers. Post hoc tests revealed that bipolar persons rated significantly less autonomy (Cluster 8) in staff than did borderline subjects and were nearly significantly different from unipolar ones. Analyses of variance revealed a statistical trend that indicated bipolar and borderline subjects viewed themselves as more controlling of staff than unipolar subjects (Cluster 5, p < .10, and Cluster 6, p < .09). Also, post hoc tests of the unipolar–bipolar difference in perceptions of other patients' submission did not quite reach the criterion level of significance, but the pattern of the means was in the predicted direction. These findings are offered to demonstrate the general correspondence between analyses of pattern coefficients versus clusters. Both methods support the substantive conclusions of our study.
Stocker, & Plomin, 1990). In a study of nonshared environmental influences on personality that is particularly relevant to our work, Mckonigle, Smith, Benjamin, and Turner (1993) found that levels of hostility in identical twins were significantly associated with nonshared perceptions of hostile parental control and an absence of positive involvement in parental relationships, as measured by the SASB. Similarly, it is possible that the hostile relationships and abuse that borderline persons report are nonshared environmental effects that play a substantial role, along with temperamentally preparedness, in the development of this disorder.

Although some may suggest that such interpersonal difficulties are epiphenomenal and secondary to genetically mediated temperament factors (Akiskal & Akiskal, 1992), there is considerable evidence to suggest that interpersonal factors and attachment failures result in a psychobiological adaptation that bears a remarkable resemblance to the behaviors associated with borderline personality disorder. For example, Bowlby (1982) suggested that dysfunctional attachment processes in humans result in inappropriate anxiety, misdirected and inappropriate aggression, and pathological mourning. Two reviews of nonhuman primate studies (Davis & Akiskal, 1986; Reite & Capitano, 1985) speculated that animal paradigms for examining the effect of separation experiences on social behavior may be particularly relevant to borderline disorders. Field (1985, 1987) has suggested that attachment failures in young primates severely disrupt self-regulation and lead to physiological disorganization with extremes of under- and overarousal. Furthermore, such failures seem to result in longstanding or perhaps permanent disruptions in self-regulation (Kraemer, 1992; McKinney, 1985). On the basis of numerous studies that suggested that the quality of the mother–infant relationship in nonhuman primates influences physiological adaptation, Kraemer (1992) suggested that an internal, temporal, and spatial image of the caregiver regulatory systems is internalized by the infant as a caregiver icon, which provides neurobiological guidance and regulation. Kraemer further suggested that such an icon is truly a psychobiological construct and that disruptions in its formation alter brain biogenic amine systems and disturb social cognition that facilitates adaptation to environmental change. For example, the quality of the caregiver relationship in rhesus monkeys figures prominently in depletion of baseline levels of cerebrospinal fluid noradrenalin, which is predictive of later despair responses to separation experience (Kraemer, Ebert, Schmidt & McKinney, 1989, 1991). These findings may be particularly relevant to specific personality dimensions thought to be associated with borderline personality disorder and to be mediated by noradrenergic neurotransmitter systems, such as affective instability (Siever & Davis, 1991) and reward dependence (Cloninger, 1987).

In summary, our findings converge with other studies to suggest that borderline personality disorder is distinguished from nonborderline mood disturbances by the perception of hostile, abandoning relationships and childhood abuse and neglect. Clearly, the delineation of such experiential factors, along with constitutional, organismic variables appears to be critical to any comprehensive theory of borderline personality disorder.

Unipolar–Bipolar Differences in Social Perceptions

Our findings provide modest support for a distinction between bipolar and unipolar depression in perceptions of social relationships. The finding that bipolar subjects were more likely than unipolar ones to see current relationships as submissive is consistent with clinical reports (e.g., Cohen et al., 1954; Jarewsky et al., 1974) and personality studies (e.g., Strandman, 1978) that highlight bipolar subjects’ tendency to be dominating and manipulative. These other studies, however, along with our findings, are often limited by their lack of a normal control group. Although bipolar subjects may indeed show greater dominance than unipolar subjects (e.g., Strandman, 1978), findings that have included normal control subjects generally do not reveal that bipolar subjects display more dominance than control subjects (e.g., Abou-Saleh & Coppen, 1984). Similarly, bipolar subjects in this study differed minimally from control subjects in their tendency to see themselves as controlling or others as submissive. Furthermore, the developmental hypothesis that bipolars viewed themselves as controlling and their parents as submissive was not strongly supported. Future studies with larger sample sizes and well-defined psychiatric and nonpsychiatric control groups will be needed to clarify whether the unipolar–bipolar differences found in this study actually reflect nonnormative perceptions on the part of bipolars or unipolars. Also, in this study we did not determine what proportion of the unipolar group displayed recurrent depression, which may be more closely associated with bipolar disorder (Goodwin & Jamieson, 1990) and consequently may have influenced our results. Future studies of unipolar–bipolar differences in social perception may benefit from such a distinction.

Additional Methodological Comments

Findings are enabled or constrained by the methods used. Leary’s (1957) interpersonal circle and rating scales generated a family of measures based on the single circumplex. These have been used in previous efforts to add interpersonal considerations to psychiatric diagnosis (see McLemore & Benjamin, 1979). In the past decade, there has been support for use of the single circumplex measures to diagnose the Axis II personality disorders (e.g., Widiger & Frances, 1985). In this study Wiggins et al.’s (1988) IAS-R, an excellent representative of the single circumplex approach, did not differentiate among the groups under study. There are at least three possible explanations for the failure of the IAS-R to differentiate among diagnostic groups. First, the use of the IAS-R as a trait measure may limit its power to make discriminations. For example, the data for Subject 66 (Figure 2) indicate that hostility is not an interpersonal trait in borderline personality disorder. Group results suggested that persons with borderline personality were more likely to have hostile relationships but not all of their relationships were hostile. The data are consistent with clinical descriptions in which borderline personality disordered persons are shown to be likely to see others as all good (loving) or all bad (hateful; Hamilton, 1988; Kernberg, 1975). Trait measures of interpersonal style miss this important variability. Two other possible reasons for the failure to find differences with the IAS-R may be that the single circumplex measures fail to assess autonomy and introjection. Both were important in our findings.

A second important methodological issue raised by our study is the dichotomous nature of the distributions of the pattern coefficients. Raters integrate the 36 different responses to yield a clear perception of friendliness or hostility, of control or autonomy giving, of submission or autonomy taking. This finding
that the continuous ratings sum to an either-or decision (e.g.,
friendly or hostile) is interesting and inviting further exploration
and thought.

Some may believe that the bimodality claim is compromised
by the gaps in the random distributions in Figures 3 and 4. We
believe the bimodality in the random data set is accounted for
by the pooling operation in the scoring procedure and that it is
uniquely smaller than in the actual data sets. This human
tendency to perceive in dichotomous terms has been recognized
clinically by the cognitive therapies. However, there are few psy-
chometric instruments that are able to document the dichoto-
mous cognitive style, and few statistical conventions to deal with
such bimodality. Our approach of using two parameters (mag-
nitude of the coefficient and its sign) is adequate but inelegant.

New statistical concepts will be needed if evidence accumulates
that humans can integrate diverse bits of social information to
yield an either-or decision for a given relationship.

A third methodological topic important to our report is the
problem of exploratory research and the possibility of capitalizing
on chance findings. Three groups were selected from a larger
study that was fundamentally exploratory. The current conven-
tional requirement is that there be highly specific prior predic-
tions to avoid spurious statistical significance associated with
multiple comparisons. Mahner (1988) made a welcome plea for
the resurrection of exploratory research. Our research provides
one way to conduct exploratory research without simply capital-
izing on random results. Along with some prior predictions,
based on clinical experience and previous research, logical and
clinical coherence of the findings was required. For example,
the prediction that bipolar persons would see themselves as
more powerful than would unipolar subjects was not confirmed.

However, by allowing the exploratory privilege, significant
differences emerged that were logically compatible with the pre-
dictions that failed. The findings were informative and poten-
tially useful clinically. The results suggest that clinicians explore
with depressed patients the question of whether they see others
as responsive to their wishes (submissive). If a depressed inpa-
tient does see others as deferential, our results suggest he or she
is more likely to have bipolar than unipolar depression. In sum,
exploratory research ought to be encouraged if the data set
shows logical and clinical coherence.

A second protection against the spurious rejection of the null
hypothesis is to use a computer to generate a random distribu-
tion appropriate to the conditions of the study. Rather than
make questionable assumptions (i.e., that the within-cell vari-
ance for the SASB pattern coefficients was normally distrib-
uted), we generated an estimate of the random condition for
the parameters under study. A comparison of analyses with and
without the random group showed that the obtained data were
dramatically different from random expectation. Because it is
fairly easy to generate random functions with computers, it ap-
ppears that the use of computer technology to simulate random
conditions specific to the experiment at hand can enable explori-
atory research on large and complicated data sets.

Summary

This study provides further support for models of borderline
personality that include interpersonal factors and suggests that
support for the idea that bipolar subjects are more controlling
than unipolar ones. However, this comparison may have been
restricted by low power that resulted from the somewhat small
number of bipolar subjects. The study is also limited by its sole
reliance on self-report measures in a cross-sectional design,
which compromises inference about etiological significance.
Future tests of the similarities and differences among border-
line, unipolar, and bipolar subjects in family and other interper-
sonal relationships will be strengthened by direct behavioral ob-
ervation measurement methods in longitudinal designs.

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The pooling operation creates a tendency to bimodality in the random data set.

The universe of 21 theoretical patterns that are compared to actual within-subject data is defined mostly by rotated cosine (or sine) waves and by orthogonal polynomials. The choice of patterns to be included in the pool for the summary parameters attack and control was based on clinical judgement of which best corresponded to the chosen name. For attack (or hostile recoil) coefficients, there are two possible component patterns: First, the correlation between a person's data and a cosine wave that centers on Cluster 7 (attack or recoil), and second, the correlation between the data and a rotated cosine wave that centers on Cluster 6 (blame or slight). A given attack coefficient is the largest of these two possibilities. The pooling of these two components to describe attack simplifies the individual feedback process. In designing the algorithm, the problem was to characterize the respective ratings accurately and yet not be so specific that comparisons across relationships either within or between subjects were unnecessarily compromised. Ratings that are similar (e.g., attacking or blaming) are pooled and given the same label if the clinical meaning is close.

The control (or hostile recoil) pattern coefficients are selected from three possibilities: First, a sine wave that centers on Cluster 5 (control or submit); second, a rotated sine wave that centers on Cluster 4 (protest or trust); or third, an orthogonal polynomial that centers on Clusters 4, 5, and 6.

The artificial bimodality in the pattern coefficients for a random distribution, shown in Figures 3 and 4, was due to the inflation introduced by these pooling operations. Figure 3 presents the distributions for the component cosine wave that centered exactly on Cluster 1-7 (mother attacks). The pooling effect is removed. It is similar to Figure 3, except the random distribution has no gap about zero. In the real data sets, the magnitudes of fixed component patterns were reduced somewhat in comparison with magnitudes obtained by selecting the largest component. Nonetheless, they were still bimodal.

In conclusion, the pooling operation introduces inflation in the size of the pattern coefficients, and causes a discernible but small artificial bimodality in the distribution of patterns in a random data set. Monte Carlo studies of both the English and German language versions of the Structural Analysis of Social Behavior Rating Scales suggest the degree of inflation is about .20 (±.10) on the scale for correlation that ranges from -1.0 to 1.0. There are situations where this inflation is a problem that must be addressed. For example, if there is to be significance testing of the pattern coefficients themselves, the critical level must be raised appropriately. However, we believe the results and conclusions of this study are not compromised by the consequences of the pooling operation.

The finding of bimodality in real data sets suggests that social perceptions can involve integration of a range of observations to reach a dichotomous or categorical conclusion. For example, Figure A1 suggests that mother was seen either as hostile or friendly. Bimodality is more pronounced in some relationships than in others. For example, “Mother trusted me,” shown in Figure A2, exhibited weak bimodality. However, its reciprocal, “I trusted Mother,” was highly bimodal. It is important for researchers to identify variables that enhance or diminish bimodality. This tendency to see relationships in categorical terms has been found in every study in which SASB pattern coefficients have been used.
Mother Attacked Me
Patient Sample
Cosine wave centered on Attack

Figure A1. Distributions for the component cosine wave that centered exactly on Cluster 1-7 (mother attacks). (This figure removes the pooling effect and is similar to Figure 3, except the random distribution has no gap about zero. In the real data sets, the magnitudes of fixed component patterns were reduced somewhat in comparison with the magnitudes obtained by selecting the largest component. Nonetheless, they were still bimodal.) Bimodality, when present, suggest that the corresponding social perceptions are categorical (e.g., mother is friendly or hostile).

(Appendix continues on next page)
Mother Trusted Me
Patient Sample
Rotated sine wave centered on Trust

![Graph showing frequency distribution for different categories of patients with varying pattern coefficients.]

Mother Trusted Me
Normal and Random Samples
Sine wave centered on Trust

![Graph showing frequency distribution for normal and random samples with varying pattern coefficients.]

Figure A2. Distributions for the rotated sine wave that centered exactly on Cluster 2-4 (mother trusts). (This figure removes the pooling effect and is similar to Figure 4, except the random distribution has no gap about zero, and the magnitudes were reduced.)

Received September 4, 1991
Revision received June 25, 1993
Accepted March 2, 1994