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Factor Structure of the Primary Scales of the Inventory of Personality Organization in a Nonclinical Sample Using Exploratory Structural Equation Modeling

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Using exploratory structural equation modeling and multiple regression, we examined the factor structure and criterion relations of the primary scales of the Inventory of Personality Organization (IPO; Kernberg & Clarkin, 1995) in a nonclinical sample. Participants ($N = 1,260$) completed the IPO and measures of self-concept clarity, defenses, affect and emotion regulation, and risky and self-injurious behavior. In contrast to that of Lenzenweger, Clarkin, Kernberg, and Foelsch (2001), a 4-factor measurement model was derived with factors representing instability of sense of self and other, instability of goals, instability of behaviors, and psychosis. The 1st of these factors related most strongly to external measures of self-concept clarity, defenses, and affect, whereas the 3rd factor related most strongly to measures of risky behavior and self-injury. These results suggest that the IPO's factor structure does not conform to the hypothesized 3-factor model, although it does capture important elements of Kernberg's (1996) theory of personality organization, especially the central construct of representations of self and others. The results point to several areas in which the IPO might be refined to provide a more comprehensive and theoretically appropriate measure of the borderline personality organization construct.

Keywords: borderline personality disorder, self-report assessment, exploratory structural equation modeling, criterion-related validity

Borderline personality disorder (BPD) represents a serious public health risk. Studies typically estimate its prevalence at around 1%–5% of the general population (Grant et al., 2008; Lenzenweger, Lane, Loranger, & Kessler, 2007; Samuels et al., 2002; Torgersen, Kringlen, & Cramer, 2001). Individuals with BPD consume a large amount of mental health services, making up over 9% of psychiatric outpatients (Zimmerman, Rothschild, & Chelminski, 2005) and 15%–20% of inpatients (Widiger & Frances, 1989). In fact, individuals with BPD use more mental health services of every type than those with major depression (Bender et al., 2001). Around 70% of individuals with BPD commit repeated self-injurious acts (Clarkin, Widiger, Frances, Hurt, & Gilmore, 1983), and up to 10% eventually commit suicide (Stone, 1993). BPD is substantially comorbid with other mental disorders (Nurnberg et al., 1991; Skodol et al., 2002; Zanarini et al., 1998, 2004), and there is evidence that the presence of BPD negatively affects the outcome of otherwise efficacious treatments (Chambless, Renneberg, Goldstein, & Gracely, 1992; Cloitre & Koenen, 2001; Cooper, Coker, & Fleming, 1996; Mennin & Heimberg, 2000; Shea, Widiger, & Klein, 1992).

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Conceptualizations of BPD are currently dominated by the model presented in the fourth edition of the American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders* (*DSM–IV*; American Psychiatric Association, 1994), which conceives of the disorder as a categorical and unitary disease entity, the presence or absence of which in a particular individual depends on the presence or absence of nine criteria, or symptoms. However, it is likely that the upcoming revision of the *DSM* will result in something other than a purely theory-neutral, categorical model for borderline personality. The draft proposal for the fifth edition (*DSM–5*) includes constructs from several theoretical perspectives as contributors to a diagnosis of BPD, under the assumption that a dimensional, not categorical, model better describes the distribution of borderline features (American Psychiatric Association, 2011a; Skodol & Bender, 2009). The proposed elements of the borderline diagnosis currently include impairments in self-functioning and interpersonal functioning and various pathological personality traits.

The proposed revision of the borderline personality diagnosis is representative of the point of view that borderline personality is rooted in disordered representations, both of the self and of other people (Bender & Skodol, 2007), an approach that has its origins in the object relations theory of Kernberg. Kernberg (Clarkin, Lenzenweger, Yeomans, Levy, & Kernberg, 2007; Kernberg, 1975) described three basic levels of personality organization: neurotic, borderline, and psychotic. The borderline personality organization category describes not only individuals with a *DSM–IV* diagnosis of BPD, but also those with other personality disorders with similar psychological characteristics (Kernberg, 1996). According to Kernberg (1996), three structural qualities

distinguish between the three levels of personality organization. Primary among these is coherence of the self-concept, as reflected in the ability to integrate positive and negative units of self-knowledge. Individuals with a borderline personality organization are characterized by their inability to tolerate this integration, which results in an incoherent sense of self that is distressing to the individual—a state referred to as "identity diffusion." This fractured sense of self is thought to lead to relational difficulties and a decreased ability to invest time and energy into appropriate work and leisure activities. Another key factor in Kernberg's theory of personality organization is the developmental maturity of defense mechanisms typically employed. In particular, Kernberg theorized that the use of primitive (i.e., immature) defenses, as opposed to more adaptive mechanisms, was important in determining the individual's level of personality organization. The final variable of importance is reality testing, or "the capacity to differentiate self from non-self, intrapsychic from external stimuli, and to maintain empathy with ordinary social criteria of reality" (Kernberg, 1996, p. 120). These three basic elements of personality organization—coherence of identity, maturity of defenses, and capacity for reality testing—are understood to describe individuals at every level of functioning, from healthy individuals to those with severe mental disorders.

The assessment of personality organization is traditionally accomplished through a clinical interview (Kernberg, 1984). However, in recent years, a number of alternative methods have been developed, including a structured interview (Clarkin, Caligor, Stern, & Kernberg, 2002; Stern et al., 2010), a clinician-rated instrument (Gamache et al., 2009; Hébert et al., 2003), and self-report measures (Leichsenring, 1999; Lenzenweger, Clarkin, Kernberg, & Foelsch, 2001). Of these four methods of assessment, self-report questionnaires are undoubtedly the easiest to administer. This advantage means that they often assume a primary role in validating clinical theories in research studies, for which large samples are often needed. In addition, self-report inventories have utility as adjuncts to structured interviews in the diagnosis of personality disorders in clinical settings (Hopwood et al., 2008; Pilkonis, Heape, Ruddy, & Serrao, 1991).

Self-report items designed to tap relevant aspects of personality organization were originally developed on a rational basis by Oldham et al. (1985). The items were organized into subscales representing the three core aspects of personality organization: namely, identity diffusion, primitive defenses, and problems with reality testing. Psychometric examination of these subscales showed that patterns of responses distinguished between healthy community respondents and psychiatric patients and between psychotic, borderline, and neurotic diagnostic groups (Oldham et al., 1985). These validity data, along with an examination of item-total correlations, led to refinements in the measure. In addition, several other secondary scales were developed to assess other aspects of personality functioning, such as aggression, moral values, and various distinct personality styles (e.g., obsessive, schizoid, narcissistic). The resultant version was the Inventory of Personality Organization (IPO) and contained 155 items in total (Kernberg & Clarkin, 1995).

Since the IPO's development, it has been used in several studies to investigate the relationship of personality organization to psychopathology and personality dysfunction. For example, Hoermann, Clarkin, Hull, and Levy (2005) found that differences among BPD patients on the temperamental dimension of effortful control were related to differences on the Identity Diffusion and Primitive Defenses subscales of the IPO. Likewise, Vermote et al. (2009) found that IPO scores were positively associated with symptoms of self-harm, anxiety, depression, and anger among psychiatric inpatients. Research has also shown that scores on the IPO subscales distinguish between BPD patients and those with a major depressive disorder (Walter et al., 2009) and between individuals with a personality disorder and those without (Kraus, Dammann, Rothgordt, & Berner, 2004). The IPO has also shown theoretically appropriate correlations with other problematic personality traits and psychiatric symptoms. For example, the Impaired Reality Testing subscale has been shown to be a good predictor of dissociative symptoms among both psychiatric patients and nonclinical controls (Spitzer et al., 2006), and Pincus et al. (2009), using a nonclinical undergraduate sample, found that IPO subscales were highly correlated with pathological narcissism, a personality style typically associated with a borderline personality organization in Kernberg's model. In addition, the IPO has been used to assess structural change in personality as a psychotherapy outcome among individuals with BPD (Arntz & Bernstein, 2006; Giesen-Bloo et al., 2006).

In addition to the original English-language scale, several other versions of the IPO have recently been developed for other linguistic populations. Igarashi et al. (2009) developed and tested a shortened Japanese-language version of the IPO that includes psychometrically sound identity diffusion, problems with reality testing, primitive defenses, aggression, and moral values subscales. A French-language version of the IPO, also abbreviated, has been shown to conform to a theoretically appropriate factor structure in a large sample from Quebec (Normandin et al., 2002). Berghuis, Kamphuis, Boedijn, and Verheul (2009) conducted an exploratory factor analysis of a Dutch-language version of the three primary scales, along with the moral values and aggression subscales, and found a four-factor solution comprising general psychopathology, problems with reality testing, aggression, and sadism. This factor structure did not vary between an inpatient sample and a sample of healthy controls. Finally, Smits, Vermote, Claes, and Vertommen (2009) independently constructed a shortened Dutch-language version that also showed factorial invariance across clinical and control groups. A confirmatory factor analysis (CFA) suggested that a two-factor model was most appropriate for the three primary scales in which identity diffusion and primitive defenses items formed a single factor and reality testing items formed a second.

Despite the continued use of the IPO to investigate psychopathology and psychotherapy, and despite its translation into several languages, the psychometric properties of the original, English-language version of the IPO are still inadequately understood. Lenzenweger et al. (2001) conducted an initial test of the psychometric properties of the IPO's three primary scales. The authors used CFA to test a three-factor model (with factors corresponding to identity diffusion, primitive defenses, and impaired reality testing according to the theoretically derived subscale structure) against a two-factor model (with identity diffusion and primitive defenses items loading on a single factor). Although the three-factor model fit better than the two-factor model based on a chi-square difference test, the models displayed roughly equal fit according to other fit indices. In addition, the factor intercorrela-

tions were extremely high for the three-factor model (.67 between identity diffusion and reality testing, .71 between primitive defenses and reality testing, and .97 between primitive defenses and identity diffusion). On the basis of these results, Lenzenweger et al. concluded that the two-factor model provided a better combination of fit and parsimony than the three-factor model.

However, although the investigation by Lenzenweger et al. (2001) provided important early evidence that the IPO is well described by a two-factor structure, several constraints of this article limit the usefulness of their conclusions. First, their CFA was based on a sample of only 249 participants. There are no definite guidelines specifying the sample size needed for such a large factor model (57 observed indicators loading on two or three intercorrelated latent factors), but there are some indications that a larger sample size may be needed in order to provide stable estimates of the model's parameters (Brown, 2006). Simulation studies suggest that the sample size needed for CFA depends on various characteristics of the model, data, and estimation technique, including the number of indicators per factor, the number of parameter estimates, the magnitude of the factor loadings, and the distributional properties of the data (Dolan, 1994; Gagné & Hancock, 2006; D. L. Jackson, 2001, 2003). A simulation study (Marsh, Balla, & McDonald, 1988) suggested that many indices used to adjudge model fit were substantially distorted at small sample sizes, and an investigation by Dolan (1994) suggested that even under ideal conditions (a one-factor model of eight indicators with a normally distributed response pattern), a sample size of 200 produced a very large bias in both standard errors and parameter estimates. This bias is likely to increase with substantially larger models and nonnormal data (Sharma, Durvasula, & Dillon, 1989), both of which characterize Lenzenweger et al.'s analysis. Thus, although it is difficult to tell a priori what sample size would be needed to provide robust and accurate estimates of model fit and parameter values for the IPO, simulations suggest that the sample used by Lenzenweger et al. might be too small for their factor-analytic results to be interpreted with confidence.

In addition, although Lenzenweger et al. (2001) provided evidence for the validity of the Impaired Reality Testing subscale of the IPO as a measure of schizotypy, they did not investigate the criterion-related validity of the Identity Diffusion and Primitive Defenses subscales. The authors did show that identity diffusion was unrelated to scores on the Self-Monitoring Scale (Gangestad & Snyder, 1985) and the Self-Consciousness Scale (Fenigstein, Sheier, & Buss, 1975), but they did not investigate its convergent validity with measures of self-concept coherence, and they did not provide information about the relationship of primitive defenses with other measures of defense. This is particularly important, because a careful examination of the external validity of the IPO can help clarify ongoing questions about its factor structure (Barrett, 2007). Because Lenzenweger et al. did not undertake such an analysis, their discussion of the factorial validity of the IPO is limited to the results of their factor analysis.

Finally, although Lenzenweger et al. (2001) used a CFA to investigate the factor structure of the IPO, there are no published reports of any exploratory factor analyses of the original English-language IPO clinical scales. This gap in the literature is important, because several psychometric studies have suggested that many factor structures that are well validated and replicated through exploratory factor analyses do not show good fit in confirmatory

models (e.g., Church & Burke, 1994; Marsh et al., 2010; McCrae, Zonderman, Costa, Bond, & Paunonen, 1996; van Prooijen & van der Kloot, 2001). Recently, some scholars (Asparouhov & Muthén, 2009; Marsh et al., 2009) have called for the use of exploratory modeling techniques, such as exploratory structural equation modeling (ESEM), because of the overly restrictive assumptions made in traditional confirmatory models, such as the requirement that each indicator load on only one latent factor. Eliminating all cross-loadings in a measurement model can inflate factor intercorrelations and distort other parameters in structural equation models (Asparouhov & Muthén, 2009; Marsh et al., 2009), which may account for the extremely high factor correlations found by Lenzenweger et al. In addition, because these very restrictive and specific one-, two-, and three-factor models were the only models tested, it remains to be seen whether an exploratory analysis would recover a similar factor structure to the configuration intended by the measure's authors (Kernberg & Clarkin, 1995).

The current study is intended as a conceptual replication and extension of Lenzenweger et al. (2001). It will replicate the earlier study by examining the factor structure and criterion relations of the IPO's primary scales in a nonclinical sample of young adults. However, the current analysis is based on a sample over 4 times as large as the one used in Lenzenweger et al., which will enhance confidence in the stability of all estimates obtained, including model fit indices and estimates of individual parameter values. Second, whereas Lenzenweger et al. did not investigate the criterion-related validity of the IPO with respect to measures of self-concept coherence, defense, and other aspects of borderline personality functioning, the current study assesses the relationship of the IPO to several appropriate questionnaire measures of these constructs. Finally, ESEM is used to characterize the factorial and criterion-related validity of the IPO, which may provide a more accurate picture of its psychometric properties than a CFA.

An undergraduate sample was chosen for the current investigation for several reasons. On a practical level, such a sampling strategy affords the opportunity to collect a large quantity of data, which (as noted above) is necessary for a stable estimation of the factor structure of the IPO. Second, large undergraduate samples typically contain a fairly wide range of functioning with respect to personality organization. Although most college students are relatively high-functioning, previous studies suggest that significant borderline personality features, such as anger, affective instability, impulsivity, and deliberate self-injury, are common in undergraduate samples (Gratz, 2001; Gratz, Conrad, & Roemer, 2002; Lenzenweger et al., 2001; Trull, 1995) and that these features predict later dysfunction and psychopathology (Trull, 1997). The IPO was designed to measure coherence of identity, the use of primitive defenses, and the capacity for reality testing across the full theoretical dimension of personality organization. Thus, testing its psychometric properties in a sample of individuals from a neurotic to a borderline level of personality organization, including those with significant risk factors for psychopathology, is consistent with both the aims of the measure and the burgeoning theoretical and empirical consensus that personality functioning is often better described dimensionally than categorically (e.g., Blais, 2010; Clark, 2007; Krueger, 2005; Markon, Krueger, & Watson, 2005; Widiger, Livesley, & Clark, 2009; Widiger & Trull, 2007).

Method

Participants and Data Collection

One thousand four hundred and fifty-nine undergraduates at Penn State University completed the questionnaire packets in 20 group administration sessions in exchange for credit in an Introduction to Psychology course. Participants volunteered for the study in response to announcements on a course-related website listing the available times for the group sessions (which took place on weekday mornings, afternoons, and evenings during October and early November 2008). The order of presentation of the questionnaires in the packets was varied. Participants completed all measures using bubble-response sheets in order to minimize threats to validity due to incorrect data entry. Data were excluded from analyses based on an index of random or thoughtless responding (D. N. Jackson, 1970). This scale asks respondents to rate, on a true-or-false basis, statements such as "Driving from New York to San Francisco is generally faster than flying between these cities." Data from participants who answered more than two items on the Jackson Scale in the infrequent direction were not used in analyses. Missing responses on these questions were also counted as infrequent in order to exclude participants who omitted responses carelessly. Eighty-six participants were missing at least two responses on the Jackson Scale, and 33 additional respondents gave too many infrequent responses. Of the remaining sample of 1,340, an additional 18 participants were excluded because they gave responses to the IPO that were inconsistent with the response scale, such as filling in a bubble for "7" when the directions asked them to give responses on a scale of 1–5. Finally, 62 participants were excluded from ESEM analyses because they failed to complete one or more of the criterion scales. The final sample size for the ESEM model was 1,260. Participants' ages ranged from 18 to 31 years ($M = 18.9$, $SD = 1.3$), and 70.6% of the sample was female. The primary ethnic identity of the sample was 86.1% Caucasian, 2.6% Hispanic/Latino, 5.6% Asian or Asian American, 3.7% African American, and 2.0% other ethnicities. Thus, the sample was roughly comparable in terms of age, gender, and ethnic identity to the sample in Lenzenweger et al. (2001), with the exception that the current sample had a smaller proportion of individuals of Asian or Asian American ethnicity.

Measures

In order to relate the IPO to a broad selection of measures while minimizing fatigue, we gave each participant an assortment of nine or 10 questionnaire measures, which always included the IPO. The mix of measures completed by each participant was varied randomly, such that nine possible combinations of measures were administered.

IPO (Kernberg & Clarkin, 1995).   The IPO is a self-report questionnaire designed to measure constructs related to Kernberg's (1975) theory of borderline personality organization. There are three primary subscales of the IPO, which were derived on the basis of clinical theory and comprise 57 items. These are Identity Diffusion (21 items), Primitive Defenses (16 items), and Impaired Reality Testing (20 items). Items are rated on a 5-point Likert-type scale ranging from *never true* to *always true*. Sample items include "People tell me I behave in contradictory ways" and "It is hard for

me to trust people because they so often turn against me or betray me" (from the Primitive Defenses subscale); "My life goals change frequently from year to year" and "I get into relationships with people I don't like because it's hard for me to say no" (Identity Diffusion); and "I have seen things which do not exist in reality" and "When I am uncomfortable, I cannot tell whether it is emotional or physical" (Impaired Reality Testing). Reliability and validity data for the IPO are discussed above.

Self-concept.   To investigate the similarity of the IPO Identity Diffusion subscale to other self-report measures of self-concept structure, we asked all participants to complete the following questionnaires related to self-concept.

Self-Concept Clarity Scale (SCCS; Campbell et al., 1996). The SCCS is a 12-item self-report measure designed to assess the extent to which a person's self-beliefs are clearly and confidently defined, internally consistent, and stable. Items are rated on a 5-point Likert-type scale ranging from *strongly disagree* to *strongly agree*. A sample item is "My beliefs about myself often conflict with one another." The SCCS has shown high internal consistency (Cronbach's $\alpha = .86$) and is related to the actual consistency of individuals' self-attribute ratings (Campbell et al., 1996). The SCCS was developed for use with normal samples (Campbell, Assanand, & Di Paula, 2003; Campbell et al., 1996) and has also been used as a self-report measure of self-concept stability among individuals with BPD (Pollock, Broadbent, Clarke, Dorrian, & Ryle, 2001; Roepke et al., 2010). Its internal consistency in the current study was .79.

Stability of Self Scale (SSS; Rosenberg, 1965).   The SSS consists of five items measuring the self-reported stability of self-esteem. A factor analysis by Franzoi and Reddish (1980) using undergraduate respondents found a one-factor solution for this scale, which includes items such as "I have noticed that my ideas about myself seem to change very quickly." In the current study, Marsh's (1993) modified version of the response scale was used, in which items were rated on a 5-point Likert-type scale ranging from *never true* to *almost always true*. This form of the SSS has been shown to have adequate internal consistency in a large adolescent sample (Marsh, 1993), and its internal consistency coefficient was likewise adequate ($\alpha = .73$) based on the current data.

Life Problems Inventory (LPI; Rathus & Miller, 1995).   The Confusion about Self subscale of the LPI was administered. This is a 15-item subscale asking respondents to rate sentences such as "I'm not sure I know who I am or what I want in life" on a 5-point Likert-type scale ranging from *not at all like me* to *extremely like me*. Previous research on the LPI has found high internal consistency values for each subscale among both outpatient samples and healthy college students (Miller, Rathus, & Linehan, 2007) as well as significant correlations between LPI scores and a diagnosis of BPD (Rathus & Miller, 2002). The LPI has also shown validity as a measure of psychotherapy outcome among adolescents with borderline personality features (Miller, Wyman, Huppert, Glassman, & Rathus, 2000). The internal consistency of the Confusion about Self subscale in the current study was .92.

Defenses.   To establish the criterion-related validity of the Primitive Defenses subscale of the IPO, we administered several questionnaire measures of defense mechanisms. Approximately

one third of the sample (three of the nine conditions) completed the following defense measures.

Defense Style Questionnaire–40 (Andrews, Singh, & Bond, 1993). The Defense Style Questionnaire uses 40 items rated on a 9-point Likert-type scale to measure 20 distinct defense mechanisms. The measure has shown adequate internal consistency and reliability (Andrews et al., 1993). Its latent structure varies from study to study (Andrews et al., 1993; Ruuttu et al., 2006; Trijsburg, van t' Spijker, Van, Hesselink, & Duivenvoorden, 2000), but the theoretically based hierarchy of defense styles has been shown to relate to the severity of psychiatric symptoms among college students, psychiatric outpatients, and community controls (Ruuttu et al., 2006; Watson, 2002) and discriminates between individuals with BPD and other personality disorders (Bond, Paris, & Zweig-Frank, 1994; Paris, Zweig-Frank, Bond, & Guzder, 1996; Zanarini, Weingeroff, & Frankenburg, 2009). The Defense Style Questionnaire has also been shown to discriminate between psychiatric outpatients and healthy controls (Trijsburg et al., 2000). In the current study, the 12 "immature" defenses identified by Andrews et al. (1993) were collapsed into a single index comprising 24 items in order to facilitate the interpretation of these defenses' relationship to the IPO Primitive Defenses subscale. Likewise, the four "mature" defenses were collapsed into a single scale of eight items. The internal consistency coefficients of these subscales in the current sample were .80 for the immature subscale and .68 for the mature subscale.

Splitting Scale (Gerson, 1984). The Splitting Scale was designed to synthesize Kernberg's (1975) and Kohut's (1968) conceptualizations of splitting. It includes items relating to different emotions that might be the target of splitting, such as anger, as well as items reflecting the idealization, grandiosity, and exhibitionism that may theoretically result from this defensive operation. In addition, one item was included to capture identity diffusion, which Gerson (1984) understood as a consequence of splitting. Items on this 14-item self-report measure are rated on a 7-point Likert-type scale ranging from *not at all true* to *very true*. Sample items include "When I'm angry, everyone around me seems rotten." A factor analysis (Gerson, 1984) suggested that one principal factor, composed of 10 of the 14 items, accounted for over 45% of the variance in the measure. Studies have suggested that the Splitting Scale has convergent validity in its relationship to borderline personality features (Watson & Biderman, 1993) and close correlates (e.g., eating pathology; Zborowski, 1998) in undergraduate samples. In the current study, the Splitting Scale had an internal consistency coefficient of .716.

Affect and emotion regulation. To examine the relationship between IPO factors and affective phenomena typical of individuals with borderline personality organization, we used measures pertaining to emotional reactivity and intensity and emotion regulation.

Affect Lability Scales (ALS; Harvey, Greenberg, & Serper, 1989). Four of the nine conditions in the current study included the ALS. The ALS is a 54-item self-report instrument designed to measure lability in anxiety, depression, anger, and hypomania and labile shifts between anxiety and depression and hypomania and depression. A sample item is "One minute I can be feeling O.K., and the next minute I'm tense, jittery, and nervous." Items are rated on a 4-point Likert-type scale ranging from *very characteristic of me, extremely descriptive*, to *very uncharacteristic of me,*

extremely undescriptive. Initial research (Harvey et al., 1989) showed that the scales have adequate internal consistency and strong test–retest reliability and correlate with BDI scores but not with affect intensity. Scores on the ALS have been found to differentiate individuals with BPD from those with bipolar II disorder (Henry et al., 2001) and depression (Solhan, Trull, Jahng, & Wood, 2009). In addition, large-scale research among college undergraduates shows strong correlations between the ALS and other markers of borderline personality traits (Trull, 2001). The individual scales of the ALS are highly intercorrelated, suggesting that they measure a general tendency toward emotional lability (Harvey et al., 1989). Thus, participants' overall scores on the ALS were used in all analyses. The internal consistency of the resulting overall ALS scale was quite high ($\alpha = .97$) in the current sample.

Affect Intensity Measure (AIM; Larsen, Diener, & Emmons, 1986). Four of the nine conditions included the AIM, a 40-item self-report measure designed to assess intensity of an individual's affective responsiveness, which contains items such as "When I accomplish something difficult I feel delighted or elated." Items are rated on a 6-point Likert-type scale ranging from *never* to *always*. Several studies have shown that individuals with BPD show elevated scores on this measure as compared with normal or psychiatric controls (Flett & Hewitt, 1995; Henry et al., 2001; Levine, Marziali, & Hood, 1997; Yen, Zlotnick, & Costello, 2002), and the AIM also differentiates BPD from bipolar II disorder (Henry et al., 2001). Among college undergraduates, the AIM has been shown to relate to several aspects of borderline personality, including impulsivity and aggression (Cheavens et al., 2005) and deliberate self-harm (Gratz, 2006; Gratz & Chapman, 2007). The AIM showed adequate internal consistency ($\alpha = .879$) in the current sample.

Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004). Five of the nine conditions included the DERS, which is a 36-item self-report measure of various emotion regulation strategies. Items include "When I'm upset, I acknowledge my emotions" and "I am confused about how I feel" and are rated on a 5-point Likert scale from 1 (*almost never*) to 5 (*almost always*). The DERS has shown validity in its relationship to an experimental measure of sensitivity to emotional distress among BPD patients (Gratz, Rosenthal, Tull, Lejuez, & Gunderson, 2006) and relates to features of borderline personality among college students (Gratz & Roemer, 2008; Heath, Toste, Nedecheva, & Charlebois, 2008). The DERS has a six-factor structure, but its factors are highly intercorrelated, and the entire scale has a high internal consistency ($\alpha = .93$; Gratz & Roemer, 2004). Therefore, the total DERS score was used in current analyses. Its internal consistency was adequate ($\alpha = .87$) in the current sample.

Emotion Regulation Questionnaire (ERQ; Gross & John, 2003). Six of the nine conditions included the ERQ. The ERQ contains 10 items rated on a 7-point Likert scale from 1 (*strongly disagree*) to 7 (*strongly agree*). In five undergraduate samples, Gross and John (2003) found that the ERQ measured two distinct emotion regulation strategies: Reappraisal (six items; e.g., "I control my emotions by changing the way I think about the situations I'm in") and Suppression (four items; e.g., "I control my emotions by not expressing them"). These two factors had high internal consistencies and were uncorrelated. Thus, both the Reappraisal and Suppression subscales of the ERQ were used to examine how the IPO relates to specific self-regulatory strategies. Each subscale

had adequate internal consistency in the present study ($\alpha = .84$ for reappraisal and $\alpha = .75$ for suppression).

Trait Meta-Mood Scale (TMMS; Salovey, Mayer, Goldman, Turvey, & Palfai, 1995). Five of the nine conditions contained the TMMS, a self-report scale that measures individuals' tendency to attend to, differentiate, and regulate their emotional experience. The scale has 30 items, which are rated on a 5-point Likert-type scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Previous factor analyses (Salovey et al., 1995) have recovered a three-factor structure for the TMMS, with factors corresponding to attention to moods (Attention; e.g., "I believe in acting from the heart"), distinguishing clearly between different mood states (Clarity; e.g., "I can never tell how I feel"), and mood regulation (Repair; "When I become upset, I remind myself of all the pleasures in life"). All three subscales have adequate internal validity and are orthogonal, with the exception of the Clarity and Repair subscales, which typically display a small to moderate correlation (Salovey et al., 1995; Salovey, Stroud, Woolery, & Epel, 2002). All three TMMS subscales have shown relationships with borderline personality features among undergraduates (Leible & Snell, 2004; Thompson, Dizén, & Berenbaum, 2009), with Attention showing a small positive association and Clarity and Repair a small to moderate negative association. The three subscales were used as separate variables in all regression analyses, and each showed adequate internal consistency based on the present data (attention, $\alpha = .97$; clarity, $\alpha = .87$; repair, $\alpha = .80$).

Reckless and self-injurious behavior. Two measures of reckless and self-harming behavior, which is common in BPD (American Psychiatric Association, 1994), were included in order to investigate their relationship with IPO subscales. All participants completed these measures.

Deliberate Self-Harm Inventory (Gratz, 2001). The Deliberate Self-Harm Inventory is a 17-item self-report measure of diverse methods of self-injury that are typical of borderline individuals. The instrument measures both the lifetime use of each method (e.g., "Have you ever intentionally burned yourself with a cigarette?") and about its onset, frequency, and intensity. It shows adequate internal and test–retest reliability as well as theoretically appropriate criterion relations with measures of self-injury, suicidality, borderline personality, and other measures of psychopathology in both clinical and nonclinical samples (Fliege et al., 2006; Gratz, 2001, 2006; Gratz & Chapman, 2007). Because the current study used a sample selected without regard to self-harm, a dichotomous self-harming variable was constructed, as in Gratz (2001), such that lifetime use of any of the 17 self-harm strategies was scored as 1 and the absence of any of these behaviors was scored as 0. These scores were then used in hierarchical logistic regression analyses.

Cognitive Appraisal of Risky Events (Fromme, Katz, & Rivet, 1997). The frequency of involvement form of the Cognitive Appraisal of Risky Events was administered. This 30-item measure asks respondents to rate how often they engaged in specific risky activities (e.g., "mixed drugs and alcohol," "had sex with multiple partners") in the previous 10 days. Items are rated on a 4-point scale with responses corresponding to *none*, *1 or 2 times*, *3–5 times*, and *>6 times*. The internal consistency coefficient of these 30 items in the present study was .94.

Statistical Analyses

ESEM. ESEM was carried out by means of the Mplus program (Version 6.11; Muthén & Muthén, 2010). In ESEM, both exploratory and confirmatory factors can be created simultaneously and can be related in a structural equation model framework. In the current study, the 57 items of the IPO were modeled with exploratory factors, whereas confirmatory modeling was used to create factors corresponding to the measures of self-concept coherence (the SCCS, SSS, and LPI) because of their relatively well-established factor structure. Because ESEM requires that the number of exploratory factors be specified a priori, a preliminary exploratory factor analysis was performed in Mplus to determine how many factors would be used to describe the IPO. Hu and Bentler's (1999) guidelines for various fit indices and an inspection of the factor solutions were used for factor retention decisions.

As Lenzenweger et al. (2001) noted, distributional properties of the data warrant close consideration. The IPO, SCCS, LPI, and SSS consist of items rated on a 5-point Likert scale, suggesting that responses may not be properly considered continuous. Likewise, because the IPO assesses constructs that pertain to abnormal functioning, responses are likely to have skewed distributions when they come from a nonclinical sample. The literature suggests that maximum likelihood estimation (for which normal data are assumed) may not be appropriate for nonnormal data, especially for complex models (Brown, 2006; Dolan, 1994; Muthén & Kaplan, 1985, 1992). A simulation study (Flora & Curran, 2004) has suggested that robust weighted least squares estimation, which is available in Mplus, handles ordinal data well; therefore, robust weighted least squares estimation was employed in the current study. Oblique geomin rotation was used for the exploratory measurement model, because simulations by Asparouhov and Muthén (2009) suggest that this type of rotation is preferable to some alternatives in ESEM applications.

Multiple regression analyses. To investigate the criterion relations of the IPO and its subscales with theoretically related constructs, we conducted multiple regression analyses in which the measures of defenses, affect, and risky and self-injurious behavior were regressed onto factor scores derived through the ESEM analyses. These "coarse factor scores" (Grice, 2001) were created by weighting each individual's responses by the factor loadings identified in the ESEM analysis. Unweighted scale scores were used for the criterion measures, and regression analyses were conducted with IBM SPSS Statistics (Version 19.0).

Results

Exploratory Factor Analysis and Exploratory Structural Equation Model

Because structural equation modeling requires data with no missing values (Brown, 2006), cases with missing data were filled in with the multiple imputation algorithm in the PRELIS program (Jöreskog & Sörbom, 2006). In this technique, the response patterns in the overall data set were used to impute the most likely value for each missing response by means of a Markov chain Monte Carlo method. Multiple imputation is generally considered a more sound strategy for handling missing data in CFA than other methods, such as listwise deletion, because it retains statistical

power and produces less bias in fit statistics, parameter estimates, and standard errors (Allison, 2003; Brown, 2006; Russell, 2002; Schafer, 1997; Schafer & Graham, 2002; Sinharay, Stern, & Russell, 2001). In the current data set, 239 data points were imputed in this manner (roughly 0.2% of the total data). The distribution of these missing data among the 1,260 respondents suggested that an imputation strategy was sensible, as no case had an extreme amount of missing data.

Exploratory factor analyses were conducted to evaluate factor solutions with up to 10 latent factors. The four-factor model was the most parsimonious model to show adequate fit according to most fit indices, $\chi^2(380) = 1842$, $p < .001$, comparative fit index (CFI) = .875, Tucker–Lewis index (TLI) = .980, root-mean-square error of approximation (RMSEA) = .054, standardized root-mean-square residual (SRMR) = .036. A five-factor model improved on the four-factor model only slightly on all fit indices, $\chi^2(397) = 1673$, $p < .001$, CFI = .891, TLI = .983, RMSEA = .049, SRMR = .033, and the fifth factor extracted did not contain substantial factor loadings and was difficult to interpret. None of the models showed adequate fit on the CFI or nonsignificant chi-square values. Given the small statistical and substantive utility of extracting more than four factors, a four-factor solution was adopted. Factor determinacies were .976, .925, .971, and .958.

The pattern of factor loadings from the four-factor exploratory measurement model for the IPO's 57 items is given in Table 1. The first factor showed strong loadings from items describing instability of self and of interpersonal relationships, such as "I am afraid that people who become important to me will suddenly change their feelings towards me," "It is hard for me to be sure about what others think of me, even people who have known me very well," and "I see myself in totally different ways at different times." The majority of the items on the IPO loaded substantially on this factor, which might be called Instability of Self and Others. In contrast, the second factor showed strong loadings from items describing instability of goals: "My life goals change frequently from year to year" and "My goals keep changing." These items were the only indicators to show substantial loadings on this factor, which can be called Instability of Goals. The third factor consisted chiefly of items describing psychotic experiences, both hallucinations ("I can see things or hear things that nobody else can see or hear") and delusions ("I believe that some things will happen simply by thinking about them"); all of these items were from the Impaired Reality Testing subscale. An appropriate name for this factor might be Psychosis. The fourth factor had high factor loadings from items describing impulsive behavior, such as "I act in ways that appear to others as unpredictable and erratic" and "I do things on impulse that I think are socially unacceptable." This dimension might be called Instability of Behavior.[1]

As seen in Table 1, three of the 57 IPO items did not display a substantial (>.32; Comrey & Lee, 1992) loading on any of the four factors. All of these items came from the Primitive Defenses subscale. The extent of cross-loading between factors was moderate; although several items showed statistically significant loadings on more than one factor, the size of these secondary loadings was usually small. Six items showed loadings above .32 on more than one factor.

The fit of the ESEM model to the data was acceptable on all fit indices (CFI = .939, TLI = .934, RMSEA = .036 [90% confidence interval: .035 < RMSEA < .037]). The chi-square test of model fit was significant, $\chi^2(3647) = 9490$, $p < .001$, indicating some degree of misfit in the model. The relationship of the IPO's four latent factors and the confirmatory factors derived from the SCCS, LPI, and SSS items can be seen in Figure 1. Only the first two IPO factors showed consistent and substantial relationships with the external measures of self-concept coherence, although the other two factors showed statistically significant (though small) incremental relationships with two of these criteria. The relationships between the first IPO factor and the external measures of self-concept coherence were relatively robust.

Multiple Regression Analyses

Table 2 lists multiple regression coefficients describing the relationship between the IPO factor scores and the external measures of defensive functioning, affect, and risky and self-injurious behavior. The Instability of Self and Others factor showed the strongest relationship with measures of immature defensive functioning, affective intensity and lability, and difficulties in emotion regulation. The Instability of Behavior factor showed appropriate relationships with measures of risky behavior and the incidence of deliberate self-harm. The Instability of Goals factor showed small incremental relationships with thought suppression and emotional clarity, and the Psychosis factor showed an independent relationship with measures of defense and risky behaviors.

Discussion

The validation of the primary scales of the IPO is particularly important for several reasons. First, valid measures of constructs from theories of personality dysfunction are important if these theories are to be evaluated empirically. Kernberg's object relations theory (Clarkin et al., 2007; Kernberg, 1975) makes specific predictions about the relationships between personality constructs, but tests of these predictions depend on the availability of well-validated assessments within this theoretical framework. Second, although the IPO has been translated into several other languages (e.g., Berghuis et al., 2009; Igarashi et al., 2009; Normandin et al., 2002) and has been used to investigate the psychopathology and psychotherapy of borderline personality, the psychometric properties of the original, English-language version are still inadequately understood.

In their initial factor analysis of the IPO, Lenzenweger et al. (2001) adopted a two-factor measurement model for the IPO based on CFA results. However, the current analysis is based on a much larger sample and uses ESEM to test the IPO's factor structure, which imposes fewer implausible restrictions on the measurement portion of the model. These characteristics of the present study allow for a more reliable estimation of the models' parameters and a more robust test of the measure's factorial validity. In contrast to the conclusions of Lenzenweger et al., the results of the current analysis suggest that a four-factor model provides a better fit to the

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[1] Like the four-factor solution, the three-factor exploratory factor analysis solution did not conform to the hypothesized three-factor IPO factor structure but instead resembled the Instability of Self and Others, Instability of Goals, and Psychosis factors. All of the items that loaded on the Instability of Behavior factor in the four-factor solution loaded on the first factor (Instability of Self and Others) in the three-factor solution.

Table 1

Factor Loadings From Exploratory Structural Equation Model

		Factor			
Item	Intended subscale	Instability of self and others	Instability of goals	Psychosis	Instability of behavior
I am afraid that people who become important to me will suddenly change their feelings towards me.	ID	**.818***	−.179*	−.047	−.069
It is hard for me to be sure about what others think of me, even people who have known me very well.	ID	**.779***	.087*	−.181*	−.012
I see myself in totally different ways at different times.	ID	**.741***	.163*	−.057*	.078*
When everything around me is unsettled and confused, I feel that way inside.	RT	**.685***	.016	−.049	−.113*
I feel I'm a different person at home as compared to how I am at work or at school.	ID	**.669***	.055	−.084*	.042
When I'm nervous or confused, it seems like things in the outside world don't make sense either.	RT	**.624***	.026	.135*	−.083*
Somehow, I never know quite how to conduct myself with people.	RT	**.615***	.107*	−.005	.052
I feel that my tastes and opinions are not really my own, but have been borrowed from other people.	ID	**.611***	.083*	.052	.003
When others see me as having succeeded, I'm elated and, when they see me as failing, I feel devastated.	ID	**.609***	−.145*	−.066	.046
Some of my friends would be surprised if they knew how differently I behave in different situations.	ID	**.604***	.121*	.017	.051
It is hard for me to trust people because they so often turn against me or betray me.	PD	**.589***	−.228*	.043	.119*
I can't tell whether I simply want something to be true, or whether it really is true.	RT	**.574***	.033	.267*	−.052
I feel like a fake or impostor, that others see me as quite different from the way I really am.	ID	**.535***	.147*	−.029	.263*
People tend to use me unless I watch out for it.	PD	**.532***	−.181*	−.019	.222*
When I am uncomfortable, I can't tell whether it is emotional or physical.	RT	**.531***	−.071*	.243*	−.025
I feel that people I once thought highly of have disappointed me by not living up to what I expected of them.	PD	**.529***	−.092*	.119*	−.035
I know that I cannot tell others certain things about the world that I understand but that to others would appear crazy.	RT	**.491***	.081*	.256*	−.061
I feel I don't get what I want.	PD	**.486***	.013	−.130*	.122*
I need to admire people in order to feel secure.	PD	**.485***	.057	.211*	−.106*
In the course of an intimate relationship, I'm afraid of losing a sense of myself.	ID	**.484***	−.100*	.096*	.105*
People tend to respond to me by either overwhelming me with love or abandoning me.	PD	**.480***	−.224*	.166*	.265*
I tend to feel things in a somewhat extreme way, experiencing either great joy or intense despair.	PD	**.479***	−.012	.056	.012
People tell me I have difficulty in seeing shortcomings in those I admire.	PD	**.479***	−.145*	.150*	.065
Being alone is difficult for me.	ID	**.471***	−.163*	−.105*	.034
I can't explain the changes in my behavior.	ID	**.466***	.101*	.058*	.309*
I fluctuate between being warm and giving at some times, and being cold and indifferent at other times.	ID	**.454***	−.007	−.162*	**.391***
After becoming involved with people, I am surprised to find out what they are really like.	ID	**.435***	−.112*	.198*	.094*
I get into relationships with people I don't really like because it's hard for me to say no.	ID	**.399***	.017	.058	.172*
I am a "hero worshipper" even if I am later found wrong in my judgment.	PD	**.399***	−.077*	**.365***	.044
Even people who know me well cannot guess how I'm going to behave.	ID	**.389***	.154*	.039	**.321***
I pick up hobbies and interests and then drop them.	ID	**.370***	.110*	.092*	.194*
My life, if it were a book, seems to me more like a series of short stories written by different authors than like a long novel.	ID	**.330***	.179*	.228*	.124*
My goals keep changing.	ID	.044*	**.769***	.014	**.337***
My life goals change frequently from year to year.	ID	.051*	**.720***	.053*	.238*
I can see things or hear things that nobody else can see or hear.	RT	−.084*	−.013	**.898***	.063
I hear things that other people claim are not really there.	RT	−.024	−.005	**.810***	.073
I have heard or seen things when there is no apparent reason for it.	RT	−.066*	.001	**.796***	.155*

Table 1 (*continued*)

Item	Intended subscale	Instability of self and others	Instability of goals	Psychosis	Instability of behavior
		Factor			
I am not sure whether a voice I have heard, or something that I have seen is my imagination or not.	RT	.070	−.045	**.759***	.050
I have seen things which do not exist in reality.	RT	−.008	.185*	**.699***	−.035
I feel that my wishes or thoughts will come true as if by magic.	RT	.314*	.005	**.512***	−.140*
I believe that some things will happen simply by thinking about them.	RT	.198*	.029	**.503***	−.134*
I understand and know things that nobody else is able to understand or know.	RT	.115*	−.053	**.495***	.154*
I can't tell whether certain physical sensations I'm having are real, or whether I am imagining them.	RT	.313*	.079*	**.479***	.048
I feel as if I have been somewhere or done something before when I really haven't.	RT	.133*	.063*	**.464***	.091*
I feel almost as if I'm someone else, like a friend or relative, or even someone I don't know.	RT	**.365***	.080*	**.410***	.093*
I think I see things which, when I take a closer look, turn out to be something else.	RT	**.331***	.151*	**.344***	−.027
I act in ways that appear to others as unpredictable and erratic.	PD	−.053*	.020	.091*	**.863***
I do things on impulse that I think are socially unacceptable.	ID	.012	.010	.010	**.822***
People tell me I behave in contradictory ways.	PD	.209*	.030	−.028	**.651***
I find myself doing things which at other times I think are not too wise, like having promiscuous sex, lying, drinking, having temper tantrums, or breaking the law in minor ways.	PD	.070*	.033	−.070*	**.624***
People see me as being rude or inconsiderate, and I don't know why.	RT	.006	.052	.127*	**.616***
I find that I do things which get other people upset and I don't know why such things upset them.	RT	.237*	−.044	.015	**.548***
People tell me I provoke or mislead them so as to get my way.	ID	.137*	−.165*	.105*	**.519***
I find myself doing things which feel okay while I am doing them but which I later find hard to believe I did.	PD	.300*	−.033	.092*	**.436***
I feel it has been a long time since anyone really taught or told me anything I did not already know.	PD	.177*	.019	.253*	.186*
I think people are basically good or bad; there are few who are really in between.	PD	.153*	−.232*	.193*	.080
I have favorite people whom I not only admire, but almost idealize.	PD	.289*	−.092*	.316*	.007

Note. Loadings in bold exceed the threshold of .32 (Comrey & Lee, 1992) for a substantial factor loading. ID = Identity Diffusion; PD = Primitive Defenses; RT = Impaired Reality Testing.
* Statistically significant at α = .05.

IPO's internal covariance structure with factors representing instability of self and others, instability of goals, psychosis, and instability of behavior.

Although these factors do not conform to the intended three-factor structure of the IPO, which has separate subscales for identity diffusion, primitive defenses, and reality testing, they do reflect important aspects of personality organization as defined by Kernberg (1975). The Instability of Self and Others factor and the Instability of Goals factor in particular can be seen as separate aspects of the identity diffusion construct, which is reflected both in their pattern of factor loadings and in their relationships to external measures of self-concept stability. On the other hand, these two factors are somewhat limited as they are currently defined. First, the Instability of Goals factor showed fairly weak relationships to external measures of self-concept stability. This may be partially due to the fact that only two indicators load strongly on this factor, which may be underdetermined as a result and thus less reliable than the first factor (Brown, 2006). These items are also phrased very similarly, which (along with the weak relationship between the factor and external scales) suggests that the factor may reflect a method artifact rather than a substantive commonality between items. It is also possible that its appearance

as a separate factor in the current analysis relates to the importance of career and life goals for undergraduate students. Further research will be needed to determine whether this factor is an artifact of item wording or of the sample used in the current analysis. Second, the Instability of Self and Others factor contains far more items than the other three factors. It could therefore be plausibly interpreted as a general factor. Interestingly, this general factor is consistent with the proposed centrality of self-functioning and interpersonal functioning in *DSM–5*'s reformulation of the personality disorder category (American Psychiatric Association, 2011b).

The third factor bears the strongest resemblance to a hypothesized IPO subscale, in that it contains only reality testing items. In content, it seems to capture the most pathological end of Kernberg's (1975) reality testing construct (i.e., hallucinations and delusions). Absent from this factor, however, were items relating to milder or more transient problems with maintaining a firm grasp on reality, such as "When everything around me is unsettled and confused, I feel that way inside." This item, as well as several similar items, loaded on the first factor, separate from items describing psychosis proper. This may indicate that reality testing as a construct may not be unitary, at least as measured via self-report instruments. However, the Psychosis factor may still fulfill
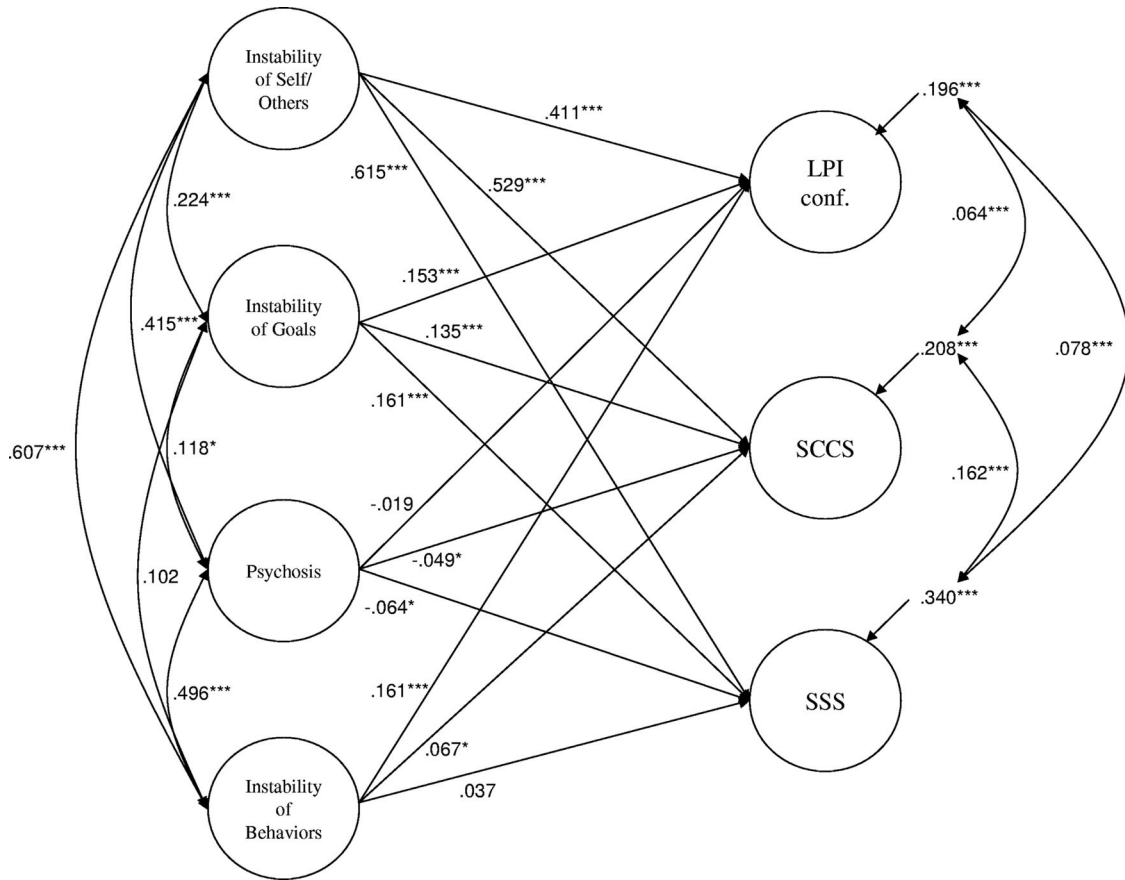
Figure 1. Exploratory structural equation model showing the relationship between confirmatory latent factors composed of items from the Life Problems Inventory Confusion about Self subscale (LPI conf.), Self-Concept Clarity Scale (SCCS), and Stability of Self Scale (SSS) and four exploratory factors composed of the items from the Inventory of Personality Organization. * p < .05. ** p < .01. *** p < .001.

the purpose of the reality testing construct in Kernberg's theory of personality organization, in that it may discriminate between borderline and psychotic levels of functioning.

The fourth factor, Instability of Behavior, is not part of the intended structure of the IPO, and in the current study it was composed of a mix of items intended to measure identity diffusion, primitive defenses, and reality testing. It may be that although the IPO's authors intended these items to refer to the defensive processes that theoretically lead to impulsive acts (primitive defenses) or to surprise at the social consequences of erratic behavior (reality testing), responses to these items are determined more by the self-reported presence or absence of the behaviors themselves. Nevertheless, the Instability of Behavior factor did display appropriate relationships with self-report measures of risky and self-injurious behavior that were not accounted for by the other IPO factors. Thus, the four IPO factors representing different types of instability and psychosis are potentially useful measures of borderline personality, which involves instability of self, relationships, goals, and behavior and transient dips into psychotic functioning (American Psychiatric Association, 1994; Kernberg, 1975).

On the other hand, the current analysis did not provide evidence for a factor resembling primitive defenses as the construct is

defined by the measure's authors. Instead, the external measures of defensive functioning related most strongly to the Instability of Self and Others factor, which is closest to identity diffusion in Kernberg's (1975) model of personality organization. This may reflect the close functional relationship between the two constructs of identity diffusion and primitive defenses. In Kernberg's theory, identity diffusion results from individuals' inability to integrate discrepant representations of themselves with consistency, due to an overreliance on the primitive defense of splitting. Identity diffusion also prevents the individual from being able to use more mature defensive strategies by denying him or her access to thoughts that would neutralize extreme emotions. Primitive defenses and identity diffusion thus form a "vicious circle" (Kernberg, 1975, p. 29). Thus, it may be that the differences between these constructs are more subtle than can be assessed with the IPO as written.

The results point to several ways in which the IPO might be modified to create a more comprehensive and coherent measure of Kernberg's (1975) borderline personality construct. If the four-factor structure is confirmed in other populations, it may make sense to reformulate or discard some items that load only weakly on the latent factors, especially if the factor is more clearly defined by other items (Clark & Watson, 1995). In addition, if the Insta-

Table 2

Standardized Multiple Regression Coefficients (Partial β) for Models Predicting Criterion Scales Using Exploratory Inventory of Personality Organization Factors

		Factor					
Scale	N	Instability of self and others	Instability of goals	Psychosis	Instability of behavior	R^2	Adjusted R^2
DSQ–Immature	430	.295***	−.106*	.182**	.242**	.399	.393
DSQ–Mature	430	−.107	−.043	.118	−.006	.008	−.001
Splitting	430	.657***	.008	−.007	−.115	.321	.314
AIM	572	.542***	−.079	−.034	−.293***	.104	.098
ALS	582	.594***	−.043	−.013	.130*	.460	.456
DERS	755	.665***	.017	−.059	.076	.484	.481
ERQ–Reappraisal	858	−.038	.093*	.055	−.105	.013	.008
ERQ–Suppression	856	.214***	.093**	−.018	.116*	.121	.117
TMMS–Attention	719	.255***	.016	−.178**	−.333***	.083	.078
TMMS–Clarity	719	−.455***	−.107**	−.006	−.039	.284	.280
TMMS–Repair	719	−.267***	−.010	.147**	−.235***	.151	.146
CARE	1,307	−.246***	.003	.099*	.379***	.079	.077
DSHI[a]	1,272	1.441**	.823**	.881	1.696***		

Note. DSQ = Defense Style Questionnaire; AIM = Affect Intensity Measure; ALS = Affect Lability Scales; DERS = Difficulties in Emotion Regulation Scale; ERQ = Emotion Regulation Questionnaire; TMMS = Trait Meta-Mood Scale; CARE = Cognitive Appraisal of Risky Events; DSHI = Deliberate Self-Harm Inventory.
[a] Partial odds ratios from logistic regression analyses.
* $p < .05$.   ** $p < .01$.   *** $p < .001$.

bility of Goals factor is retained, additional items should be written to fill out this construct, as at least three items are generally required to define a single latent factor (Comrey, 1988; Floyd & Widaman, 1995). Care should be taken to ensure that these items are phrased in different ways, so that the content of the prompts, not their wording, determines their commonality. Finally, many of the items refer to fairly complex ideas, presumably in an effort to measure the dynamic processes involved in borderline personality (e.g., the functioning of primitive defenses). However, it appears that this complexity of content sometimes leads to poor item performance, with items loading on factors that do not entirely match the construct that the item seeks to capture. Thus, some items may need to be rewritten to assess aspects of borderline personality that are not measured by the IPO in its current form.

The current study has a number of limitations. First, the analyses were based on a sample of nonclinical college students. Although this is not a serious limitation in and of itself, and although there are advantages to this sampling strategy in the context of a comprehensive personality theory, it remains to be seen whether the current results will generalize to other populations of interest, such as individuals with proper personality disorder diagnoses. Future research should examine the psychometric properties of the IPO across diverse groups, perhaps using a formal test of measurement equivalence within a structural equation model framework. A second limitation of the current study is the difficulty of asking for information about theoretically opaque mental structures and processes (such as defense mechanisms) via self-report questionnaires (Shedler, Mayman, & Manis, 1993). This assessment strategy may, in part, account for the failure to recover a discrete defensiveness factor in the current sample and for the tendency of external measures of defense to relate most strongly to the Instability of Self and Others factor. A helpful next step in the validation of the IPO would be an examination of performance-based measures of

defensive processes, such as indexes of discrepancy between self-reported affect and physiological reactivity, which is often seen as a defensive operation (Shedler, Mayman, & Manis, 1993).

In conclusion, the IPO appears to have some validity as a measure of aspects of Kernberg's (1975) construct of borderline personality organization, as evident by the relationship between the measure's underlying dimensions and measures of self-concept incoherence, defensive functioning, emotion regulation, and impulsive and risky behavior that have been used as valid indicators of borderline personality processes in both clinical and nonclinical populations. However, the ESEM model suggested that the IPO did not conform to the hypothesized tripartite model with discrete subscales for identity diffusion, primitive defenses, and reality testing constructs. Rather, a more complex structure was recovered. Further research will be needed to determine whether these properties of the IPO generalize to diverse samples and diagnostic cohorts, as Kernberg's theory would predict.

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