INVESTIGATING SOURCES OF INFORMATION ON AFFECTIVE INSTABILITY

by

JESSICA LYNN MAPLES

(Under the Direction of Joshua D. Miller)

ABSTRACT

Affective instability is conceptualized as a stable trait associated with multiple clinical disorders and externalizing behaviors. To date, however, this trait has not received significant empirical attention as an individual construct. One explanation for the absence of a cohesive body of literature on affective instability is the lack of a "gold standard" with which to assess it. Given recent criticisms of self-reports of affective instability, informant-reports could be a cost-effective and valid way to assess this personality construct, as they have been argued to be more objective and valid than self-perception (e.g., Kolar, Funder, & Colvin, 1996). In a sample of 343 college students, the present study examined the relations among multiple measures of affective instability and related traits, compared self and informant-report on affective instability, identified the underlying components of this trait, and characterized it via its relations with personality, etiological, and outcome variables. Factor analysis suggested a two-factor structure of affective instability and the resulting factors demonstrate distinct nomological networks.

INDEX WORDS: Affective Instability, Assessment, Informant-Report

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DEDICATION

To the J's.

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TABLE OF CONTENTS

Page

LIST OF TABLES

Page

CHAPTER 1

INTRODUCTION

Affective instability is conceptualized as a stable trait involving a "predisposition to marked, rapidly reversible shifts in affective state that are extremely sensitive to meaningful environmental events which might induce more modest emotional responses in other people" (Siever, 1991, p .1651). Affective instability has typically been studied in the context of disorders with which it is associated, such as borderline personality disorder (BPD; e.g., Koenigsberg, et al., 2002) and bipolar II disorder (e.g., Henry et al., 2001). Although affective instability has been associated with clinical disorders and externalizing behaviors (e.g., Greenberg & Harvey, 1987), it has not received significant empirical attention as an individual construct.

Affective instability has been linked to a number of important clinical outcomes, specifically externalizing behaviors (e.g., Henry et al., 2001; Yen, Zlotnick, & Costello, 2002; Miller & Pilkonis, 2006; Greenberg & Harvey, 1987; Yen et al., 2004). Individuals with high levels of affective instability experience rapidly changing moods that may lead to maladaptive behaviors and outcomes. Multiple theories exist regarding the relation between this trait and externalizing behaviors. The intensity and fluctuations of mood have been theorized to cause poor impulse control, which in turn leads to increased risk of externalizing outcomes (Henry et al., 2001). Others have posited that externalizing behaviors in individuals with high levels of affective instability represent maladaptive attempts to regulate negative affective states (e.g., Yen, Zlotnick, & Costello, 2002). For instance, patients with Substance Use Disorders were significantly more likely to utilize substance abuse as a mechanism to reduce negative emotional

states associated with affective instability if they were diagnosed with comorbid BPD than those without comorbid BPD (Kruedfelbach et al., 1993). To further demonstrate the relation between affective instability and externalizing outcomes, a previous study linked affective instability to an externalizing personality style characterized by aggressive, egocentric, and unpredictable interpersonal interactions (Miller & Pilkonis, 2006). Additionally, affective instability has been used to predict binge eating and dietary restraint eating (Greenberg & Harvey, 1987) and is also a strong predictor of suicidal behavior and suicide attempts (Yen et al., 2004). The aforementioned findings (Yen et al., 2004; Greenberg & Harvey, 1987; Miller & Pilkonis, 2006; Kruedfelbach et al., 1993; Yen, Zlotnick, & Costello, 2002; Henry et al., 2001) demonstrate that affective instability is related to a number of important behavioral outcomes and is thus a clinically significant and useful construct.

Despite this significance, affective instability has not received significant empirical attention as an standalone construct (i.e., one that is not just studied in the context of broader, multidimensional disorders such as BPD). Further investigation of affective instability as an individual construct is warranted, as it is a feature of multiple disorders that are associated with significant distress and impairment, such as BPD (e.g., Silverman et al., 1991) and bipolar II disorder (e.g, MacKinnon & Pies, 2006). BPD is a severe personality disorder characterized by disturbed interpersonal relationships, impulsive and self-destructive behavior, intense and frequent mood changes, and life-threatening behaviors (American Psychiatric Association, 1994). It is associated with considerable mortality and clinical treatment utilization, with rates of completed suicide estimated between five and seven percent (Duberstein & Conwell, 1997). Along with Schizotypal Personality Disorder, BPD is related to greater functional impairment

across multiple domains of impairment than other personality disorders, even while controlling for comorbid Axis I pathology (Skodol et al., 2002). The study of affective instability in context of BPD is not surprising given that it is an explicit criterion for BPD (criterion 6; American Psychiatric Association, 1994) and a strong and consistent predictor of future borderline personality features (Tragesser, Solhan, Schwartz-Mette, & Trull, 2007), such that it is often conceptualized as a defining feature of this disorder (Skodol et al., 2002). Supporting this conceptualization, affective instability has been shown to predict multiple types of impairment (e.g., academic achievement, meeting social role obligations) in a group of individuals with BPD pathology even while controlling for Axis I psychopathology, Axis II psychopathology, and personality variables (i.e., neuroticism and disinhibition; Bagge et al., 2004). Affective instability has also been shown to be the most prevalent and least changeable BPD criteria over a two-year period (McGlashan et al 2005).

Affective instability has also been studied in the context of bipolar II disorder (e.g., Henry et al, 2001; MacKinnon & Pies, 2006). Bipolar II is an affective disorder characterized by one or more major depressive episodes and at least one hypomanic episode (American Psychiatric Association, 1994) and is associated with substantial morbidity, mortality, and societal costs (e.g., Wyatt & Henter, 1991). Given that affective instability has been demonstrated to be a driving force behind two clinical disorders that are often comorbid (Zanari et al., 1998) and are associated with substantial morbidity and mortality (e.g., Duberstein & Conwell, 1997; Wyatt & Henter, 1991), it warrants greater empirical attention. The comorbidity between BPD and bipolar II could be due to the centrality of affective instability in both disorders. In fact, due to the substantial comorbidity between bipolar II and BPD, many have

suggested that the disorders either share the same etiology or are in fact the same disorder (e.g., Smith, Muir, & Blackwood, 2004). Henry et al. (2001) investigated similarities and differences between the two disorders and found that patients with BPD patients demonstrated higher affective instability between euthymia and anger, whereas patients with bipolar II disorder demonstrated greater affective instability between depression and elation (Henry et al., 2001). Thus, these findings support the presence of affective instability in both BPD and bipolar II but suggests that there may be a unique manifestation of this trait in each of these disorders. The development of a stronger empirical understanding of affective instability as an individual construct could result in an improved ability to differentiate bipolar spectrum disorders and affectively unstable PDs, subsequently leading to an enhanced understanding of the presentation and treatment for these disorders.

One explanation for the absence of a cohesive body of literature on affective instability as an individual empirical construct is the lack of a "gold standard" with which to assess it. Few specific assessment tools exist for this construct, and the measures that do exist have been the subject of significant criticism. Two measures commonly used to assess affective instability are the Affective Lability Scale (ALS; Harvey et al., 1987) and the Affect Intensity Measure (AIM; Larsen, Diener, & Emmons, 1986). Though these measures are often used interchangeably to assess affective instability, they clearly assess different facets of affective experience. The ALS measures the level of variability in affective experience (e.g., "One minute I can be feeling O.K. and the next minute I'm tense, jittery and nervous"), or the level of mood shifts from baseline to six different affective domains: depression, anxiety, elation, depression/anxiety, anger, and biphasic affect (depression/elation). Meanwhile, the AIM is a trait level assessment of the

intensity of affective experience (e.g., “My emotions tend to be more intense than those of most people”). It is clear that these two measures cannot or should not be used interchangeably, as they measure conceptually distinct aspects of affective experience. Ideally, a “gold standard” assessment would addresses all facets of affective instability (e.g., both intensity and level of variability, along with other potential facets of affective instability) and would be particularly useful for developing a more comprehensive and cohesive nomological network for the construct of affective instability.

Another assessment strategy commonly used to measure affective instability involves removing specific relevant items from larger assessment measures. For instance, the BPD module is often taken from self-report measures such as the Personality Assessment Inventory (PAI; Morey, 1991) or from semi-structured PD interviews, such as the Personality Disorder Interview-IV (PDI-IV; Widiger, Mangine, Corbitt, Ellis, & Thomas, 1995). The PAI is a self-administered inventory of adult personality that focuses on “critical clinical variables” (Morey, 1991) and includes a scale for BPD features. This BPD scale also consists of a subscale specifically aimed at the assessment of affective instability, which is sometimes taken out of the context of the full PAI to assess affective instability. Similarly, PD criteria specific to affective instability are sometimes taken out of semi-structured interviews for PDs in order to assess this construct (e.g., Miller & Pilkonis, 2006). This further highlights that affective instability has been primarily studied embedded in the context of other disorders, and further demonstrates the need to understand it as an individual construct.

In addition to criticisms about the lack of a comprehensive and specific measure of affective instability, the use of self-report measures to assess affective instability has also been

criticized (e.g, Trull, Solhan, Tragesser, Jahng, Wood, Piasecki, & Watson, 2008). Generally, self-report measures are criticized due to the reliance on retrospective recall, as it is expected to introduce significant bias into the individual's responses. Specific to affective instability, self-report of mood by retrospective questionnaire has been suggested to be influenced by emotional experience at the end of the assessment period and the peak emotional experience (Frederickson, 2000). As a result, there has been a growing interest and use of Ecological Momentary Assessment (EMA; Stone & Shiffman, 1994) techniques in the study of affective instability. EMA involves gathering multiple samples of an individual's experiences, moods, or behaviors in "real time" as they occur in the participant's natural environment. This process is intended to minimize the previously discussed recall bias suggested to be inherent in self–report and maximize ecological validity. A broad range of methodologies is utilized to implement EMA, such as telephones, electronic diaries, and physiological sensors.

Given the dynamic processes involved in affective experience, studies involving various forms of EMA and affective instability have emerged. For instance, a study utilizing electronic diaries to compare 50 females with BPD to 50 female healthy controls revealed that those with BPD exhibited increased emotional valence and distress, and took less time to oscillate from a positive to negative mood state when compared to healthy controls (Ebner-Priemer et al., 2007). In addition, psychophysiological ambulatory monitoring has demonstrated that those with BPD (an unmedicated sample) had higher levels of "additional heart rate," a part of heart rate that is conceptualized as representing emotional reactivity (Ebner-Priemer et al., 2007). Another study utilizing electronic diaries demonstrated that individuals with BPD and affective instability did not report mean differences in positive or negative affect, but more instability on mood scores

and more extreme changes in hostility compared to a group with a current depressive disorder but not BPD or affective instability (Trull, Tragesser, Wood, Piasecki, & Watson, 2008). These investigators specifically outlined the advantages of EMA in assessing affective instability compared to self-report measures, including the lack of retrospective recall and that the previous ratings are not visible to influence current ratings. A direct comparison of AI scores derived from EMA and self-report assessments demonstrated only modest agreement between the two methods (Solhan, Trull, Jahng, & Wood, 2009), which the authors suggested could be related to retrospective bias introducing error into self-reports of AI.

Although the use of EMA in assessing BPD holds promise, two points are to be considered in response to this methodology versus self-report. First, affective instability has increasingly come to be viewed as the driving force behind the dysfunction associated with BPD (e.g., Tragesser, Solhan, Schwartz-Mette, & Trull, 2007). Thus, the predictive utility of any measure of affective instability with regard to dysfunctional outcomes is of utmost importance. Unfortunately, none of the extant EMA studies on affective instability have investigated EMA's predictive utility for clinical outcomes or compared its predictive validity with that provided by self-reported scores on this construct. This is an important omission given that Trull and colleagues demonstrated that EMA report of affective instability was not highly correlated with self-report of affective instability (2008).

Another limitation of EMA is that it is a costly assessment approach, with regard to both time and money. Thus, informant-reports of affective instability, an assessment method that has been under-utilized, may be beneficial in that this method could provide a more accurate assessment of an individual's level of affective instability compared to self-reports and a more

efficient and cost-effective assessment compared to EMA. Given that a criticism of self-reported affective instability data includes the idea that the subjective experience of the individual will bias reporting, it is possible that other-reported data provided by peers or family members could be useful in more accurately assessing affective instability and predicting clinical outcomes. Some researchers have specifically argued for informant report over self-report of personality, arguing that informant reports are more objective and valid than self-perception (e.g., Kolar, Funder, & Colvin, 1996). Others suggest that both self and informant reports of personality provide valid albeit largely distinct data.

The goals of the present study were multifold. Goal 1 was to examine the relations among a variety of scales that are putatively related to affective instability. Goal 2 was to use exploratory factor analyses to examine the underlying factor structure of these measures with the hypothesis that two or more dimensions would emerge – one that would be primarily related to the experience of intense and changeable negative affect and one that would be primarily related to the experience of intense and changeable positive affect. Goal 3 was to place the resultant affective instability factors in a broader empirical framework with regard to general and pathological personality, environmentally-based etiological events such as child abuse, and clinical outcomes. Goal 4 was to test whether self-reports of affective instability provide valid data by examining its convergence with informant reports of this trait.

CHAPTER 2

METHOD

Participants

Participants included 343 (195 males; 147 females) undergraduate students between the ages of 18 and 31 (M = 19.24, SD = 1.43) at the University of Georgia. All participants received class credit for participating in this study. The majority were Caucasian (79.86%); of the remaining participants, 8.8% were African American, 7.7% were Asian, and 3.7% were Bi-racial. Participants were recruited from Sona Systems, a web based experiment scheduling and tracking system through the University of Georgia. Individuals with a prior history of bipolar I, schizophrenia, or any history of psychotic symptoms were excluded from participation; exclusionary criteria was posted on the Sona Systems website. The University of Georgia institutional review board approved the protocol.

Materials

Affective Instability Measures and Related Measures

Affective Lability Scale (ALS). The ALS (Harvey, Greenberg, & Serper, 1989) is a 54-item self-report scale that provides six subscale scores and a total score. The depression, anger, anxiety, hypomania subscales measures an individual's self-report of how often their mood fluctuates from these states and normal, or euthymic, mood. The biphasic scale captures oscillations between depression and elation, and the anxiety-depression subscale assesses fluctuations between these two mood states. Each item is rated on a scale from 0-3 from "very undescriptive" to "very descriptive" of themselves. The total score is the mean of the six subscales. The ALS demonstrates good internal consistency and satisfactory test-retest reliability

(Harvey et al., 1989). Research has demonstrated associations between ALS scores and related constructs, such as BPD and bipolar II disorder (Henry et al., 2001). Descriptive statistics for all affective instability-related scales are presented in Table 1.

Affective Intensity Scale (AIM). The AIM (Larsen & Diener, 1987) a self-report scale consisting of 40-items. Affect intensity refers to individual differences in the intensity of response to a given level of emotion-provoking stimulation. It has shown good internal consistency and test-retest reliability (Larsen & Diener, 1987).

Dimensional Assessment of Personality Pathology- Basic Questionnaire (DAPP-BQ). The DAPP-BQ (Livesley, Jackson, & Schroeder, 1989) is a 290-item self-report inventory that assesses 18 traits relevant to PD. Items are scored on a 1 (very unlike me) to 5 (very like me) scale. Only the Affective Instability scale of the DAPP was used in the current study. The DAPP has satisfactory psychometric properties, with internal consistencies ranging from .81 to .93 (Livesley et al., 1998).

Hypomanic Personality Scale (HPS). The Hypomanic Personality Scale (Eckblad & Chapman, 1986) is a 48-item self-report questionnaire. Sample items include "When I feel an emotion, I usually feel it with extreme intensity" and "There have often been times when I had such an excess of energy that I felt little need to sleep at night."

Positive Affect Negative Affect Schedule (PANAS-X). The PANAS (Watson, Clark, & Tellegen, 1988) is a 60-item self-report measure of affect. The scales have been shown to be internally consistent and stable over a 2 month period (Watson, Clark, & Tellegen, 1988).

Personality Assessment Inventory (PAI). The PAI is a self-report measure designed to measure "critical clinical variables" (Morey, 1991). The present study utilized only the six items

used to assess the affective instability subscale of the borderline personality feature scale. The PAI demonstrates good test-retest reliability and convergent validity with measures of similar constructs (Morey, 1991). Specifically, the PAI-BOR scores have been demonstrated to significantly relate to scores on other measures of BPD features (Trull, 2001).

Difficulties in Emotion Regulation Scale (DERS). The DERS (Gratz & Roemer, 2004) is a 36-item self-report measure of problems with emotion regulation. The DERS manifests good internal consistency and has manifested relations with a number of psychological constructs such as BPD (Bornovalova et al., 2008). Sample items include "When I'm upset, I feel out of control" and "I experience my emotions as overwhelming and out of control," and all items are rated on a scale from 1 (almost never, 0-10%) to 5 (almost always, 91% to 100%).

SCID II Questionnaire. The SCID II (First, Gibbon, Spitzer, Williams, & Benjamin, 1997) is a 119 measure self-report questionnaire version of the SCID II which utilizes a yes-no format. Each of the questions corresponds to a specific DSM-IV PD criterion. In this study, only the 14 items uses to assess DSM-IV BPD were used.

Outcome Measures

Crime and Analogous Behavior scale (CAB). The CAB (Miller & Lynam 2003) is a self-report questionnaire that assesses a variety of externalizing behaviors, including substance use, antisocial behavior, gambling, and intimate partner violence. The CAB scales have been empirically supported, as evidenced by its scale's significant relations with psychopathy (Miller & Lynam, 2003). Coefficient alphas in the present study ranged from .35 (antisocial behavior) to .75 (total score) with a median of .67 (intimate partner violence).

Promis Short Form- Depression, Anger, and Anxiety. Each Promis short form is an 8 item self-report questionnaire aimed to measure experience of anger over the past 7 days (Pilkonis et al., 2011). A sample item includes "In the past 7 days, I made myself angry about something just by thinking about it," and all items are rated on a scale from 1 (Never) to 5 (Always). The coefficient alphas in the current study ranged from .90 (depression) to .94 (anger).

Eating Disorder Examination Questionnaire (EDE-Q). The EDE-Q (Fairburn & Cooper, 1993) is a 41-item self-report questionnaire adapted from the interview version, the EDE. The measure can be used to make tentative diagnoses of both bulimia nervosa and anorexia nervosa. Concurrent validity has been demonstrated in both clinical and community populations (Fairburn & Beglin, 1994). The coefficient alphas in the current study ranged from .68 (weight concerns) to .92 (total score) with a median of .89 (eating concerns).

Hypersensitive Narcissism Scale (HSNS). Vulnerable narcissism was measured using the Hypersensitive Narcissism Scale (HSNS; Hendin & Cheek, 1997), a 10-item scale with a 5-point response format ranging from "not at all true of me" to "very true of me." The coefficient alpha in the current study was .67.

Experiences in Close Relationships Scale (ECR). The ECR (Fraley, Waller, & Brennan, 2000) is an attachment inventory designed to assess the two fundamental dimensions underlying attachment patterns, anxious (19 items; $\alpha = .94$) and avoidant (18 items; $\alpha = .93$). The anxiety dimension represents the extent to which people tend to worry about attachment-related concerns. The avoidance dimension represents the extent to which people are uncomfortable being close with or depending on other people.

UPPS Impulsive Behavior Scale (UPPS-R). The UPPS-R Impulsive Behavior Scale (Lynam, Smith, Whiteside, & Cyders, 2006; Whiteside & Lynam, 2001) is a 59-item self-report measure designed to assess five impulsivity-related traits. The five traits include Positive Urgency, Negative Urgency, Lack of Premeditation, Lack of Perseverance, and Sensation Seeking. Sample items include "I tend to give up easily" and "It is hard for me to resist acting on my feelings" and all items are rated on a scale from 1 (agree strongly) to 4 (disagree strongly). It has demonstrated good internal consistency and divergent validity (Whiteside & Lynam, 2001). The coefficient alphas in the current study ranged from .82 (Lack of Perseverance) to .92 (Total Score) with a median of .86 (Sensation Seeking).

Brief Symptom Inventory (BSI). The BSI (Derogatis & Melisaratos, 1983) is a 53-item measure of psychopathology that includes both specific symptom scales and a global severity index (GSI, which is the average score of the 53 total items). The present study utilized the global severity index. The present study utilized the global severity index ($\alpha = .95$).

Functional Assessment of Self-Mutilation (FASM). The FASM (Lloyd, Kelley, & Hope, 1997) is a self-report questionnaire of the methods, frequency, and functions of self-mutilating behavior. Participants indicate whether and how frequently they have engaged in 11 different methods of self-mutilating behavior in the past 12 months, with an additional space for behaviors potentially not listed. To assess functions of these behaviors, participants report how often they have engaged in the behaviors for each of 22 reasons, also with an additional space for reasons not listed. The FASM has demonstrated adequate levels of internal consistency for both moderate and severe forms of self-mutilating behavior (Guertin et al., 2001). It has also demonstrated concurrent validity via significant associations with recent suicide attempt,

hopelessness, and depressive symptoms (Nock & Prinstein, 2005). The coefficient alphas in the current study ranged from .59 (count score) to .88 (frequency) with a median of .75 (negative social reinforcement).

Parenting Warmth and Monitoring Scale. This scale (Lamborn, Mounts, Steinberg, & Dornbusch, 1991) measures the degree of warmth and parental supervision given to children. Because the metric for these items varied within the scales (e.g., 2, 3, 4, 7 and 9 point items), items were standardized before being summed. Coefficient alphas in the present study were .77 (parental warmth) and .79 (parental monitoring).

NEO Five-Factor Inventory (NEO-FFI). The NEO-FFI (Costa & McCrae, 1992) uses 60 items to assess the five broad domains of personality that constitute the Five Factor Model (FFM): neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness. Coefficient alphas in the present study ranged from .74 (O) to .86 (N) for self-report, and .57 (O) to .90 (E) for parent-report.

Ten Item Personality Measure (TIPI). The TIPI (Gosling, Renform, & Swann, 2003) is a 10-item measure of the Five Factor dimensions of personality, with two items used for each of the factors. Items are rated on a scale of 1 (disagree strongly) to 7 (agree strongly). This brief measure has demonstrated test-retest reliability and convergence between self and observer ratings (Gosling et al., 2003). Coefficient alpha in the present study ranged from .58 (C) to .79 (E) for peer-report.

Rosenberg Self-Esteem Scale (RSES). The RSES (Rosenberg, 1965) is widely used 10-item global measure of self-esteem. Items are rated on a 5-point scale ranging from one (not very true of me) to 5 (very true of me). Coefficient alpha in the present study was .90.

Environment Questionnaire (HEQ). The HEQ (Sines, Clarke, & Lauer, 1984) is a 38 item self-report measure designed to assess the general atmosphere of the individual's home in childhood. Sample items include "Did your parents insult you or call you names?" and "Was your childhood stressful?" The items are rated on a scale from 0 (never) to 4 (always). Coefficient alphas in the present study ranged from .70 (sexual abuse) to .89 (total abuse score) with a median of .80 (physical abuse).

Narcissistic Personality Inventory (NPI). The NPI (Raskin & Terry, 1988) is a 40-item self-report assessment that measures trait narcissism. Coefficent alpha in the present study was .74.

Demographic Form. A brief demographic questionnaire was administered to all participants assessing race, sex, and age.

Procedure

Participants signed up for group data collections on Sona systems. After providing informed consent, participants completed questionnaires assessing demographic information, affective instability, personality traits, etiological variables, and externalizing behaviors. Participants also provided email addresses for peers and parents who might be able to provide informant-reports. After the session, the peer and parent participants were emailed a link connecting to the informant questionnaires. Parents were asked to complete the NEO-FFI, DAPP-BQ Affective Instability Scale, and PAI-BPD Affective Instability scale. Peers were sent the TIPI and the PAI-BPD Affective Instability subscale.

CHAPTER 3

RESULTS

Prior to completing the factor analysis, descriptive statistics for the affective instability (AI) measures (ALS, HPS scales, DTS, PAI: Affective Instability scale, PANAS: Positive and Negative Affect Scales, DAPP: BQ Affective Instability scale, AIM, DERS) were examined. Means, standard deviations, and reliabilities for the measures are presented in Table 1, as well as the correlations between these measures in order to test whether these putatively similar scales demonstrate a sufficient degree of overlap. Subsequently, an exploratory factor analysis (EFA) using principal axis factoring was performed. A direct oblimin rotation was utilized in order to allow the rotated factors to correlate with one another. Following the exploratory factor analyses, several correlational analyses were conducted in order to characterize the extracted factors via their relations with measures of constructs believed to be relevant to AI, including environmental etiological variables, personality traits (based on self, peer, and parent reports), and outcome variables. The correlations between the AI factors and the various external criteria were tested to see if they were statistically significantly different (i.e., test of dependent *r*s).

In order to test whether the relations between the factors and outcome variables differed by gender, hierarchical multiple regression analyses were utilized. The AI factor scores were used, which do not require centering, prior to the creation of the gender by AI interaction terms. At the first step, each criterion variable was regressed on gender and one of the AI factors, followed by the AI x gender interaction term at step 2. Of all the regressions tested (i.e. 116), only two significant interactions were found ($p \leq .01$). As such, correlations are presented in

which men and women are combined. As a final note, to control for Type I error, the significance level was lowered to $p \leq .01$ for all analyses.

Relations among Affective Instability Measures

Correlations among the various AI-related scales ranged from -.23 (DERS and PANAS Positive Affect) to .71 (PAI: Affective Instability Scale and DAPP Affective Instability subscale) with a median correlation of .29 (see Table 1).

Next, an EFA using principal axis factoring with a direct oblimin rotation was performed on the multiple indices of affective instability, including the ALS, the three subscales of the HPS (Social Vitality, Mood Vitality, Excitement), DTS, PAI: Affective Instability scale, PANAS: Positive and Negative Affect Scales, DAPP: BQ Affective Instability scale, AIM, and DERS. An examination of the scree plot suggested that a two-factor solution was appropriate. Two eigenvalues were greater than one; the first six eigenvalues were as follows: 4.06, 1.99, .99, .73, .75, .63, and .47. Parallel Analysis (PA) and the Minimum Average Partial (MAP; Velicer, 1976) methods were also utilized to identify the optimal number of factors. PA specifies factors that account for more variance than found when deriving components from random data using identical parameters including the number of cases (337) and the number of variables (11). PA comparing the eigenvalues of random data to the eigenvalues found during the PA indicated that the eigenvalues of the first five factors (of the actual data) were larger than the corresponding first five 95^{th} percentile random data eigenvalues (3.61 > .34; 1.38 > .25; .26 > .18; .20 >.12; 12 >.02). The sixth eigenvalue from the actual data was not greater than the sixth 95^{th} percentile random data eigenvalue (-.01< .02). As a result, PA suggested that up to five factors could be extracted. The MAP test found the smallest average squared correlation after component

extraction to be .035, which corresponded to a two-factor solution. Given that three of the four indices suggested the extraction of two factors and the fact that the third, fourth, and fifth eigenvalues of the actual data (.26, .20, and .11) were only slightly larger than that of the random data (.17, .12, .07) in the PA, a two-factor solution was determined to be the most appropriate. The first component (eigenvalue = 4.06) accounted for 36.97% of the variance and the second component (eigenvalue = 1.99) accounted for 18.12% of the variance.

The two-factor solution is presented in Table 2. The first factor demonstrated primary factor loadings of ALS, DTS, PAI: Affective Instability Scale, Hypomanic Personality Mood Vitality Scale, DAPP: Affective Instability Scale, and the DERS, and secondary loadings of the AIM. The second factor demonstrated primary loadings of the Hypomanic Personality Social Vitality Scale, Hypomanic Personality Excitement Scale, AIM, and the PANAS: Positive Affect Scale, as well as a secondary factor loading of the Hypomanic Mood Vitality Scale. For future reference, Factor 1 has been titled Negative Affective Instability, or Negative AI, whereas factor 2 has been titled Positive Affective Instability, or Hypomanic Tendencies. The two were correlated at .09. The following analyses use the extracted factor scores to represent Negative AI (i.e., factor 1) and Hypomanic Tendencies (i.e., factor 2).

Relations between AI Factors and Etiological Variables

The relations between the extracted AI factors and etiological variables (Table 3) including parental variables, abuse, and attachment were examined. Negative AI demonstrated significant negative correlations with parental monitoring and significant positive correlations with all abuse scales, including total abuse, physical abuse, verbal abuse, and sexual abuse, and significant positive relations with both anxious and avoidant attachment styles. Hypomanic

Tendencies demonstrated a significant negative relation with anxious attachment, but otherwise demonstrated no significant relations with the other environmental etiological variables. The correlations manifested by Negative AI and Hypomanic Tendencies with these nine external criteria were statistically significantly different in all cases.

Relations AI Factors and Five-Factor Model Traits

The relations between the AI factors and self, peer, and parent-reported FFM traits were examined next (Table 4). With regard to self-report scores of FFM domains, Negative AI demonstrated a significant positive relation with Neuroticism and significant negative relations with Extraversion, Agreeableness, and Conscientiousness. Hypomanic Tendencies demonstrated a significant positive relation with of the domains of Extraversion and Openness. The correlations manifested by the two AI factors were significantly different from one another for all FFM domains except for Openness.

The correlations manifested by the AI factors in relation to parent reports of the FFM traits largely mirrored the pattern of correlations manifested by these AI factors in relation to the self-report FFM data. Negative AI demonstrated a significant positive relation with parent reports of Neuroticism and significant negative relations with parent reports of Extraversion, Agreeableness, and Conscientiousness. Hypomanic Tendencies was correlated only with parent-reports of Extraversion. Again, the two sets of correlations were significantly different for all domains except for Openness. Using the peer-report FFM domains, Negative AI was significantly correlated only with Neuroticism, whereas Hypomanic Tendencies was correlated only with Extraversion. In this case, the correlations were significantly different for all domains except for Openness and Agreeableness.

In order to investigate the unique contribution of FFM personality domains in predicting AI factors, multiple regression analyses were performed in which self, parent, and peer-reports of the FFM were used to predicted Negative AI or Hypomanic Tendencies. Neuroticism was a significant unique predictor of Negative AI across self, parent, and peer-reports, and Agreeableness was a significant negative predictor of Negative AI in both self and peer reports. Extraversion was a significant unique predictor of Hypomanic Tendencies across self, parent, and peer-reports of the FFM variables, whereas self-reports of Openness and Agreeableness were also unique predictors of Hypomanic Tendencies. Self, parent, and peer-reports of the FFM personality domains accounted for 53%, 21%, and 19% of the variance in Negative AI, respectively, and 45%, 17%, and 14% of the variance in Hypomanic Tendencies, respectively.

Relations between AI factors and other Personality Variables

Next, the relations between the Negative AI and Hypomanic Tendencies factors and parent and peer reports of AI were examined (Table 5). Self-reported scores on Negative AI factor were significantly positively correlated with two parent-report measures of affective instability, as well as a peer report of AI. Conversely, the self-report Hypomanic Tendencies factor was unrelated to all three parent and peer reports of AI; all three sets of correlations were significantly different from one another.

Negative AI demonstrated a significant negative correlation with self-esteem and positive correlations with vulnerable narcissism and BPD, whereas Hypomanic Tendencies manifested positive correlations with self-esteem and grandiose narcissism. The correlations between the two AI factors and these four external criteria were significantly different in all cases. Finally, with regard to impulsivity-related traits, Negative AI was significantly positively related to

Positive and Negative Urgency, as well as a Lack of Perseverance. Alternatively, Hypomanic Tendencies demonstrated significant positive correlations with Sensation Seeking and Lack of Premeditation. The correlations manifested by the two AI factors and the five impulsivity-related traits were significantly different across all five comparisons.

Relationship between AI factors and Outcome Variables

The relations between Negative AI and Hypomanic Tendencies factors and several putatively relevant outcome variables were examined (Table 6), including internalizing and externalizing symptoms, as well as related behaviors such as eating pathology and non-suicidal self-injury (NSSI). Negative AI demonstrated significant and strong positive relations with all internalizing symptoms, including depression, anxiety, and anger, and total symptom severity. Negative AI was also significantly related with engagement in intimate partner violence and eating pathology, including global eating pathology, restraint, and eating, shape, and weight concerns. Negative AI was also correlated with engaging in NSSI for both (automatic) negative and positive reinforcement. Conversely, Hypomanic Tendencies did not demonstrate any significant relations with the internalizing or externalizing symptoms and associated behaviors. Across 18 comparisons, the correlations between the AI factors and these external criteria were different for 11 sets of correlations (all except substance use, antisocial behavior, gambling, eating restraint, frequency of NSSI, and use of NSSI for negative and positive self-reinforcement).

Analyses were also conducted to test whether the relations between Negative AI and internalizing symptoms were due to the role of FFM Neuroticism in Negative AI. Each of the four internalizing symptoms composites were first regressed on the self-report FFM Neuroticism

scores at step 1, followed by the Negative AI factor scores at step 2. For all four cases, the inclusion of the Negative AI factor provided incremental validity in the statistical prediction of these scores; change in R-squared values ranged from 3% (anxiety) to 21% (anger) with a mean of 11%.

Comparison of mean levels of reported affective instability across self, parent, and peer report

Finally, the mean levels of AI reported were compared across the self, parent, and peer-reports using paired sample t-tests. Comparison of the means for self and parent-reports on the DAPP: Affective Instability subscale (self: 35.79 [11.86]; parent: 33.75 [9.74]; $t = 2.72$, $p \leq .01$, $d = .19$), demonstrated a statistically significant difference such that self-report AI scores were higher. Self-report scores were also higher than parent reports when using the PAI: Affective Instability Subscale (self: 9.58 [3.04]; parent: 8.56 [2.96]; $t = 4.92$, $p \leq .01$, $d = .34$). Finally, self-report PAI: AI scores were also higher then peer reports (self: 9.95 [3.21]; parent: 6.19 [2.99]; $t = 14.02$, $p \leq .01$, $d = 1.21$).

CHAPTER 4

DISCUSSION

The overarching goal of the current study was to elucidate the nature of affective instability as a standalone construct. More narrow goals included examining the relations among affective instability measures, investigating the relations between self and informant reports of affective instability, and characterizing this construct in a normal population via relations with relevant variables from the AI's nomological network including environmentally-based etiological variables such as child abuse and perceptions of parenting received, personality variables, and symptoms/behaviors associated with internalizing and externalizing psychopathology. A study of this nature is needed because, despite the substantial empirical literature (e.g., Koenigsberg, et al., 2002; Henry et al., 2001) on disorders characterized, in part, by affective instability (e.g., borderline personality disorder), it has received limited attention as a standalone construct. As such, there is less of a comprehensive and authoritative literature on this construct, despite being a central feature of several important psychiatric diagnoses leading to a potential lack of consensus on the definition of the construct and its nomological network.

Relations among Affective Instability Measures

Assessment of AI has been plagued by a number of important issues. First, there is some concern that this construct is not assessed validly through self-report measures. For instance, Trull et al. (2008) reported limited convergence between self-report measures of AI and AI measured via ecological momentary assessment strategies. These authors suggest that self-report measures of AI may be problematic because retrospective reports may be inappropriately biased by peak affect intensity over assessment period, affect at end of assessment period, or a negative

recall bias. Another potential problem with the literature on AI is the jangle fallacy (Block, 1995; Kelley, 1927) in which constructs (or measures) are given different names despite being (or measuring) the same construct. For instance, although there are some specific measures or subscales of measures that assess "affective instability," there are a number of other constructs/measures that may measure related overlapping concepts such as distress tolerance, affective intensity, and emotional dysregulation. Given that several self-report measures of affective instability and related constructs (e.g., distress tolerance) exist, the convergent validity of the most prominent of these scales was first investigated. The correlations between the 11 measures/subscales ranged from -.23 to .71 with a median correlation of .29; as such, it is clear that distinctions exist between the measures. It is noteworthy that two of the most commonly used measures of affective instability, the ALS and AIM, manifested a small to moderate correlation (r = .29), consistent with the previous literature documenting their limited convergence. For instance, in a study investigating relations between affective instability and depression, the ALS and AIM correlated at .20 (Thompson, Bernbaum, & Bredemeier, 2011). This study is of particular relevance because the two measures were utilized to represent two different facets of affective instability, with the ALS being described as "affect variability" and the AIM being described as "affect intensity." Not surprisingly, the two manifested divergent correlations with some relevant constructs such as depression. This study is somewhat idiosyncratic, however, in the use of these two measures to capture AI; many studies use only the AIM or ALS to assess this construct.

The results of the current study and those reported earlier suggest that such an approach is problematic as the two measures capture conceptually distinct facets of the affective

experience (and were designed to do so) and, as the previous studies and others have demonstrated, likely manifest differential relations with various forms of psychopathology. The distinctiveness of these two measures is also echoed in the present study as they demonstrated divergent relations with the other measures of AI; the ALS demonstrated its three strongest relations with the DAPP: AI scale, the DERS scale, and the PAI: AI scale (*rs* = .64, .59, and .55, respectively), whereas the AIM demonstrated its three strongest relations with two of the three subscales from the Hypomanic Personality Scale, Mood Vitality and Excitement scale, and the DAPP: AI scale (*rs* = .47, .44, and .41, respectively).

Structure of Affective Instability

In an effort to discern whether a more parsimonious structure existed among these related scales, an exploratory factor analysis was performed on the 11 measures of AI and AI-related traits, which yielded a two-factor solution. The first factor, titled Negative Affective Instability demonstrated primary factor loadings of ALS, DTS, PAI: Affective Instability Scale, Hypomanic Personality Mood Vitality Scale, DAPP: Affective Instability Scale, and the DERS, and secondary loadings of the AIM. The primary loadings on the first factor suggest that it assesses the tendency to experience changeable affect, particularly changes towards negatively valenced mood (e.g., depression, anxiety, anger), intense negative emotions, and difficulties coping with and regulating these negative emotions.

The second factor, titled Hypomanic Tendencies, demonstrated primary loadings of the Hypomanic Personality Social Vitality Scale, Hypomanic Personality Excitement Scale, AIM, and the PANAS: Positive Affect Scale, as well as a secondary factor loading of the Hypomanic Mood Vitality Scale. This factor assesses an individual's tendency to experience strong feelings

of positive affect and excitement that are characterized by feelings of behavioral activation and interpersonal agency. It does not, however, contain much content indicative of rapid changes in affect; instead it highlight intense feelings of positive affect and the emotional, cognitive, and behavior correlates of such affective states.

The current two-factor solution of affective instability – one positive and one negative factor – is consistent with the general factor structure of mood. For instance, in a study that re-analyzed data aimed at identifying the structure of self-reported mood, a two-factor structure of Positive and Negative Mood was found to consistently emerge (Watson & Tellegen, 1985). The authors concluded, "because this same two-dimensional configuration has also been consistently identified in most other major lines of research, it is now firmly established as the basic structure of English-language mood at the general factor level" (p. 233, Watson & Tellegen, 1985). The present study suggests that instability of affect likely mirrors this "firmly established" structure of general mood, with two separate factors of Negative Affective Instability and Hypomanic Tendencies as higher-order dimensions. The suggested structure of affective instability also mirrors the structure of general mood (Watson & Tellegen, 1985) in that the two AI factors in the present study appear to be largely unrelated (r = .09).

Negative Affective Instability

Relations between Negative AI and Environmental Etiological Variables

In order to place Negative AI in a broader empirical context, its relations with a number of putatively related traits, symptoms, and behaviors were investigated. Negative AI demonstrated significant negative correlations with parental monitoring and significant positive correlations with all abuse scales, including total abuse, physical abuse, verbal abuse, and sexual

abuse, as well as significant positive relations with both anxious and avoidant attachment styles. The significant relations between childhood abuse and intense and unstable negative affect were expected, as parental interactions in childhood are pivotal to the development of emotion regulation abilities. Individuals progress developmentally from external regulation, such that an infant is typically reliant on his or her caretaker in order to regulate his or her emotional experience, (e.g., Cole et al., 2004) and through developmental processes gradually attempts to gain the ability to transition to intrinsic processes, or regulating self (e.g., Gross, 1998). These interactions with caregivers early in life can influence the intensity of emotion experienced and can result in increased variability in emotions (Stern, 1985).

Excessive or inappropriate caretaker behavior and emotion (e.g., abuse, neglect, hostility, maltreatment) has been shown to affect affective experience by, in part, decreasing children's' ability to regulate emotions, and may lead to later personality pathology (Emde, 1989; Johnson, Cohen, Brown, Smailes, & Bernstein, 1999). Battle and colleagues (2004) found that childhood abuse and neglect was associated with a variety of personality disorders but borderline personality disorder most consistently. This is important as affective instability is thought by many to be one of, if not, *the* central component of this disorder (e.g., Sanislow et al., 2002). In Linehan's biosocial model of BPD (1993), development of emotional dysregulation occurs within an invalidating environment in childhood, characterized by intolerance of emotional expression that leads to a child's inability to understand, accurately label, and regulate its own emotional experience. Thus, in the present study childhood abuse experiences may have similarly affected the development of affective experience and the ability, or inability, to regulate it appropriately.

Additionally, attachment theory suggests that early parent-child interaction patterns lead to the development of an enduring emotional connection between the child and their caretaker (e.g., Bowlby, 1990) called an attachment style, which has been shown to affect his or her emotional development (Laible & Thompson, 1998). Thus, ineffective parent-child interactions such as the previously discussed abuse variables may disrupt the development of a healthy attachment style. This could result in an anxious or avoidant attachment style, which in turn negatively affects a child's emotional development, leading to the intense and unstable negative mood characteristic of Negative AI. In the current study, Negative AI was positively related to both anxious and avoidant attachment styles, which is consistent with relations between these attachment styles and both BPD and childhood abuse (e.g., Meyer, Pilkonis, & Beevers, 2004; Minzenberg, Poole, & Vinogradov, 2006). Individuals with high scores on Negative AI were particularly likely to endorse "symptoms" of an anxious attachment style, which was measured using items such as "I'm afraid that I will lose romantic partners' love" and "I often worry that romantic partners don't really love me" (Fraley et al., 2000). Chronic concerns about the stability/viability of important interpersonal relationships may well drive some of the affective instability experienced by individuals high on this AI factor; conversely, individuals with high negative affective instability may experience significant interpersonal problems thus making these attachment concerns more salient and realistic (e.g., Miller & Pilkonis, 2006).

Relations between Negative AI and Five-Factor Model Traits

In order to characterize Negative AI via its relations with general personality traits, the relations between Negative AI and the Five-Factor Model traits were examined from a self, peer, and parent-report perspective. In previous studies examining the traits associated with AI, it

correlated significantly with Neuroticism (Kamen, Pryor, Gaughan, & Miller, 2010: r = .29; Miller & Pilkonis, 2006: r = .27) but manifested weaker correlations with the remaining four domains from the FFM, although Miller and Pilkonis found a similar negative relation with Agreeableness (r = -.22). The current study assessed AI in a much more robust and comprehensive manner and found that that Negative AI manifested robust correlations with FFM Neuroticism across self, parent, and peer reports. At the bivariate level, Negative AI was also negatively related to FFM Extraversion, Agreeableness, and Conscientiousness according to self and parent reports. Considered simultaneously, Negative AI was positively related to FFM Neuroticism across all three sources and was negatively related to Agreeableness across two sources (self and peer). These findings suggest that Negative AI is a multidimensional construct comprising a large and primary dose of neuroticism/negative emotionality as well as problematic interpersonal behaviors that may well stem from and exacerbate this emotional dysregulation. In general, the FFM domains accounted for a reasonably substantial part of the variance in the Negative AI factor (self: 53%; parent: 21%; peer: 19%).

Relations between Negative AI and other Personality Variables

Negative AI demonstrated a pattern of moderate to strong positive correlations with two personality disorders characterized by intense negative emotionality, vulnerable narcissism and borderline personality disorder, as well as a strong negative relation with self-esteem. These patterns are consistent with the FFM correlates of these two personality disorders as both vulnerable narcissism (Miller & Maples, 2011) and borderline personality disorder (Samuel & Widiger, 2008) are associated with significant levels of neuroticism, antagonism, and disinhibition. From an impulsivity perspective, Negative AI was significantly correlated with

Positive and Negative Urgency – traits associated with acting quickly, without sufficient forethought or constraint, when experiencing positive or negative affectivity, respectively. Negative AI also manifested a positive correlation with the Lack of Perseverance trait indicating that individuals high on Negative AI are likely to have difficulties persisting at (e.g., completing job or home-related tasks; remaining sober; going to treatment) when experiencing frustration, boredom, or fatigue. The relation between Negative AI and both impulsivity traits and borderline pathology is consistent with previous literature suggesting that the combination of impulsivity and affective instability is the underlying dimension of borderline pathology (e.g., Tragesser & Robinson, 2009). In a study investigating affective responses in a clinical sample characterized by impulsive behaviors (e.g, self-mutilating, bulimia nervosa), the impulsive group demonstrated a higher intensity of affective response and more rapid affect changes compared to a control group (Herpertz et al., 1996), further supporting a link between affective instability and impulsivity traits. It has been theorized that the impulsive behaviors observed among individuals with BPD occur in response to negative emotions as an attempt to regulate them, which is supported in the present study by the relation between Negative AI and Negative Urgency. The additional relation between Negative AI and Positive Urgency suggests that certain individuals may experience difficulty maintaining awareness of their long-term interests while experiencing intense affect, regardless of valence.

Relationship Negative AI and Outcome Variables

The relations between Negative AI and putatively relevant outcome variables echo the results of the relations with personality variables in that Negative AI demonstrates a broadly pathological pattern of relations, with significant relations with internalizing symptoms, intimate

partner violence, multiple aspects of eating pathology, and engaging in self-mutilation for automatic negative and positive reinforcement.

Given that Negative AI demonstrated a strong relation with neuroticism, it was possible that the relations between Negative AI and internalizing symptoms could due entirely to the role of neuroticism in Negative AI. Regression analyses, however, provided support for the incremental validity of Negative AI in the statistical prediction of all four internalizing symptom scores above and beyond neuroticism scores. These findings may suggest that Neuroticism and AI are related but not perfectly overlapping constructs (Miller & Pilkonis, 2006). Alternatively, this could be a limitation of measures of FFM Neuroticism as other measures of this construct include explicit facets related to emotional instability (e.g., Big Five Aspects Scale; DeYoung, Quilty, & Peterson, 2007). Further work is needed to test whether Negative AI can be conceived of as a variant of the broader domain of neuroticism or whether it is a related but distinct trait that requires the presence of other general traits in order to more fully account for it.

Hypomanic Tendencies

While instability and variability of negative affective experience has received some attention, particularly in the context of BPD, instability of positive affective experience has received less empirical attention, except in the context of bipolar disorders. Watson (2000) examined the variability of positive affect by asking college students to complete 42 daily mood rating of the PANAS-X (Watson, 2000). Variability of positive affective experience in the first half of the study was strongly correlated with variability of positive affective experience over the second half of the study and was unrelated to mean levels of positive affect, supporting the conceptualization of positive affective variability as a stable individual difference (r = .68,

Watson, 2000). Relations among positive affect variability and other traits demonstrated no strong predictor of this individual difference, leading the author to conclude that the origin of positive affect variability remains "obscure." (p. 233, Watson, 2000). The Hypomanic Tendencies (HT) factor found in the current study is consistent with the conceptualization of positive affect variability as a stable individual difference. An examination of the items loading on this factor suggests that it represents an individual's tendency to experience strong feelings of positive affect and excitement that are characterized by feelings of behavioral activation and interpersonal agency. Hypomania has been described as an affective style related to a propensity towards elevated mood, activity, and goal directed behavior (Eckblad & Chapman, 1986). In order to place this Hypomanic Tendencies factor in a broader empirical context, its relations with a number of putatively related traits, symptoms, and behaviors was investigated.

Relations between Hypomanic Tendencies and Environmental Etiological Variables

In stark contrast to the array of significant relations between Negative AI and environmental etiological variables, The HT factor demonstrated a paucity of significant relations, as it manifested only one small, significant correlation with an avoidant attachment style suggesting that adverse negative experiences in childhood appear to be largely unrelated to this affective trait. It is possible that a child's propensity to experience intense positive affect may actually afford the opportunity for more positive caretaker interactions, resulting in effective emotion development and a healthy attachment style. The correlations manifested by Negative AI and HT with these nine etiological variables were statistically significantly different in all cases, further emphasizing the differential relations between Negative AI and HT with putative etiological variables.

Relations between Hypomanic Tendencies and Five-Factor Model Traits

Consistent with previous work on the HPS (Furnham, Batey, Anand, & Manfield, 2008), the HT factor demonstrated significant positive relations with Extraversion across self, parent, and peer reports of the FFM. Considered simultaneously, HT was also related to self-reports of Openness (positively) and Agreeableness (negatively). The finding that HT may be related to both Extraversion and Openness is interesting in light of research suggesting that these two traits form a "superfactor" that has been referred to as Beta (Digman, 1997) or Plasticity (DeYoung, 2006). Digman suggested that Beta (high Extraversion/Openness) could be interpreted as personal growth versus personal constriction, as personal growth may occur due to "encounters with life and its attendant risks, by being open to all experience, especially new experience, and by the unfettered use of one's intelligence" (p. 250, 1997). Alternatively, DeYoung argued that Plasticity represents the "need to explore and incorporate novel information into that organization, as the state of the individual changes both internally (developmentally) and externally (environmentally)" (p. 114, 2006). The current findings suggest that HT may be related to this Personal Growth/Plasticity construct given its relations with both Extraversion and Openness, although the significant correlation with Openness was only found using self-report FFM data. Other studies have found, however, a more consistent relation between hypomanic traits and openness to experience (e.g., Meyer, 2002). For example, in a study investigating the relations between hypomania and the FFM, measured via self-report, informant-report, and laboratory tasks (e.g., tell a story, bead sorting), Extraversion and Openness demonstrated largely significant relations with hypomania (Durbin et al., 2009). The current study diverged from these studies, which typically measured hypomania using just scores from the Hypomanic Personality

Scale, in that hypomanic tendencies were assessed in a broader manner that incorporated scores from the HPS as well as measures of affective intensity and positive affect. As such, HT as measured in the current study emphasized high scores on extraversion to a greater extent than openness to experience.

The substantial relation between Extraversion and HT is not surprising as central parts of hypomania – positive affect, interpersonal agency, and behavioral activation - are all consistent correlates of this trait (Lucas et al., 2000, Ward et al., 2006, Muris, Meesters, de Kanter, & Timmerman, 2005, respectively). In fact, Costa and McCrae's model of the FFM (e.g., 1992) includes specific traits within the domain of Extraversion that are central to hypomania including activity/energy, interpersonal assertiveness, risk-taking, and a tendency to experience positive emotions. In a study investigating "pure" hypomanics (i.e., individuals reporting hypomania symptoms without additional mood symptomatology), this group was characterized by higher levels of extraversion, as well as both physical and social activity and elevated mood (Gamma, Angst, Adjdacic-Gross, & Rossler, 2007), consistent with previous literature suggesting a strong overlap between extraversion and hypomania (e.g., Furnham, Batey, Anand, & Manfield, 2007, Meyer 2001). Echoing the shared overlap between extraversion and hypomania through shared features such as behavioral activation, a study investigating activity engagement in a group of adolescents elevated on hypomania traits found that hypomania was related to a higher level of activity participation, particularly in activities that were enjoyable or reward-related (Krum-Merabet & Meyer, 2005). In a study comparing temperament profiles between bipolar I, bipolar II, and unipolar depression, the bipolar II group was characterized by a self-reported personality

style relating to energy and assertiveness, features shared with trait extraversion (Akiskal et al., 2006). Like with the Negative AI factor, the FFM domains accounted for a significant portion of the variance in the HT factor (self: 45%, parent: 17%, peer: 14%).

Relations between Hypomanic Tendencies and other Personality Variables

The HT Factor manifested significant positive relations with self-esteem and grandiose narcissism but null correlations with borderline PD and vulnerable narcissism. The relation between Hypomanic Tendencies and grandiose narcissism is to be expected given that the two constructs are both composed of, in part, high scores on Extraversion (e.g., Miller & Maples, 2011). Fulford and colleagues (2005) noted that "for decades psychologists have noted parallels in the clinical presentations of those with traits of narcissism and those with symptoms of mania" (p. 1435). These authors found that grandiose narcissism and hypomanic tendencies manifested a number of commonalities in terms of their patterns of correlations with traits related to behavioral activation/approach, positive affectivity, and goal regulation strategies. The two diverged, however, in that hypomania but not narcissism was significantly related to impulse control problems. This is consistent with the current findings in that the HT factor was positively associated with the impulsivity-related traits of sensation seeking and a lack of premeditation (i.e., considering potential consequences before acting) as well as work by Durbin and colleagues (2009) who found that hypomanic traits were significantly correlated with both self and informant-reports of impulsivity (*rs* = .38 and .42, respectively).

Relationship between Hypomanic Tendencies and Outcome Variables

The HT factor, unlike the Negative AI factor, demonstrated no significant relations with any of the eighteen outcome variables. It is not perhaps particularly surprising that HT would

largely be unrelated to internalizing symptoms (e.g., depression, anxiety) or behaviors (e.g., eating disorders, NSSI), although some positive relations have been found in the past (e.g., depressive symptoms, Meyer, 2002; eating pathology, Amianto et al., 2011; alcohol and substance abuse; Bental et al., 2011). But, it is surprising that HT was unrelated to anger or any of the externalizing behaviors given that hypomania has correlated with anger in the past (Fulford et al., 2005) and externalizing behaviors have been shown to be related to trait "plasticity" (i.e. high extraversion/openness; DeYoung, Peterson, Seguin, & Tremblay, 2008). Individuals high on HT may not be as motivated to regulate their affective state given that it is positive in valence, thus maladaptive behaviors that others may use in the service of negative affect regulation such as disordered eating behaviors or non-suicidal self-injury are not necessary or relevant. Although HT was related to traits that are correlated with externalizing behaviors such as sensation seeking or lack of premeditation, these effect sizes were small in nature. In addition, the HT factor was not characterized by a more broadly disinhibited style (as evidenced by relations with FFM variables such as Conscientiousness and Agreeableness) that are known to be the strongest trait correlates of these behaviors. These findings could be due to the use of a relatively healthy college sample or the fact that the HT factor was scored in a broader manner that include loadings from scales other than just the HPS.

Can individuals provide valid self-report data on affective instability?

The current data also speak to a significant concern with the field as it relates to affective instability, which is whether individuals can provide accurate and valid self-reports of their standing on this trait. In a study directly comparing AI scores derived from EMA and self-report assessments, these two types of assessments resulted in AI scores that manifested only modest

agreement (Solhan, Trull, Jahng, & Wood, 2009). These authors suggested that retrospective bias likely introduces error into self-reports of AI. In the current study, self and parent reports of AI were significantly correlated (PAI – Affective Instability Scale: r = .41; DAPP – Affective Instability scale: r = .43). Similarly, self and peer reports of AI were also significantly correlated (r = .33). These correlations are all well within the range of the correlations typically shown between self and informant-reports of personality (Ready & Clark, 2002) In addition, only the negative AI factor was related to parent and peer reports of AI, suggesting that individuals with hypomanic tendencies are not seen by important others as behaving in an affective instable manner (as assessed by these two scales)

It is also noteworthy that the self, parent, and peer-reports of FFM domains demonstrated relatively similar patterns of correlations with the Negative AI and Hypomanic Tendencies factors. The current data suggest that some caution is needed before concluding that self-reports of affective instability are invalid simply because they manifest modest agreement with self-report assessments made using EMA strategies. Although EMA certainly holds promise for the study of AI, the results from the present study suggest that further work is necessary in order to understand why these various assessment strategies result do not converge as well as one would expect.

Comparison of mean levels of self, parent, and peer-report of AI demonstrates that self-report of AI was significantly higher than parent-report across two measures (DAPP: AI Scale and PAI: AI Scale) and higher than peer on one measure (PAI: AI Scale). There are alternative interpretations of these findings. First, some may argue it is evidence of bias in self-report and retrospective recall of mood, such that individuals are unduly influenced by peak affect intensity

or mood-congruent information. However, an alternative explanation would suggest that the self is the only rater who has access to his or her internal experience and to all the available information, and as such may be providing the most accurate report of AI. It will be useful for future research to examine the convergence between, informant, and EMA assessments of AI, as well as test their predictive utility with regard to relevant outcomes.

Strengths, Limitations and Future Directions

The present study was the first to investigate the underlying structure of affective instability and thus was able to provide important information on AI as a standalone construct, as well as characterize the resulting two-factors extracted with etiological, personality, and outcome variables in a general population. It was also the first to investigate the relations among a wide range of measures of traits putatively related to affective instability, which is important to the research of AI as there is no "gold standard" assessment tool.

Several limitations of the present study exist. The current study relied on data generated from a predominantly White undergraduate sample, which may limit the generalizability of the results. In addition, it is possible that there may have been restricted ranges in the some of the scores for certain construct (e.g., antisocial behavior, eating disorder symptoms, personality pathology), which may have attenuated the current effect sizes. It will be important that future research examine these same relations in samples with greater rates of affective instability and related behaviors and test whether this two-factor structure replicates. While the present study attempted to characterize the AI factors via their relationship with putatively relevant etiological, personality, and outcome variables, this effort was by no means exhaustive. For instance, a substantial body of literature has documented neurobiological correlates of affective instability

(McNamara et al., 1984; Kavoussi & Coccaro, 1993; Herpertz et al., 2001; Hazlett et al., 2005; Tebartz van Elst et al., 2003). The current study solely investigated psychological processes that could be relevant to the etiology of affective instability, thus future research could investigate the potential etiological impact of neurobiological or other risk factors for Negative AI and Hypomanic Tendencies, specifically as the two related disorders (i.e. BPD and bipolar II) have been suggested to share an underlying neurobiological etiology (MacKinnon & Pies, 2006).

Conclusions

Koenigsberg stated that it is "not year clear to what extent these characteristics are facets of a single unitary affective instability construct or belong to distinct though possibly interrelated pathophysiologic and psychological mechanisms" (p. 77, 2010). The present study suggests that affective instability is a multifaceted construct comprised of two independent components, one indicative of intensity and variability of negative affect and characterized by relations with neuroticism, antagonism, and disinhibition, and another characterized by intensity and variability of positive affect characterized by a relation with extraversion, and that these components demonstrate a distinctly different nomological network, with Negative AI appearing more pathological in nature as demonstrated by relations with pathological personality traits and a variety of externalizing outcomes, whereas Hypomanic Tendencies appear to be less broadly pathological, at least in the current sample. These two factors could be helpful by providing a more specific understanding of affective instability and an enhanced ability to differentiate bipolar spectrum disorders and BPD. The present study also presents support for the validity of self-report of AI through the consistent pattern of relations with both parent and peer report of AI.

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Table 1.

Interrelations among Affective Instability Measures

	M	SD	α	ALS	DTS	PAI	HPSS	HPSM	HPSE	PA	NA	DAPP	AIM	DERS
ALS	110.55	28.25	.96	-										
DTS	38.72	11.71	.91	.45**	-									
PAI:AI	9.73	3.12	.76	.55**	.40**	-								
HPS:SV	31.13	4.62	.81	-.02	-.03	-.02	-							
HPS:MV	21.30	3.38	.76	.55**	.41**	.46**	.32**	-						
HPS:E	11.11	2.22	.69	.06	.02	-.03	.44**	.45**	-					
PANAS:P	33.37	7.29	.85	-.14*	-.03	-.16*	.28**	.03	.20**	-				
PANAS:N	18.73	6.33	.84	.30**	.18*	.20**	.00	.15*	-.01	-.23**	-			
DAPP:AI	35.79	12.55	.94	.64**	.45**	.71**	.01	.57**	.13	-.10	.25**	-		
AIM	146.32	20.97	.87	.29**	.29**	.16*	.15*	.44**	.47**	.06	.11	.41**	-	
DERS	77.16	20.05	.92	.59**	.56**	.53**	-.07	.49**	.07	-.22**	.26**	.61**	.27**	-

Note: *$p \leq .01$; **$p \leq .001$, ALS= Affective Lability Scale, DTS= Distress Tolerance Scale, PAI:AI/PAI= Personality Assessment Inventory Affective Instability Subscale, HPS:SV/HPSS= Hypomanic Personality Scale Social Vitality Subscale, HPS:MV/HPSS= Hypomanic Personality Scale Mood Vitality Subscale, HPS:E/HPSE= Hypomanic Personality Scale Excitement Subscale, PANAS:PA/PA=Positive Affect Negative Affect Schedule Positive Affect Subscale, PANAS:NA/NA= Positive Affect Negative Affect Schedule Positive Affect Subscale, DAPP:AI/DAPP= Dimensional Assessment of Personality Pathology Affective Instability Subscale, AIM= Affective Intensity Measure, DERS= Difficulties in Emotion Regulation

Table 2.

Exploratory Factor Analysis Pattern Matrix of 11 Affective Instability Measures

	Factor 1	Factor 2
ALS	**.78**	.01
DTS	**.59**	.02
PAI:AI	**.73**	-.09
HPS:SV	-.06	**.57**
HPS:MV	**.63**	**.50**
HPS:E	.06	**.80**
PANAS:PA	-.21	.35
PANAS:NA	.33	-.08
DAPP:AI	**.84**	.07
AIM	.36	**.45**
DERS	**.79**	-.06

Note*:* Primary factor loadings are bolded (if ≥ .40); secondary loadings are underlined. ALS= Affective Lability Scale, DTS= Distress Tolerance Scale, PAI:AI= Personality Assessment Inventory Affective Instability Subscale, HPS:SV= Hypomanic Personality Scale Social Vitality Subscale, HPS:MV= Hypomanic Personality Scale Mood Vitality Subscale, HPS:E= Hypomanic Personality Scale Excitement Subscale, PANAS:PA=Positive Affect Negative Affect Schedule Positive Affect Subscale, PANAS:NA= Positive Affect Negative Affect Schedule Positive Affect Subscale, DAPP:AI= Dimensional Assessment of Personality Pathology Affective Instability Subscale, AIM= Affective Intensity Measure, DERS= Difficulties in Emotion Regulation

Table 3.

Correlations between AI factors and etiological variables

	Factor 1	Factor 2
Parental Warmth	-.11[a]	.05[b]
Parental Monitoring	-.14[a]*	.06[b]
Physical Abuse	.18[a]*	.01[b]
Verbal Abuse	.24[a]**	.05[b]
Sexual Abuse	.25[a]**	.07[b]
Emotional Abuse	.29[a]**	.04[b]
Total Abuse	.30[a]**	.05[b]
Anxious Attachment	.52[a]**	-.08[b]
Avoidant Attachment	.17[a]*	-.17[b]*

Note: *$p \leq .01$; **$p \leq .001$. Correlations within a row with different coefficients were significantly different ($p \leq .01$).

Table 4.

Correlations between AI factors and Five Factor Model personality variables

	Factor 1		Factor 2	
	r	β	r	β
Self report				
Neuroticism	.70[a]**	.67**	-.14[b]	.02
Extraversion	-.20[a]**	.10	.61[b]**	.71**
Openness	.06[a]	.00	.16[a]*	.18**
Agreeableness	-.33[a]**	-.20**	.06[b]	-.20**
Conscientiousness	-.29[a]**	-.03	.04[b]	-.04
R^2		.53		.45
Parent report				
Neuroticism	.43[a]**	.36**	-.09[b]	.09
Extraversion	-.26[a]**	-.05	.36[b]**	.44**
Openness	.16[a]	.13	.11[a]	.14
Agreeableness	-.20[a]*	.00	.05[b]	-.05
Conscientiousness	-.25[a]**	-.10	.02[b]	-.02
R^2		.21		.17
Peer report				
Neuroticism	.30[a]**	.37**	.12[b]	.15
Extraversion	-.04[a]	-.08	.29[b]**	.34**
Openness	.05[a]	.16	.07[a]	.00
Agreeableness	.09[a]	-.23**	.03[a]	.05
Conscientiousness	.11[a]	.11	-.08[b]	-.08
R^2		.19		.14

Note: *$p \leq .01$; **$p \leq .001$. Correlations within a row with different coefficients were significantly different ($p \leq .01$).

Table 5.

Correlations between AI factors and other personality variables

	Factor 1	**Factor 2**
Affective Instability		
Affective Instability[1] (Parent Report)	.41[a]**	-.04[b]
Affective Instability[2] (Parent Report)	.43[a]**	.03[b]
Affective Instability[1] (Peer Report)	.33[a]**	.13[b]
Personality Pathology		
Self-Esteem	-.55[a]**	.22[b]**
Grandiose Narcissism	-.13[a]	.42[b]**
Vulnerable Narcissism	.54[a]**	-.02[b]
Borderline Personality Disorder	.45[a]**	.03[b]
Impulsivity Traits		
Positive Urgency	.31[a]**	.14[b]
Negative Urgency	.42[a]**	.08[b]
Sensation Seeking	.11[a]	.22[a]**
Lack of Premeditation	.08[a]	.27[b]**
Lack of Perseverance	.20[a]**	-.05[b]

Note: *$p \leq .01$; **$p \leq .001$. Correlations within a row with different coefficients were significantly different ($p \leq .01$). Affective Instability[1]= Personality Assessment Inventory (PAI): Affective Instability Subscale, Affective Instability[2]= Dimensional Assessment of Personality Pathology (DAPP): Affective Instability Subscale

Table 6.

Correlations between AI factors and outcome variables

	Factor 1	Factor 2
Internalizing Symptoms		
Depression	.63[a]**	-.09[b]
Anxiety	.57[a]**	-.01[b]
Anger	.69[a]**	-.06[b]
Symptom Severity	.67[a]**	-.03[b]
Externalizing Symptoms		
Substance Abuse	.08[a]	.00[a]
Antisocial Behavior	.07[a]	-.00[a]
Intimate Partner Violence	.25[a]**	.11[b]
Gambling	.02[a]	-.03[a]
Eating Pathology		
Global Eating Pathology	.31[a]**	.08[b]
Restraint	.21[a]**	.09[a]
Eating Concerns	.33[a]**	.11[b]
Shape Concerns	.31[a]**	.06[b]
Weight Concerns	.30[a]**	.06[b]
Non-Suicidal Self-injury		
Self Mutilation: Frequency	.12[a]	.01[a]
Self Mutilation: Automatic Negative Reinforcement	.20[a]**	.01[b]
Self Mutilation: Automatic Positive Reinforcement	.21[a]**	.03[b]
Self Mutilation: Negative Social Reinforcement	.03[a]	.03[a]
Self Mutilation: Positive Social Reinforcement	.13[a]	.07[a]

Note: *$p \leq .01$; **$p \leq .001$. Correlations within a row with different coefficients were significantly different ($p \leq .01$).