Factors of Identity Disturbance and Symptoms of Borderline Personality Disorder

by

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Currently, there is a dearth of research investigating identity disturbance in borderline personality disorder (BPD). In this study, identity disturbance was hypothesized to encompass two lower order facets: Deficits in Narrative Construction and Deficits in Self-Reflection. Another purpose was to investigate how identity disturbance is related to two other symptoms of BPD: Emotion Dysregulation and Impulsivity. Participants were recruited and completed a series of self-report questionnaires and wrote four key life events. Overall, the two factors of identity disturbance were found, but the higher-order structure was not supported. A four oblique factor model of BPD traits fit the data best. Results indicated that Emotion Dysregulation, Impulsivity, and Deficits in Self-Reflection were all positively related to a measure of BPD symptoms, while Deficits in Narrative Construction was negatively related to this measure. Correlations among these factors are also discussed. The findings, limitations, and future directions of the study are discussed.
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Chapter 1
Identity Disturbance in Borderline Personality Disorder

According to current diagnostic nomenclature, borderline personality disorder (BPD) is characterized by “a pervasive pattern of instability of interpersonal relationships, self-image, and affects, and marked impulsivity” (American Psychiatric Association [APA], 2013, p. 663). Individuals diagnosed with BPD are at a heightened risk of attempting and committing suicide, with up to 10% of individuals dying from suicide (Black, Blum, Pfohl, & Hale, 2004). In addition, approximately 40% of frequent inpatient care users are diagnosed with BPD (for a review see Lieb, Zanarini, Schmahl, Linehan, & Bohus, 2004) and individuals with BPD report experiencing a poorer quality of life in comparison to individuals not diagnosed with a personality disorder (Cramer, Torgersen, & Kringlen, 2006). While most research on BPD has focused on particular symptoms of the disorder (e.g. suicidality; Brown, Comtois, & Linehan, 2002; Soloff, Lynch, & Kelly, 2002), other symptoms have a dearth of research. One such symptom is identity disturbance. Identity disturbance is defined as a marked and persistent pattern of instability in self-image and in sense of self (APA, 2013). Issues in identity disturbance have been linked to fluctuations in emotions and impulsivity (Fonagy & Luyten, 2009; Koenigsberg et al., 2001). In addition, individuals who endorse symptoms of identity disturbance are commonly diagnosed with several conditions, including depression, anxiety, posttraumatic stress disorder, and substance-related disorders (Modestin, Oberson, & Erni, 1998; Peppard, 2008). Further, identity disturbance has been found to be more enduring (Meares, Gerull, Stevenson, & Korner, 2011) and to exhibit high rates of diagnostic efficiency in BPD (Fossati et al., 1999; Johansen et al., 2004). Nevertheless, identity disturbance has received little attention, which may be due to the disparate definitions that are provided in studies that have examined identity disturbance. Currently, researchers studying identity disturbance tend to define
this symptom based on theoretical orientation (e.g. Kernberg, 1984; McAdams, 2001), current diagnostic specifications, and/or an amalgamation of theory and current status. As such, my primary interest in this study was to empirically test a hypothesized structure of identity disturbance.

A secondary goal of the current study was to investigate the relationship between identity disturbance and other symptoms of BPD, with the intention of also examining the structure of BPD symptomology. In previous investigations of the factor structure of BPD, several researchers have found that BPD is a multifactorial construct (e.g. Becker, McGlashan, & Grilo, 2006; Clarkin, Hull, & Hurt, 1993; Sanislow et al., 2002), while still others found that BPD is characterized by one factor (e.g. Aggen, Neale, Roysamb, Reichborn-Krennerud, & Kendler, 2009; Fossati et al., 1999; Johansen et al., 2004). In this study, a multifactorial structure of BPD was hypothesized. First, a theoretical examination of the factors that constitute identity disturbance will be outlined. Then, the studies assessing the structure of BPD are delineated. Finally, the current study is explicated and the results and limitations are discussed.

**Identity Disturbance**

*Identity Disturbance in BPD: Preliminary Investigations*

Studies on the relationship between identity disturbance and BPD are scant. Most of the research in this area defined identity disturbance based on previous theoretical notions, without focusing primarily on what identity disturbance may entail. Jørgensen (2009) was interested in examining differences between females diagnosed with BPD and healthy female controls on endorsement of three distinct identity styles that are based on Berzonsky’s theoretically derived identity style model (Berzonsky, 1990). These three identity styles include: (1) information-seeking identity style, characterized by autonomous decision-making, high self-esteem, and
flexible commitment to roles and identity, (2) diffuse-avoidant identity style, characterized by impulsivity, emotion-focused problem solving, and in-the-moment behavioural actions, and (3) normative identity style, characterized by conformity with normative standards and defense against aspects of the self that seemingly contradict this normative standard. Jorgensen found that individuals with BPD were more likely to endorse the diffuse-avoidant identity style. Furthermore, he found that the level of commitment to specific goals, values, and beliefs was lower in the BPD group.

Carlson, Egeland, and Sroufe (2009) conducted a 28-year longitudinal study (from infancy to 28 years of age) with a high-risk sample and found that a series of factors, including the individual’s emotionality, life stress, disturbances in self-representation, and maternal hostility, predicted BPD symptomology 28 years later. In their study, disturbances in self-representation were measured by combining a family drawing task (conducted at 8 years of age) and a narrative projective assessment (conducted at 12 years of age). In the former, participants were asked to draw pictures of their families and raters coded these drawings based on two indicators: (1) Structural (i.e. absence of a figure, distortions in drawing such as floating body parts) and (2) Thematic (i.e. frightening drawings of the self, chaotic scenes). In the latter, participants were asked to complete four narrative tasks: (1) A sentence completion task in which participants completed 28 ambiguous sentences that assessed perceptions regarding developmental issues, (2) a story-telling task in which four ambiguous pictures were presented and participants were asked to tell a story about each picture, (3) a fable interpretation task in which participants were assessed in their ability to understand and utilize problem-solving techniques when presented with a moral dilemma, and (4) the friendship interview in which participants were administered a semi-structured interview to assess their expectations of
themselves in social relationships. The authors of this study were primarily interested in measures of self-representation in relation to oneself in the context of relationships. Indicators of lack of self-organization included references of violence towards the self, feelings of guilt/fear that were unresolved, and bizarre images related to oneself. Based on the above definition, the authors found that disturbances in self-representation mediated the relationship between attachment disorganization and BPD symptoms, illustrating the mediating role that disturbances in self-representation may play between early childhood environment and the development of BPD symptomology.

In an effort to validate a measure that investigates identity disturbance, Wilkinson-Ryan and Westen (2000) investigated the factor structure the Identity Disturbance Questionnaire (IDQ), a 35-item clinician-rated form, in a sample of clinicians treating individuals with BPD, individuals with another personality disorder, and individuals with no personality disorder diagnosis. The authors wrote these items based on constructs related to theoretical literature on identity (e.g. Erikson’s negative identity and Marcia’s research on identity; Erikson, 1968; Marcia, 1993), their own clinical observation of individuals with BPD exhibiting identity disturbance, and from literature on related constructs (e.g. literature on dissociation illustrating incoherence in narrative construction; as cited by Wilkinson-Ryan & Westen, 2000). The authors found a four-factor solution fit the data well, and that the first three factors were specifically related to a diagnosis of BPD. The four factors were: (1) role absorption, the individual tends to define him/herself with a single role or cause; (2) painful incoherence, the individual describes a subjective feeling of incoherence; (3) inconsistency, the individual displays an objective lack of coherence (i.e. oscillating feelings, behaviours, thoughts); and (4) lack of commitment, the individual has a difficult time committing to values, beliefs, and jobs. The IDQ was also
examined in an adolescent sample and a similar factor structure was found (Westen, Betan, & Defife, 2011). While role absorption and painful incoherence were seemingly identical in this sample, a normative commitment factor emerged in the adolescent sample, which was a factor that was broader than its adult counterpart (i.e. lack of commitment factor). This factor included aspects of a negative identity (being bad). In addition, the lack of consistency factor in this sample included impairments in maintaining continuity of the sense of self.

Based on the above theoretical definitions of identity disturbance, several common links between these studies have been identified. It is important to first note that many of the factors delineated may be confounded with other symptoms of BPD. For instance, the way in which Carlson et al. (2009) have defined self-representation in relation to interpersonal relationships may confound identity disturbances with relationship dysfunction and early childhood environments. Additionally, Jorgensen’s (2009) finding that individuals with BPD were likely to endorse a diffuse-avoidant identity style, characterized by emotion-focused problem solving, impulsivity, and in-the-moment behavioural actions, may be more appropriately captured by symptoms related to emotion dysregulation and impulsivity. In line with this, one of the four factors of identity disturbance described by Wilkinson-Ryan and Westen (2000; i.e. inconsistency; an objective lack of coherence, characterized by oscillating feelings, behaviours, and thoughts) may be more readily characterized by symptoms of emotion dysregulation and impulsivity. As such, the above studies may conflate particular symptoms of BPD, such as emotion dysregulation, impulsivity, and interpersonal dysfunction, with identity disturbance.

While all these symptoms are likely related as will be discussed below, I would argue that they could be separated. In an effort to identify commonalities between these disparate ways of assessing identity disturbance, it became evident that two constructs could bridge these gaps: (1)
deficits in narrative construction and (2) deficits in self-reflection. For instance, Wilkinson-Ryan and Westen’s (2001) construct of painful incoherence (i.e. subjective lack of coherence) could be linked to narrative incoherence. Additionally, Wilkinson-Ryan and Westen’s (2001) role absorption may be linked to deficits in self-reflection, since the two constructs have been theoretically linked (Fonagy & Luyten, 2009) and found to share the same neurological network (Brass, Ruby, & Spengler, 2009). A summary of these hypothesized relationships can be seen in Table A1. Below, theoretical and empirical findings related to deficits in narrative construction and deficits in self-reflection are reviewed.

**Narrative Identity**

Along with the above formulations, narrative identity has been identified as another way in which one can examine identity development and integration. In accordance with this theory, “identity itself takes the form of a story, complete with setting, scenes, character plot, and theme” (McAdams, 2001, p. 101). To my knowledge, two studies have examined the relationship between narrative identity and symptoms of BPD. Adler, Chin, Kolisetty, and Oltmanns (2012) examined themes of agency (perceiving oneself as empowered, capable, and autonomous), communion fulfillment (one’s motivation for attachment and relationship fulfillment), and narrative coherence (a story that is context-specific, written with affective language, and that points to reflection as to its meaning) in the stories of 20 adults with BPD features and 20 matched adults without BPD. The BPD sample exhibited fewer themes of agency, decreased communion fulfillment, and less coherent narratives. Relationships between themes of agency and mental health outcomes were found at 6 and 12-months follow-up assessments, illustrating the possible predictive power of narrative assessments.
Jorgensen et al. (2012) investigated distinctions in narrative story construction between individuals with BPD, individuals with obsessive-compulsive disorder, and healthy controls. The authors examined the specificity of each life story, the emotional valence of the life story, and its typicality (in comparison with normative data) and found that individuals with BPD recalled less specific stories, more negative memories, and less typical life stories. In addition, individuals with BPD were more likely to employ a leap-frog/disoriented narrative style, characterized by jumping from one event to the next and leaving out major components that the listener was required to infer. The authors suggested that issues related to omitting major components in their life narratives might be related to problems in autobiographical memories, a construct discussed in more detail below.

Self-Reflection and Identity Disturbance

Before a discussion of self-reflexive capacities in individuals with BPD is undertaken, it is important to make the distinction between self-reflection and self-rumination. Trapnell and Campbell (1999) described this distinction as the difference between the personality traits openness to experience and neuroticism. In their study, they found that rumination and reflection were statistically distinct, with reflection correlating with openness to experience and rumination correlating with neuroticism. They defined reflection as curiosity or epistemic interest in the self, while rumination was defined as self-attentiveness directed at perceived injustices and losses to the self. It is important to note that Takano and Tanno (2009) found that self-reflection predicted likelihood to self-ruminate, while the opposite was not the case. Self-reflection was also negatively correlated with depression (when controlling for self-rumination), while self-rumination was positively correlated with depression. Without controlling for self-rumination,
there was no relationship between self-reflection and depression. The focus of the current section is to examine the relationship between epistemic self-reflection and BPD.

To date, studies examining self-referential processing in BPD are scant and predominantly focus on neurological correlates of self-referential processing. In an effort to identify what deficits in self-reflection may exist in individuals with a mental illness, Dimaggio, Vanheule, Lysaker, Carcione, and Nicolo (2009) conducted a review of the experimental and clinical literature on the neurobiological components of self-referential processing. Based on their review, the authors concluded that deficits in self-reflection that are related to several psychopathological constructs include: (1) sense of agency over one’s thoughts and actions, (2) emotional awareness, (3) distinguishing reality from fantasy, and (4) integrating disparate views of oneself and others. In their review, the authors identified that cortical midline structures (CMS), subcortical midline regions, and the left anterior insula tend to be implicated in self-referential processing (see Dimaggio et al., 2009). These structures have also been implicated in other studies that assessed relationships between brain regions and self-referential processing (D’Argembeau et al., 2008; Northoff & Bermpohl, 2004; van der Meer, Costafreda, Aleman, & David, 2010). To date, there are two studies that have assessed the relationship between BPD and the functioning of the CMS.

Doering et al. (2012) examined differences between healthy controls and patients with BPD in their ability to disengage self-processes (i.e. CMS) and conduct a task. The authors provided subjects with a measure that assessed identity integration, interpersonal relationships, and perceptual distortions. Identity integration was examined using the Structured Interview of Personality Organization (STIPO; Clarkin, Caligor, Stern, & Kernberg, 2003). Identity integration in this interview is related to the object-relations theory of Kernberg (Kernberg,
1984), in which positive and negative representations of the self are hypothesized to remain disparate, rather than integrated, in individuals with BPD. The STIPO covers seven domains, one of which is identity. In this interview, three dimensions defined identity: (1) Capacity to invest, (2) sense of self (i.e. coherence, self-valuation), and (3) sense of others. Individuals exhibiting low identity integration and impairments in personality organization were found to have less deactivation of the CMS (i.e. the anterior and posterior cortical midline structures) than individuals with high identity integration. Based on these findings, it is possible that individuals with impairments in identity integration/personality organization could not disengage from self-processes, possibly due to rumination, which would impede performance on unrelated tasks.

Wolf et al. (2011) were particularly interested in the relationship between CMS and BPD during a resting state. Seventeen women with BPD were compared to 17 healthy women on resting state connectivity of CMS. Within these structures, reduced connectivity of the left cuneus and increased connectivity in the left prefrontal cortex and insula were found in individuals with BPD. These aberrations were linked to BPD symptomology (dissociation, impulsivity, and overall BPD measures). Based on the pattern of findings, the authors pointed out that the aforementioned regions have been previously implicated in the managing of intentional thoughts, self-referential and interpersonal information (den Ouden, Frith, Frith, & Blakemore, 2005; Saxe, 2006). The authors also found decreased temporoparietal connectivity within an attention network, which they suggested is possibly indicative of decreases in attention in relation to somatosensory information or self-representational control.

Although there have been only two empirical investigations of self-reflective processes in BPD, it is worth mentioning that there exists a relationship between the ability to self-reflect and autobiographical memory (see Dimaggio et al., 2009). Additionally, the relationship between
autobiographical memory and narrative construction and coherence has also been established (for a review see McAdams, 2001). As such, considering that this construct is strongly related to both narrative identity and self-reflective processing, studies assessing autobiographical memory in BPD are reviewed below.

**Related Constructs: Autobiographical Memory**

Autobiographical memory (AM) can be simply defined as memory that is related to specific events and facts about a person’s life (Conway, 1990). However, it involves many complex processes and researchers tend to disagree on definitions of AM. For some, AM is tantamount to episodic memory in that it involves a temporal-spatial relationship between particular events in one’s life. For others, AM also involves the awareness related to the conscious feeling experienced *during* the actual event itself (i.e. reliving the experience; for a review see Greenberg & Rubin, 2003). Components of AM include explicit memory, imagery (visual, auditory, other domains), language, narrative, and emotion (Greenberg & Rubin, 2003). Autobiographical memory is a multimodal and complex cognitive process, which involves several neuropsychological processes. As such, impairments in AM may be indicative of aberrations across an array of cognitive functions. This is particularly relevant when taking into consideration the importance of AM in narrative construction. According to McAdams (2001), AM assists in defining and situating the self within an ongoing life story that is also oriented towards future goals. The reconstructive nature of AM affords individuals the ability to highly regard certain memories, while devaluing or forgetting others. In this way, individuals choose what memories are internalized as part of one’s identity; they not only choose those memories, but they also change and reconstruct particular memories to fit this self-concept more readily. In support of this view, it has been found that the ability to remember one’s personal past is
imperative in providing a sense of identity (for a review see Conway & Pleydell-Pearce, 2000). As such, autobiographical memories are inherently linked to narrative identity, and impairments in recalling such memories could signal impairments in narrative construction.

Autobiographical memory has also been theoretically linked to Dimaggio et al.’s (2009) operationalization of deficits in self-reflection. In their paper, the authors explain that self-reflective processing is highly dependent on the ability to store and retrieve episodic events. In other words, without AM, self-reflection is quite impaired. It has been previously illustrated that self-knowledge is grounded in memories of one’s past (Tulving, 1985). Additionally, disrupting retrieval through Transcranial Magnetic Stimulation of brain regions associated with AM has been linked to diminished self-reflective capacities (Lou et al., 2004). Research on self-reflective abilities in schizophrenia has also illustrated that improvements in self-reflection in treatment were contingent upon one’s ability to organize and construct a coherent narrative (Lysaker et al., 2005; Lysaker, Buck, & Ringer, 2007). As such, it is also evident that one’s ability to self-reflect relies on their ability to recall autobiographical memories.

Based on the theoretical links between narrative construction, self-reflection, and AM, a brief review of research examining AM in BPD is outlined. In a study examining AM in BPD, Jones et al. (1999) found that individuals with BPD were more likely to recall overgeneral AM, and that this overgeneral retrieval was associated with dissociative symptoms. Interestingly, Renneberg, Theobald, Nobs, and Weisbrod (2005) found that individuals with BPD did not differ from healthy controls in the specificity of AM, although the memories these individuals did recall were more negative. In addition, Arntz, Meeren, and Wessel (2002) did not find evidence to suggest that patients with BPD produced less specific memory accounts. In their study, memories were coded for specificity in a mixed sample of patients. While depression was related
to less specific memories, a diagnosis of BPD was not. Contradictory to these findings, Maurex et al. (2010) found that individuals with a BPD diagnosis recalled less specific AM, irrespective of comorbid depression, past depressive episodes, or comorbid posttraumatic stress disorder. Maurex et al.’s (2010) findings are in direct opposition to Kremers, Spinhoven, and Van der Does’s (2004) findings, in which non-depressed patients with BPD produced more specific memories than depressed patients, while depressed patients with BPD and depressed patients reported less specific memories in relation to healthy controls. Interestingly, research examining the neural correlates of semantic and episode memory (closely tied to AM) in individuals with BPD found that these individuals required more neural activation to perform a memory retrieval task at the same level as controls (Mensebach et al., 2009). While the above findings are inconsistent, it may be that individuals with BPD require more effort to recall specific AM and, when given the time to do so, they are able to produce specific memories. Future research should examine this possibility.

Identity Disturbance and Other BPD Symptoms

Based on the above review, it is evident that definitions of identity disturbance are disparate and that the research literature in this area is scant. However, it is possible to establish theoretical linkages between different definitions of identity disturbance. In reviewing the literature, two constructs that may be related to definitions of identity disturbance across studies are deficits in narrative construction and deficits in self-reflection. In considering the constellation of symptoms that characterizes BPD, it would be imperative to illustrate how these two constructs are related to other symptoms of BPD. While studies examining the relationships between these constructs are limited, theoretical formulations of these relationships are evident.
Additionally, from the studies outlined above it can be seen that identity disturbance is also related to other factors of BPD, mainly emotional and behavioural dysregulation (see Table A1).

Fonagy and Luyten (2009) define mentalization as both the ability to reflect on the actions and feelings of others, as well as the ability to reflect on internal mental states and processes. In their review, the authors presented a model that illustrated a relationship between emotion dysregulation and the ability to mentalize. The authors hypothesized that in instances of high emotional arousal, the ability to abstractly mentalize is impaired due to a switch from higher order brain structures (e.g. prefrontal cortex) to more primitive brain structures (e.g. posterior cortex). This shift is evolutionarily adaptive, for fear-inducing situations should result in a shift from slow and sequential processing to automatic and parallel processing. Nevertheless, in individuals with BPD who experience greater instances of high arousal, this may greatly impact their ability to self-reflect. Additionally, the authors speculated that individuals with BPD have an overly active empathizing system, which compensates for impairments in self-reflexive capacities. As such, individuals with BPD may exhibit oversensitivity to emotional cues, overwhelming affective states, and impairments in self-reflection.

In addition, research on the effects of emotion regulation and intensity has shown links between emotion dysregulation and aspects of identity described above. Jankowski (2013) found that individuals with identity diffusion who exhibited higher states of ruminative exploration exhibited greater difficulties in emotion regulation. Additionally, Neacsiu, Herr, Fang, Rodriguez, and Rosenthal (2015) illustrated that emotion dysregulation was a predictor of identity disturbance across psychiatric groups (i.e. after adjusting for a BPD diagnosis, anxiety, and depression). Of note, lack of emotion regulation strategies and reduced clarity in emotional situations were most tightly linked to identity disturbance in this sample. Based on findings from
Doering et al. (2012) that illustrated impairments in the deactivation of CMS in individuals with BPD, the associations between ruminative exploration, identity diffusion, and emotion dysregulation in BPD are evident. Furthermore, Baumann and Kuhl (2002) found that individuals who were unable to self-regulate emotions during a mood induction task experienced impairments in completing word coherence tasks. The authors suggested that these individuals were likely unable to regulate negative emotions, thereby expending cognitive resources and impairing their ability to access semantic networks. Considering the aforementioned discussion on AM in BPD, these impairments in semantic networks can be indirectly tied to problems in retrieving episodic events (Jones et al., 1999). It can therefore be hypothesized that emotional states may lead to impairments in narrative construction and self-reflection. It is also possible that these impairments are more specifically linked to narrative coherence, considering the problems Baumann and Kuhl (2002) described were associated with word coherence tasks.

Peters, Upton, and Baer (2013) examined relationships between the UPPS-P model of impulsivity and several symptoms of BPD (Whiteside & Lynam, 2001). The UPPS-P model distinguishes between five facets of impulsivity: (1) Negative urgency, the propensity to behave impulsively when distressed, (2) lack of premeditation, failure to consider the consequences of behaviour, (3) lack of perseverance, failure to stick with tasks, (4) sensation seeking, preference for excitement, and (5) positive urgency, the propensity to behave impulsively when feeling positive emotions. The authors found that all symptoms of BPD, including identity disturbance and emotion dysregulation, were related to negative urgency. Currently, this is the only study that has examined the relationship between impulsivity and identity disturbance. However, there have been two studies that have assessed the relationship between BPD criteria and suicidal behaviours, which can be impulsive in nature. Muehlenkamp, Ertelt, Miller, and Claes (2011)
examined relationships between BPD traits and non-suicidal and suicidal self-injurious behaviour in an adolescent sample. Symptoms of “confusion about self” and instability in interpersonal relationships predicted both non-suicidal and suicidal self-injury. Additionally, both the number of BPD criteria met and high levels of “confusion about self” predicted repeat self-harm incidents. Relatedly, Yen et al. (2004) found that affective instability, identity disturbance, and impulsivity prospectively predicted suicidal behaviours in their study. Of note, only affective instability and childhood sexual abuse predicted suicidal behaviours with intent to die. Luyckz, Gandhi, Bjittebier, and Claes (2015) also investigated the relationship between identity formation and non-suicidal self-injury (NSSI) in female adolescents and psychiatric patients. Correlational analyses revealed that identity confusion was positively related to NSSI and identity synthesis was negatively related to NSSI in both samples. After adjusting for demographic variables, anxiety, depression, personality traits, effortful control, and perfectionism, the authors found that identity confusion in adolescents positively related to NSSI while identity synthesis in psychiatric patients negatively related to NSSI.

It is clear that theoretical and empirical findings provide a link between factors of identity disturbance and other BPD constructs, namely emotion dysregulation and impulsivity. In the current study, it is hypothesized that these factors are related and that they load onto a higher order factor of BPD traits. This hypothesis is based on empirical findings illustrating that BPD is a multifactorial construct, with the predominant emergence of three distinct factors. This literature is reviewed below.

**Borderline Personality Disorder: Factor Structure**

For over a decade, a general movement towards a dimensional conceptualization of psychopathology has taken place (Krueger et al., 2011; Skodol, 2012). Due to evidence
suggesting that certain psychopathological constructs are dimensional in nature (see Widiger & Mullins-Sweatt, 2009), researchers began to empirically examine the structure of BPD. Of main interest, researchers were examining the unidimensionality of BPD. As will be discussed below, the findings in this area have received inconsistent results.

There have been several investigations that have led to the finding that BPD is composed of one factor, as such reaffirming the DSM categorical approach to defining BPD. Fossati et al. (1999) conducted a confirmatory factor analysis to assess the unidimensionality of BPD against three- and four-factor solutions that were derived in previous studies (Clarkin et al., 1993; Hurt et al., 1990). Participants were included in the study if they met BPD criteria via the *Structured Clinical Interview for DSM-IV axis II Personality Disorders, Version 2.0* (SCID-II; First, Spitzer, Gibbon, Janet, & Benjamin, 1994), which is a dichotomized BPD assessment tool. A one-factor solution concordant with DSM-IV BPD criteria was found to best fit the data from 564 inpatients and outpatients. Additionally, identity disturbance and unstable relationships were found to have the highest diagnostic efficiency in comparison to other symptoms, differentiating patients with BPD from those with a different diagnosis. Similarly, Aggen et al. (2009) conducted a confirmatory factor analysis to examine the unidimensionality of BPD in a sample of 2794 young adult twins. In this study, BPD diagnosis was determined using the *Structure Interview for DSM-IV Personality* (SIDP-IV; Pfohl, Blum, & Zimmerman, 1995), which is a dichotomized BPD assessment tool. A unidimensional model of BPD was found to best fit their data. Interestingly, there were differences between genders on symptom loadings, such that affective lability had the highest loading for females with BPD, whereas fear of abandonment had the highest loading for males. For both the combined and female-only sample, impulsivity had the lowest loading. In addition, impulsivity related more strongly to older females than their
young counterparts, illustrating that affective instability and impulsivity tend to function
differentially across gender and age, respectively. Finally, Johansen et al. (2004) conducted a
confirmatory and exploratory factor analyses in a sample of 930 patients. A diagnosis of BPD
was determined using the SCID-II (i.e. a dichotomized analysis; First, Gibbon, Spitzer, Williams,
& Benjamin, 1997), and confirmed via clinical consensus. A one-factor structure was found to
best fit their data. Diagnostic efficiency estimates revealed that unstable relationships,
impulsivity, and identity disturbance displayed the highest diagnostic efficiency, while feelings
of emptiness displayed the lowest.

Others have found that BPD is best explained by a multi-factorial structure. For instance,
Clarkin et al. (1993) examined 75 female BPD patients and conducted a principal component
analysis to examine the unidimensionality of BPD as defined by DSM-III. In this study, the
SCID-II for DSM-III-R (Spitzer, Williams, Gibbon, & First, 1990) was utilized to determine
diagnosis. The authors expanded each of the criteria of the SCID-II to create a dimensional
assessment of the BPD criteria. Instead of utilizing the dichotomized SCID format, the authors
provided interviewers with a six point anchored scale, with a score of three indicating that the
patient endorsed the item within clinical levels. A three-factor solution was found to best fit their
data, with the following factors: (1) Identity disturbance and interpersonal difficulties, (2)
affective dysregulation and self-harm, and (3) impulsivity. Sanislow et al. (2002) also obtained a
three-factor solution in their study. The authors conducted a confirmatory factor analysis on 668
treatment-seeking patients. A BPD diagnosis was determined utilizing the Diagnostic Interview
for DSM-IV Personality Disorders (Zanarini, Frankenburg, Sickel, & Young, 1996), a
dichotomized assessment of BPD criteria. The following three factors fit the data well: (1)
Disturbed relatedness, consisting of unstable relationships, identity disturbance, feelings of
emptiness, and stress-related paranoid ideation; (2) behavioural dysregulation, consisting of impulsivity and suicidality/self-harm; and (3) affective dysregulation, consisting of affective instability, inappropriate anger, and fears of abandonment. Becker et al. (2006), on the other hand, obtained a four-factor structure of BPD. In their study, the authors examined the structure of BPD in 123 hospitalized adolescents. A diagnosis of BPD was determined using the Personality Disorder Examination (Loranger, Susman, Oldham, Russakoff, 1988), a semistructured interview that assesses DSM-III-R personality disorders and allows for a dimensional assessment of BPD criteria. Dimensional scores were utilized in the factor analysis. An exploratory factor analysis revealed the following factors: (1) Suicidal threats/gestures and feelings of emptiness; (2) affective instability, anger, and identity disturbance; (3) unstable relationships and fears of abandonment; and (4) impulsivity and identity disturbance. In addition, each of the factors predicted DSM-IV Axis I psychopathology, with factor 1 predicting depressive and alcohol use disorders, factor 2 predicting anxiety and oppositional defiant disorder, factor 3 predicting anxiety disorders, and factor 4 predicting substance use and conduct disorder.

After conducting a literature review of the current studies examining the factor structure of DSM-IV personality disorders, Bachrach, Croon, and Bekker (2012) expanded on the above findings by making changes to past methodology. The authors utilized a self-report measure, the Questionnaire of Personality Characteristics (VKP; Duijsen, 1996), instead of clinical interviews, which were commonly used in previous research on the factor analytic structure of personality disorders. The VKP is a dimensional measure of psychopathology that assesses personality disorders in accordance with the International Personality Disorder Examination (ICD-10; Loranger, 1999) criteria. The authors recruited a large and heterogeneous patient
population with a high prevalence of personality disorders, in comparison to more homogenous populations that were examined in previous studies. After conducting a categorical exploratory factor analysis, Bachrach et al. (2012) found that BPD was a multidimensional construct with three factors: (1) Identity problems; (2) affective and relational instability; and (3) behavioural dysregulation. The authors concluded that there is sufficient support for the multidimensionality of BPD and provided guidelines for future editions of the DSM.

**Proposed Hypotheses and Study**

In the current study, an examination of the factor structure of identity disturbance was conducted. In an effort to differentiate identity disturbance from other symptoms of BPD that may be conflated with this construct (see Table A1), and to assess the relationship between identity disturbance and other symptoms of BPD, a secondary purpose of this study was to assess the high order factor structure of BPD. Based on the above, the following hypotheses will be tested:

1. Identity disturbance consists of two lower order factors; Deficits in Narrative Construction and Deficits in Self-Reflection.

2. Identity Disturbance, Impulsivity, and Emotion Dysregulation are all positively related.

3. A three-factor higher order structure of BPD that encompasses Identity Disturbance, Impulsivity, and Emotion Dysregulation is hypothesized to fit the data well. This model will be compared to two other modes; (1) A one-factor model of BPD, and (2) A three-factor model of Identity Disturbance, Impulsivity, and Emotion Dysregulation, that does not include a higher order factor (see Appendix B).
4. The model that best fits the data will be regressed on a measure of BPD traits in order to identity if this model relates to symptoms of BPD. It is hypothesized that this measure of BPD traits will positively predict the factor(s) in the best fitting model.

While a factor structure of identity disturbance has been delineated (Westen et al., 2011; Wilkinson-Ryan & Westen, 2000), it is important not to confuse the factor structure of a measure (in this case, the IDQ) and the factor structure of a construct. Additionally, theoretical connections between factors of the IDQ and the two hypothesized factors of identity disturbance have been drawn. As previously mentioned, role absorption may be tightly linked to issues related to self-reflection, considering that the same neurological processes may underlie both constructs. Additionally, inconsistency may be explained by the factor of impulsivity more readily than identity disturbance. As such, the proposed factor structure is based on theoretical and empirical findings derived from the literature on identity disturbance in BPD, with connections to several of the factors described by Wilkinson-Ryan and Westen (2000) and to other definitions used to assess identity disturbance in relation to BPD (see Table A1).

It is also important to note that interpersonal disturbance was not investigated as part of the BPD factor structure. This is in line with previous findings that generally did not find an independent factor for interpersonal disturbance (Bachrach et al., 2012; Clarkin et al., 1993; Sanislow et al., 2002), with the exception of the findings from Becker et al (2006). Nevertheless, theoretical associations between narrative construction and interpersonal relationships (McLean, Pasupathi, & Pals, 2007) and between identity disturbance and impairments in interpersonal relationships have been delineated (Fonagy & Luyten, 2009; Fuchs, 2007). As such, this is a limitation of the current study and will be discussed further in the discussion section.

Chapter 2
Methods and Results
Methods

Participants and Recruitment

In this study, 98 students were recruited from the Introduction to Psychology subject pool at the University of Toronto Scarborough, from January – December 2014 (i.e. fall, summer, and winter semesters). Students complete a specified number of research hours as a requirement for this class. If they do not wish to participate in research, an alternative assignment is provided. Participants self-select where and when they choose to participate in research through an online system providing short descriptions of each study. In addition, 94 online users from Mechanical Turk (MTurk) were recruited and participated in this study. Mechanical Turk is an online tool in which participants can self-select studies based on a short description of the study. Mechanical Turk participants were compensated $5.00 for their efforts, which is consistent with general MTurk guidelines for study compensation (Mason & Suri, 2012). Three additional validity questions were included in the MTurk survey, as per recommended guidelines (Mason & Suri, 2012). One participant responded incorrectly to one of these validity questions and their data was excluded from further analyses, resulting in a total of 93 MTurk participants. Inclusion criteria included proficiency in the English language, enrollment in the Introduction to Psychology course for university students, and an amazon MTurk account for online users. The Research Ethics Board of the University of Toronto approved this study.

Measures

For a list of measure characteristics, including means, standard deviations, and reliability estimates, please refer to Table C1 (Appendix C).

Borderline Symptom List – 23 (BSL-23; Bohus et al., 2009). The BSL-23 is a 23-item self-report questionnaire that assesses symptoms of BPD. Two items related to suicidal
behaviour were removed as requested by the ethics review board. Individuals were asked to recall how accurate a series of statements were in representing problems they may have experienced in the past week. A Likert scale with five options was provided, ranging from not at all to very strong. In the initial validation of this measure, BSL-23 scores clearly discriminated between borderline patients and a DSM-IV Axis I comparison group, illustrating its relationship to an actual diagnosis of BPD (Bohus et al., 2009). Internal consistency for the BSL-23 is high, with Cronbach’s α ranging from 0.94-0.97 (Bohus et al., 2009).

As recommended by the authors of the BSL-23, I combined the 21 remaining items from the BSL-23 with the BSL supplemental form (BSL-supp). This is an 11-item self-report measure that assesses problematic behaviours that may have occurred in the last week. Two items related to suicidal behaviours were removed as requested by the ethics review board. Items are rated on a 5-point Likert scale assessing frequency of behaviour ranging from not at all to daily or more often.

Emotional Dysregulation Measures

Affective Intensity Measure (AIM; Larsen, 1984). The AIM is a 40-item self-report questionnaire that examines emotional reactivity and emotional intensity. Participants rate their typical level of emotional reactivity on a six-point Likert scale, ranging from never to almost always. The AIM is a unidimensional scale. This measure has demonstrated desirable psychometric properties, with alpha levels ranging from 0.90 – 0.94.

The Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004). The DERS is a 36-item self-report questionnaire that assesses clinically relevant emotion regulation. The DERS is composed of six factors (abbreviated subscale names provided in parentheses): Nonacceptance of Emotional Responses (Nonacceptance), Engaging in Goal-Directed Behaviour
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(Goals), Impulse Control Difficulties (Impulse), Lack of Emotional Awareness (Awareness), Limited Access to Emotion Regulation Strategies (Strategies), and Lack of Emotional Clarity (Clarity). Each item is rated on a five-point Likert scale, ranging from almost never to almost always. Internal consistency of the DERS is high, with a Cronbach’s $\alpha$ of 0.93.

**Emotion Sensitivity Questionnaire (ESQ; Uliaszek & Al-Dajani, unpublished manuscript).** The ESQ is a 10-item self-report questionnaire that assesses emotional baseline arousal and emotional return to baseline. Items are rated on a six-point Likert scale, ranging from never to always. The reliability of the ESQ has been examined in a college sample and was found to be acceptable (Cronbach’s $\alpha = .83$).

**Impulsivity Measures**

**Dickman Impulsivity Inventory-Short (DII; Dickman, 1990).** The DII, Short Form is a 23-item self-report questionnaire that examines behavioural impulsivity. Each item is rated on a dichotomous True/False scale. The DII is composed of two factors: Functional impulsivity ($\alpha = 0.76$) and Dysfunctional impulsivity ($\alpha = 0.84$), both with acceptable internal consistency (Claes, Vertommen, & Braspenning, 2000).

**Impulsiveness Questionnaire (I7; Eysenck, Pearson, Easting, & Allsopp, 1985).** The I7 is a 54-item self-report instrument that assesses behavioural impulsivity. Participants are instructed to rate items on a dichotomous Yes/No scale. The scale is constructed of three factors: Impulsiveness, Venturesomeness, and Empathy. Reliability coefficients for each of the factors are acceptable, with alphas of 0.84, 0.85, and 0.69 respectively for males, and 0.83, 0.84, and 0.69 respectively for females.

**UPPS-P Impulsive Behavior Scale (UPPS-P; Whiteside & Lynam, 2001).** The UPPS-P is a 59-item self-report questionnaire that assesses behavioural impulsivity. Participants are
instructed to rate each item on a four-point Likert scale, ranging from *agree strongly* to *disagree strongly*. The UPPS-P is composed of five factors: Negative Urgency, (lack of) Premeditation, (lack of) Perseverance, Sensation Seeking, and Positive Urgency. Internal consistencies for the factors range from 0.82 – 0.91 in previous studies.

*Identity Disturbance Measures*

**Autobiographical Memory Task (AMT; McAdams, 1997).** The AMT is a self-report measure that assesses key life events in an individual’s life story. Participants were asked to recall a high point, a low point, a turning point, and an event where they experienced personal wisdom. The events must be at least one-year old, specific, and have particular meaning to the individual. Participants were then instructed to write about this particular event and were prompted to include the following information: Age when the event occurred, who was involved, what the participant was thinking/feeling at the time, and why the event is important in the participant’s life story. Two individuals coded these events using several coding manuals (Baker-Ward et al., 2007; Reese et al., 2001; Weststrate, 2014). Context, Chronology, Thematic Coherence, and Meaning-Making were all coded on a dimensional scale that ranged from zero to three. In order to achieve reliability, the two coders had six one-hour consultation meetings in which they observed discrepancies in their coding scores and discussed solutions to reduce such discrepancies. During these meetings, new specifications were discussed and the aforementioned coding manuals were revised in accordance with these specifications (e.g. if events can be placed in order but no time words were used, the highest code this story can receive on chronology is a two). After these meetings, ten percent of the events were double coded (10% of the university sample events, 10% of the MTurk sample events, and 10% from each event type). Correlations between the two coders were adequate for Context ($r = 0.83$, $p = .000$, 95% CI [.72, 1.00]),
Chronology ($r = 0.77, p = .000, 95\% \text{ CI } [.65, .97]$), and Thematic Coherence ($r = 0.75, p = .000, 95\% \text{ CI } [.58, .89]$). The correlation between the two coders for Meaning-Making was lower ($r = 0.53, p = .000, 95\% \text{ CI } [.34, .76]$), which may be related to discrepancies in identifying if the meaning was actually connected to the event or not. This discrepancy resulted in one coder not coding meaning while the other possibly considering the meaning as highly elaborate and assigning it a high score. Discrepant scores for the double coded events were discussed in a four-hour meeting and consensus between the two coders was reached. Below, descriptions and examples are presented to illustrate how scores on Context, Chronology, Thematic Coherence, and Meaning-Making were determined. Examples were altered to protect the confidentiality of the participants in this study. Results reported in relation to narratives were reverse scored, such that higher scores on the narratives were now indicative of greater deficits in Context, Chronology, Thematic Coherence, and Meaning-Making.

Scores for Context were determined by examining if the participant included information regarding where and when the event occurred and how specific this information was. Narratives that included neither of these indicators were scored a zero. Narratives that included only one of these indicators at either level of specificity were scored a one: For instance, if the individual stated this event occurred “last summer,” this would have been coded as a specific time period, at which point the coder would examine if the location was indicated. If not, this particular narrative would receive a score of one for Context. Locations were considered specific if they referenced identifiable places (e.g. UTSC, Chicago) or if they included personal identifiers (e.g. my school, home). If a particular narrative included both time and location but one of these was deemed general, it would be coded a two. Otherwise, if both indicators were specific, the narrative would receive a score of three on context.
Scores for Chronology were determined by examining if the actions in a participant’s narrative could be placed in chronological order. It is important to mention that the participant did not need to write their actions in order, but indicators of time and chronology (e.g. afterwards, before this happened) needed to be used to orient the coder to the placement of the events within a given narrative. Further, evaluation of the particular narrative or thoughts within the narrative were not considered actions within a narrative, only behaviours or events were considered for chronology. A score of zero on chronology indicated either no temporal order or only one action within a narrative. A score of one on chronology indicated that the majority of actions could not be placed in temporal order (e.g. 2/3 actions out of place), or the participant only included two actions that had an assumed order but did not provide temporal indicators (e.g. then). A score of two on chronology indicated that half of the actions within a narrative could not be placed in temporal order, or the participant included more than two actions that had an assumed order but did not provide temporal indicators. A score of three on chronology indicated that almost all (e.g. 4/5) actions could be placed in order and temporal indicators were used to orient the coder to the chronology of events.

Scores for Theme were determined by establishing if the narrative had a prominent theme that was not digressive and resolved completely. The development of the theme, the inclusion of the content that is unrelated to the theme, and the way in which the narrative concludes (i.e. are there any outstanding questions from the coder?) determined the score of the narrative from zero to three. Narratives that only scored highly on one of these indicators would receive a score of one, on two of the indicators would receive a score of two, and on three of the indicators would receive a score of three. An example of a narrative that would score a one for theme is, “In December of 2006, I found out that I was pregnant with my daughter after trying for many years.
I felt extremely happy for many reasons. I was trying for a long time. I also found out hours after I separated from my husband and I thought my dream of having children was over.” While this narrative is not digressive, it lacks quite a bit of detail and the conclusion is weak. Generally, narratives that received a score of three on theme were longer and were clearly resolved. An example of a clear resolution is, “My experiences motivated me to make the world a better place by starting my own non-profit in the future. I am interested in preventing homelessness and helping the homeless find better and safer solutions to housing than what currently stands.”

Scores for Meaning-Making were determined by first establishing if the meaning in the narrative was reflective. If “in the moment” meaning was identified (e.g. At that time I realized…), the narrative would score a zero on meaning. If the meaning was determined to be reflective, then the meaning was examined for four indicators of higher order meaning: (1) Elaboration, (2) Impact on the individual’s life/identity, (3) it’s Analytical strength (is it highly reflective, is the meaning-making process delineated?), and (4) Complexity (does the reporter consider multiple meanings before choosing one, does the reporter explain meaning through different perspectives?). A narrative was scored one for meaning if the meaning was present but did not score highly on any of the aforementioned indicators. For a score of two, the narrative scored highly on 1-2 of the above indicators, and for a three, the narrative scored highly on 3-4 of the above indicators. An example of meaning that scored a three is, “I realized that things are not always what they appear. I judged this person based on everybody else that hangs around that area at night and assumed he was just a drunk, even though it turned out that he was mugged. He appreciated what I did for him so much that later in the week he put an envelope on my windshield with $150 inside. I realized that more often than not people are not what they seem to be. I was glad to see he was okay and learned not to dismiss people so quickly, because he might
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I have needed medical attention but I had assumed he was a drunk. I am now a lot more concerned for other’s welfare and more aware of their actions before making snap judgments.” Based on the above, this particular event scores highly on elaboration, impact (i.e. changed how the person perceives others), and is considered analytical, as there is a description of how this person arrived at the present meaning.

The Self-Reflection and Insight Scale (SRIS; Grant, Franklin, & Langford, 2002). The SRIS is a 20-item self-report measure that examines the frequency in which an individual self-reflects and how much insight the individual has into their self-processes. Participants were asked to rate a series of questions on a six-point Likert scale, ranging from disagree strongly to agree strongly. The scale has been found to have a three-factor solution: Engagement in Self-Reflection, Need for Self-Reflection, and Insight. Initial scale internal consistency was conducted for two of the three scales, and adequate Cronbach α’s were found for Self-Reflection (α = 0.91) and Insight (α = 0.87).

Toronto Alexithymia Scale (TAS-20; Bagby, Parker, & Taylor, 1994). The TAS-20 is a 20-item self-report questionnaire that assesses an individual’s capacity to reflect on and describe their emotional state. Items are rated on a five-point Likert scale, ranging from strongly disagree to strongly agree. Factor analysis revealed a three-factor structure for the TAS-20: Difficulty Identifying Feelings (Identify; α = 0.78); Difficulty Describing Feelings (Describe; α = 0.75); and Externally-Oriented Thinking (External; α = 0.66).

Procedure

A series of questionnaires were given to participants via the internet, using the program SurveyMonkey. SurveyMonkey is a website that is used to create online surveys. Participants were informed about the study by a short description online and a consent form. After obtaining
consent, participants completed a demographics form and the measures outlined above. Based on best practices (Mason & Suri, 2012), MTurk participants also responded to three validity questions that were interspersed throughout the questionnaires. The questions were: Who is the current president of the United States? Dinosaurs are still alive: True or False, and I have read the same book 40 times or more because of how much I loved it: Yes or No. The first two questions were meant to capture non-content based invalid responding (i.e. random responding to complete the questionnaire and receive compensation), while the last question was meant to capture infrequent responding (i.e. possible but unlikely responses). Based on the answers to these questions, one participant’s data was found to be invalid and was therefore deleted from the study. Individuals who responded yes to the last question were still included in the study, resulting in a sample of 93 MTurk participants. Additionally, one participant’s narratives were deleted because the same narrative was repeated across the four events, and the participant included their personal identifying information (i.e. name and contact information) for verification purposes. However, this participant’s remaining data was kept based on their answers to the validity questions outlined above. The study took approximately 1-2 hours to complete. Upon completion, participants were debriefed and thanked for their participation.

Data-Analysis Plan

Three confirmatory factor models were compared to examine the structure of the measures included in this study. After determining the best fitting model with a comparison of fit indices, a structural equation model was specified examining the relationship between the accepted model and a measure of BPD symptoms (i.e. BSL-23 and BSL-supp). The three models were as follows: (a) A one-factor model that included all measures specified above at the subscale level; (b) A higher-order model with three factors (Emotion Dysregulation, Impulsivity,
and Identity Disturbance) loading onto a higher-order latent variable, and (c) A three-factor model with Emotion Dysregulation, Impulsivity, and Identity Disturbance as oblique factors. In the latter two models, Identity Disturbance was hypothesized to have a two-factor solution: (1) Deficits in Narrative Construction and (2) Deficits in Self-Reflection (see Appendix B for associated Figures).

Mplus 7.11 software was used to conduct these analyses (Muthen & Muthen, 1998-2011). Each level of the model was confirmed in a successive fashion. First, the structure of Emotion Dysregulation, Impulsivity, Deficits in Narrative Construction and Deficits in Self-Reflection were confirmed using confirmatory factor analysis (CFA). Then, the structure of Identity Disturbance was investigated using CFA. Next, the overall structure of BPD (i.e. models a-c above) was confirmed using CFA. Finally, the structural model described above was estimated. All CFAs were conducted at the subscale level because the number of items exceeded the sample size, causing a problem with identification and estimation. The following observed variables were indicators for each construct:

1. Emotion Dysregulation: This construct was measured with the AIM, the ESQ, and the DERS. The former two measures are unidimensional, while the DERS consists of six subscales: Non-acceptance, Goals, Impulse, Awareness, Strategies, and Clarity.

2. Impulsivity: This construct was measured with the DII, the I7, and the UPPS-P. The DII consists of two subscales; Functional impulsivity and Dysfunctional impulsivity. The I7 consists of three subscales; Impulsiveness, Venturesomeness, and Empathy. The UPPS-P consists of five subscales; Negative urgency, (lack of) Premeditation, (lack of) Perseverance, Sensation seeking, and Positive urgency.
3. Deficits in Narrative Construction: This construct was measured with the four key life events that participants wrote. Coding manuals were used to identify four variables: Context, Chronology, Thematic coherence, and Meaning-making.

4. Deficits in Self-Reflection: This construct was measured with the TAS-20 and the SRIS. The TAS-20 contains three subscales; Difficulty identifying feelings, Difficulty describing feelings, and Externally oriented thinking. The SRIS contains three subscales: Engagement in self-reflection, Need for self-reflection, and Insight.

5. BPD symptoms: This construct was measured with the BSL-23 and the BSL-supp form. The two forms were combined for this analysis. These two forms will be henceforth referred to as BSL.

To establish the fit of the model, close attention was paid to the comparative fit index (CFI), root mean square error of approximation (RMSEA) and standardized root mean square residual (SRMR) fit indices. The Akaike Information Criteria (AIC) will be used as an estimate for model comparison, with lower AIC values indicating better fit. Maximum likelihood estimation was used to estimate all models.

Results

Participant Demographics

One hundred and ninety-one individuals (98 psychology students and 93 MTurk participants) participated in this study. Participants had a mean age of 26.35 (SD = 10.49, range 17-66) and were 66% female (n = 126). The sample was largely diverse, with the following ethnoracial breakdown: White North American (n = 47; 24.6%); South Asian (n = 40; 20.9%); South-East Asian (n = 24; 12.6%); White European (n = 22; 11.5%); East Asian (n = 14; 7.3%); Indian Caribbean (n = 11; 5.8%); Middle Eastern (n = 9; 4.7%); Black North American (n = 6;
3.1%); Latin American (n = 5; 2.6%); Black African (n = 4; 2.1%); Black Caribbean (n = 2; 1.0%); Mixed Background (n = 2; 1.0%); and Other (n = 5; 2.6%). The majority of participants reported having 13 years of education (n = 56; 29.3%), 17.8% (n = 34) reported 16 years of education, 17.3% (n = 33) reported 12 years of education, 12.6% (n = 24) reported 14 years of education, 9.4% (n = 18) reported 15 years of education, 3.7% (n = 7) reported 17 and 18 years of education, 1.6% (n = 3) reported 13.5 and 20 years of education, 1% (n = 2) reported 19 years of education, and 0.5% (n = 1) reported 9, 11, and 21 years of education. A large majority reported having never been married (n = 130; 68.1%), with 28.3% (n = 54) and 2.6% (n = 5) reporting being currently married/living with a common-law partner or divorced/annulled, respectively. The remaining individuals reported being currently separated (n = 1, 0.5%) and currently widowed (n = 1, 0.5%). Finally, 36.6% (n = 70) of the sample reported having a full-time job, 31.9% (n = 61) were unemployed, 23.6% (n = 45) were employed part-time, 5.2% (n = 10) were volunteering, and 2.6% (n = 5) reported being self-employed.

Scale characteristics including means and standard deviations are presented in Table C1 (Appendix C). A series of independent samples t-tests were conducted to ascertain if gender should be included as a grouping variable in subsequent analyses. Eleven of the 41 measures used in these analyses displayed gender differences: (1) ESQ, t(184) = -4.60, p = .000; (2) DERS Goals Subscale, t(182) = -3.22, p = .002; (3) DERS Strategies Subscale, t(184) = -2.92, p = .004; (4) DERS Clarity Subscale, t(185) = -3.30, p = .001; (5) AIM, t(164) = -2.62, p = .01; (6) UPPS-P Perseverance Subscale, t(165) = -2.06, p = .041; (7) TAS Identify Subscale, t(183) = -3.18, p = .002; (8) TAS Describe Subscale, t(185) = -2.01, p = .046; (9) Low Point Context, t(179) = -2.27, p = .024; (10) Low Point Thematic Coherence, t(179) = -2.44, p = .016; and (11) Turning Point Thematic Coherence, t(177) = -2.35, p = .020. All gender differences were in the
same direction, such that females had significantly higher scores than males, except for narrative events in which males displayed greater deficits than females. The remaining 30 measures did not exhibit any gender differences \((p > .067)\). It was decided that gender should not be included as a grouping variable in subsequent analyses because the majority of measures did not exhibit a gender difference and in order to retain sufficient power. A correlation matrix is presented in Appendix C (Table C2) that illustrates associations between the measures in this study.

### Measurement Models

**Emotion Dysregulation**

An initial CFA was conducted to examine the latent construct of Emotion Dysregulation. The initial model consisted of eight indicators, with subscales from the ESQ, DERS, and AIM included as part of the model. The fit was weak to moderate \((\text{CFI} = .831, \text{RMSEA} = .176 [90\% \text{ CI} .149-.204], \text{SRMR} = .091)\). Upon further examination, standardized loadings revealed that one of the DERS subscales (DERS Awareness) did not load onto this latent variable (standardized factor loading = .092, \(p = .235\)). In considering that the item content of this scale is theoretically linked to the Deficits in Self-Reflection latent model, it was decided that this subscale would be removed from this model and included in the Deficits in Self-Reflection measurement model. The new measurement model that did not include this DERS subscale generated a satisfactory fit \((\text{CFI} = .915, \text{RMSEA} = .142 [90\% \text{ CI} .109-.177], \text{SRMR} = .057)\). Standardized factor loadings for this model are displayed in Figure D1 (Appendix D) and illustrate strong loadings, ranging from .468 to .908.

**Impulsivity**

An initial CFA was conducted to examine the Impulsivity latent model. Initially, this model included ten indicators, which were subscales derived from I7, UPPS-P, and DII measures.
Fit indices for this model were weak (CFI = .640, RMSEA = .236 [90% CI .215-.257], SRMR = .121), and it was shown that functional subscales of impulsivity (i.e. Empathy from I7 and Functional Impulsivity from DII) obtained weak or non-significant factor loadings, with standardized factor loadings = .157 (p = .041) and .086 (p = .272), respectively. Because this latent variable model is hypothesized to measure maladaptive impulsivity, these two subscales were removed due to their item content. A closer examination of the modification indices revealed that two subscales, I7 Venturesomeness subscale and UPPS-P Sensation Seeking subscale, had correlated errors. Because these subscales contain theoretically linked content, a correlated error term was included. The final model had satisfactory fit (CFI = .883, RMSEA = .177 [90% CI .149-.206], SRMR = .058). Standardized factor loadings for this final model are displayed in Figure D2 (Appendix D) and ranged from .313 to .881.

**Deficits in Narrative Construction**

An initial CFA was conducted to examine the Deficits in Narrative Construction latent model. The model included 16 indicators, with four measures of narrative construction (i.e. context, chronology, theme, and meaning-making) obtained for four key life events (i.e. high, low, turning points, and a point of personal wisdom). Narratives were keyed such that higher scores were indicative of Deficits in Narrative Construction. The hierarchical structure achieved adequate fit (CFI = .779, RMSEA = .097 [90% CI .083-.110], SRMR = .078). Standardized factor loadings for this model are displayed in Figure D3 (Appendix D) and range from .247 to .758.

**Deficits in Self-Reflection**

An initial CFA was conducted to examine the latent model of Deficits in Self-Reflection. This model included seven indicators (instead of the hypothesized six), since the factor loading
for one of the DERS subscales (Awareness) did not load strongly onto the latent variable of Emotion Dysregulation and is theoretically linked to the Deficits in Self-Reflection model. As such, this DERS subscale along with subscales from the TAS and the SRIS were included in this model. The SRIS was keyed in the positive direction, such that higher scores were indicative of greater self-reflective capacities. As such, it was expected that this measure would load negatively onto this factor. Initial fit indices were poor (CFI = .579, RMSEA = .335 [90% CI .303-.368], SRMR = .176). Modification indices revealed that two of the SRIS subscales (Engagement in Self-Reflection and Needing Self-Reflection) had correlated errors. This relationship is not surprising considering the SRIS initially had a two factor solution that combined the above two factors. As such, the model was re-analyzed with the inclusion of a correlated error term. This model yielded a stronger fit to the data (CFI = .853, RMSEA = .205 [90% CI .172-.240], SRMR = .134). Standardized factor loadings for this model are displayed in Figure D4 (Appendix D) and range from .261 to .927.

Identity Disturbance Model

A higher-order model with the factors of Deficits in Narrative Construction and Deficits in Self-Reflection (as identified above) was analyzed. Overall, model fit was adequate (CFI = .796, RMSEA = .086 [90% CI .076-.095], SRMR = .092). A closer examination of the higher order loadings revealed non-significant values for both Deficits in Narrative Construction ($r = .436, p = .982$) and Deficits in Self-Reflection ($r = .161, p = .982$) onto the higher-order latent construct of Identity Disturbance. It was hypothesized that this may be due to a high influence of method variance since the indicators for Narrative Construction were obtained through open-ended questions while the indicators for Deficits in Self-Reflection were obtained through scaled responses. As such, I attempted to adjust for method variance and re-analyze the model. Upon
doing so, a large portion of the variance among the indicators for Narrative Construction was removed and the model did not converge. It was decided that the model would remain a two-factor model without a higher-order factor (CFI = .797, RMSEA = .085 [90% CI .076-.095], SRMR = .092; see Figure E1, Appendix E). It should be noted that the relationship between Deficits in Narrative Construction and Deficits in Self-Reflection was not significant ($r = .070, p = .395$).

**Full Models**

*Model 1: One-factor Higher Order Model*

A one-factor higher order model was analyzed and included 38 indicators (after excluding the two adaptive impulsivity subscales). The analysis yielded weak model fit indices (CFI = .369, RMSEA = .136 [90% CI .131-.141], SRMR = .155, AIC = 32005.274). Upon closer examination, it was established that the 16 indicators that represented Deficits in Narrative Construction did not load significantly on the higher order factor, with the exception of one of these indicator (Meaning-Making in the Turning Point Event; see Figure E2, Appendix E).

*Model 2: Higher-Order Model of BPD Traits*

A higher-order model of BPD Traits was analyzed and included the four latent variables, Emotion Dysregulation, Impulsivity, Deficits in Narrative Construction and Deficits in Self-Reflection, as defined above, all loading on a higher-order BPD latent variable. The fit was adequate (CFI = .771, RMSEA = .082 [90% CI .077-.088], SRMR = .102, AIC = 30525.388). Examination of the factor loadings did not reveal any significant problems. All latent variables loaded significantly onto the higher order BPD factor, with the exception of Deficits in Narrative Construction. Nevertheless, this latent variable was retained in the model (Figure E3, Appendix E).
Model 3: Four-factor Model with Oblique Factors

A four-factor model with oblique factors was analyzed and included the same four latent variables that were included in the higher-order model. The model fit was adequate (CFI = .774, RMSEA = .082 [90% CI = .076, .087], SRMR = .098, AIC = 30516.497). Examination of the standardized relationships between the latent variables revealed some expected relationships, such that Emotion Dysregulation was positively related to Impulsivity ($r = .571, p = .000$) and Deficits in Self-Reflection ($r = .688, p = .000$) and Impulsivity was positively related to Deficits in Self-Reflection ($r = .666, p = .000$). Unexpectedly, Deficits in Self-Reflection and Impulsivity were not significantly related to Deficits in Narrative Construction and Emotion Dysregulation was negatively related to Deficits in Narrative Construction ($r = -.160, p = .047$). Although this model and the higher-order model of BPD traits had virtually identical AIC values, the more parsimonious model was accepted as the final model. As such, this model was accepted due to its parsimony and superior fit in comparison to the one-factor BPD model (see Figure E4, Appendix E).

Structural Equation Model

Latent variables from the four-factor model were then regressed on a measure of BPD traits (i.e. the BSL) to ascertain relationships between these variables and symptoms of BPD. Adequate fit indices were found for the regression model (CFI = .766, RMSEA = .084 [90% CI .078-.089], SRMR = .101). Examination of the standardized regression weights revealed that all latent variables were related to the BSL. Of note, Deficits in Narrative Construction was significantly related to the BSL in the opposite direction than was anticipated, such that lower Deficits in Narrative Construction were related to higher scores on the BSL (see Figure F1, Appendix F).
Chapter 3
Discussion: Interpretation, Limitations, and Future Directions

The current study was an empirical investigation of the structure of identity disturbance and how this symptom relates to two symptoms of BPD: Emotion Dysregulation and Impulsivity. To this effect, several questions were asked: (1) What does the structure of identity disturbance entail? (2) How does this structure relate to other symptoms of BPD? And (3) what does the higher-order factor structure of BPD involve? Overall, several of the hypotheses outlined above were confirmed. The following four latent variable models were confirmed: (1) Emotion Dysregulation, which was further differentiated from lack of emotional awareness, a construct hypothesized to underlie Deficits in Self-Reflection; (2) Impulsivity, with a focus on dysfunctional forms of impulsivity, (3) Deficits in Narrative Construction, and (4) Deficits in Self-Reflection. While some fit indices were not adequate, factor loadings for the above measurement models were strong. Below, results pertaining to each of the aforementioned questions are discussed in relation to a priori hypotheses and current findings.

**Factor Structure of Identity Disturbance**

The initial hypothesis that identity disturbance would contain two lower order factors, Deficits in Narrative Construction and Deficits in Self-Reflection was not supported. Although model fit indices were adequate for this higher-order structure, standardized factor loadings revealed that neither of the two latent variables loaded significantly onto the higher order factors. As such, two oblique factors were retained, which also revealed that these two latent variables were not significantly related to one another. This finding was particularly surprising considering previous theoretical notions indicating a relationship between self-reflection, the ability to construct a strong and coherent narrative, and autobiographical memory (Dimaggio et al., 2009; McAdams, 2001). It was also surprising when considering that meaning-making, an indicator of
narrative construction, required reflective meaning rather than in-the-moment meaning, thereby including self-reflection within the coding scheme. There are several possibilities that may explain the absence of a relationship between these two factors. It is possible that method variance attributed to the disparate ways in which indicators of Deficits in Self-Reflection and Narrative Construction were obtained. The former indicators included self-report, scaled assessments of self-reflection, while the latter indicators included open-ended responses that were later coded. When attempting to adjust for the possibility of added method variance, a large majority of the variance accounted for by Deficits in Narrative Construction was removed and the model did not converge. After closely examining the individual relationships between indicators of Deficits in Self-Reflection and indicators of Deficits in Narrative Construction (see Table C2, Appendix C), it was identified that 10 of 96 possible correlations were significant ($r$ range = |.15| - |.27|), with six relationships in the expected direction and four in the opposite direction than anticipated. This was the general pattern for relationships between any of the Deficits in Narrative Construction indicators and all other study variables. However, relationships among the Deficits in Narrative Construction indicators were more prevalent and robust, possibly providing evidence to suggest that method variance contributed largely to the null relationships. Nevertheless, it is difficult to ascertain if method variance is the reason the two latent variables did not correlate significantly.

Another possible explanation includes the inter-rater reliability estimates obtained between the two coders on the coded indicators for Deficits in Narrative Construction. While some estimates were adequate, others were less than desirable. It is possible that this lack of reliability between the two coders increased error associated with subjective coding strategies, thereby resulting in a non-significant relationship between the two latent variables. While this is
possible, it seems unlikely considering that the model fit for the Deficits in Narrative Construction latent variable was adequate and the standardized factor loadings were strong.

It could also be possible that this is an artifact of the particular sample under investigation. It is possible that higher levels of education, lower levels of psychopathology, and enrollment of a university sample artificially inflated narrative scores, thereby introducing several extraneous factors that may have impacted scores on narrative construction irrespective of self-reflexive capacities. It would be interesting to examine how the relationship between these two latent variables may differ between the two samples (i.e. UTSC vs. MTurk), between different age groups, and between individuals of differing education levels.

Finally, it may be that these two factors are in fact not related. It is possible that the ability to reflect on one’s memories and behaviours does not result in the ability to construct a strong and coherent narrative. While self-reflection may involve more internal cognitive capacities, the ability to construct a narrative for another to read may involve a more external and deliberate process, one that involves a myriad of factors (e.g. reading and writing level, comfort level, etc.) that may not be involved in the ability to self-reflect. As such, it could be that the factors related to narrative construction that are not linked to self-reflection resulted in added, uncontrolled variance that illustrated that these two factors are in fact unrelated.

**Relationships between Identity Disturbance and BPD Traits**

Initially, it was hypothesized that three latent variables, Emotion Dysregulation, Impulsivity, and Identity Disturbance, would all be positively related and load onto a higher-order factor termed BPD traits. After establishing that the hypothesized structure of Identity Disturbance did not include two lower order latent variables, it was expected that the four latent variables (now including Deficits in Narrative Construction and Deficits in Self-Reflection...
separately) would load onto a higher order BPD traits factor. This hypothesized model was compared to two alternative models: (1) A one-factor model of BPD and (2) Four oblique latent factors that do not load onto a higher order BPD traits factor. It was found that the four oblique factor model best fit the data, suggesting that the four latent variables are related but do not load onto a higher order structure. It should be noted that model fit indices and AIC values between the higher order factor structure and the four oblique factors were very similar, with the latter model exhibiting an AIC value that was only nine digits smaller than the hypothesized model. Because the fit indices were almost indistinguishable, it is practice to then accept a parsimonious model. While adding the higher-order BPD latent variable makes theoretical sense, it does not add significantly to our understanding of the data. This simply means that the results suggest that the four factors are separate, but related, constructs, not factors that are a part of the same construct.

Relationships between the four oblique factors were generally anticipated, including positive correlations between Emotion Dysregulation and Impulsivity, Emotion Dysregulation and Deficits in Self-Reflection, and Impulsivity and Deficits in Self-Reflection. Surprisingly, relationships between Deficits in Narrative Construction and Impulsivity and Deficits in Self-Reflection were non-significant. As suggested previously, this could be related to a myriad of factors, including method variance, sample artifacts, weak inter-rater reliability, etc. A particularly surprising finding was the negative relationship between Emotion Dysregulation and Deficits in Narrative Construction. In other words, it was found that higher levels of emotion dysregulation were related to lower deficits in narrative construction. This finding is not in keeping with previous research and theoretical notions conveying that greater emotional dysregulation would likely result in reduced abilities to access semantic networks and complete
word coherence tasks that are likely related to narrative construction (Baumann & Kuhl, 2002; Fonagy & Luyten, 2009).

One possible explanation for this finding may be that higher levels of emotion dysregulation are indicative of higher levels of rumination, which may result in rehearsal of particular life events that are later recalled with ease and constructed strongly based on ruminative processes. Previous research has shown that rumination is a maladaptive emotion regulation technique that is associated with mental illness (for a review see Aldao, Nolen-Hoeksema, & Schweizer, 2010). It could be that individuals with higher levels of emotion dysregulation are using ruminative techniques to regulate their emotions, thereby recalling and rehearsing life story events. By rehearsing such events, it is possible that lower levels of deficits in narrative construction are associated with heightened rumination and indirectly linked to high emotion dysregulation. It would be interesting to see if the relationship between these two constructs changes depending on the affective tone of a recalled event. For instance, the relationship between these two constructs may be stronger when individuals recalled low points versus when they recalled high points, for individuals tend to ruminate more on negative events and emotions than positive ones (Nolen-Hoeksema, 1991; Trapnell & Campbell, 1999). Future research should investigate this possibility.

 Relationships between the four oblique factors and a measure of BPD symptoms were then investigated and revealed expected findings with one notable exception. It was found that a measure of BPD symptoms predicted higher levels of Emotion Dysregulation, Impulsivity, and Deficits in Self-Reflection as anticipated. However, this measure also predicted lower levels of Deficits in Narrative Construction, an unexpected finding. One possibility is that items on the BPD measure include cognitive symptoms (e.g. I thought of hurting myself; Criticism had a
devastating effect on me) that may be conceptually related to ruminative processes. In considering the above hypothesis that heightened rumination may reflect lower levels of Deficits in Narrative Construction, this relationship may be indicative of an underlying association between rumination and narrative construction. Future research should investigate if rumination is related to heightened narrative construction abilities.

**Limitations and Future Directions**

While the above findings are interesting, there are some notable limitations that should be outlined. Participants in the following study were recruited either from a university sample or from online survey users. This can be problematic especially considering that the constructs under investigation are of a psychopathological nature. Low levels of psychopathology and endorsement may have resulted in non-significant relationships where one may find associations in a clinical sample. Additionally, it is possible that at particular levels of psychopathology greater abilities to construct a narrative are present due to a combination of rehearsal and high functioning, although at extreme psychopathological levels this relationship may be reversed (i.e. a quadratic function). Because the relationships investigated in this study may be distinct in a clinical sample, it is highly recommended that future investigations recruit participants from a clinical population. Relatedly, differences between the student and the online sample may have been prominent and it could prove useful to examine the above models separately for each type of sample. This is important especially considering age differences between the samples ($M_{age}$ for student sample = 18.80 vs. for online sample = 34.30; $t(189) = -15.17, p = .000$). Questions related to identity formation and disturbance are directly tied to age, and the average age of the student sample may still fall within phases of identity development and formation (Erikson, 1959, 1968; Habermas & Bluck, 2000; McAdams, 2001). It would be interesting to examine
differences in model fit across these samples, and it is recommended that this is conducted in future research.

In addition to the above, the reliability estimates obtained from the double coded narratives were not optimal. While the two coders engaged in several meetings to increase convergence, reliability was still low, especially for meaning-making codes. As such, findings related to coded narratives should be regarded with caution. Another limitation of the above study is the exclusion of interpersonal factors in assessing identity disturbance. Previous theoretical and empirical research has shown that interpersonal disturbances might play a large role in disturbances in identity formation (Fuchs, 2007; McLean et al., 2007). In line with studies that have investigated the factor structure of BPD and in order to avoid over-burdening the participants in this study, it was decided that questions pertaining to interpersonal relationships would not be included. However, the inclusion of such measures may have significantly altered the relationships obtained in this study. Future research should attempt to elucidate the relationships between identity disturbance, emotion dysregulation, impulsivity, and interpersonal relationships within one study sample.

While still considering the above limitations, findings from this study have provided empirical relationships between symptoms of BPD previously investigated (i.e. emotion dysregulation and impulsivity), and two new constructs that have yet to be examined within this context (i.e. deficits in narrative construction and self-reflection). Although the two constructs did not load onto a higher order factor of identity disturbance, both are still theoretically linked to identity formation and possible issues with identity. In considering this, future research should begin to include measures of self-reflection and narrative reports in their research when investigating individuals with BPD symptomology. By doing so, the intra- and interpersonal
Implications of these symptoms might be more readily identified. This would then lead to possible advancements in treatment techniques that may focus more directly on enhancing self-reflexive and narrative capacities, rather than just focusing on behavioural and emotional regulation.

Current literature investigating narratives in the context of psychotherapy and mental health have found that increasing themes of agency throughout therapy were related to positive therapeutic outcomes (Adler, 2012). Further, themes of agency, communion, redemption, and contamination in participant’s life stories before they received a major medical diagnosis were significantly related to mental health outcomes after participant’s received this diagnosis (Adler et al., 2015). This illustrates that narratives are not only related to outcomes throughout therapy, but the way in which individuals construct their narratives can serve as a protective factor against the development of mental illness in the face of a particular hardship. In line with this, research has shown that writing about important experiences for a minimum of 15 minutes over three days results in improvements in both mental and physical health (Pennebaker, 1997; Pennebaker & Seagal, 1999). More specifically, those who benefited the most from this exercise constructed their narratives in a particular way: They used many positive-emotion words, a moderate number of negative-emotion words, and displayed an increase in the amount of cognitive words used (Pennebaker & Seagal, 1999). Such findings can be used to guide future psychotherapeutic techniques in the treatment of individuals with BPD, in order to more maximally treat and enhance the lives of individuals with this diagnosis.

In addition to the positive psychotherapeutic benefits of narratives, the finding that deficits in self-reflection are related to emotion dysregulation, impulsivity, and a measure of BPD symptomology provides greater impetus for focusing on enhancing self-reflexive capacities
in treatment. In their paper, Levy et al. (2006) described the mechanisms of change in Transference Focused Psychotherapy (TFP) for individuals with BPD. In TFP, a focus on changes in reflective function (i.e. the ability to observe, reflect, and describe emotional states, predict and understand behavior, and recognize and differentiate between inner and outer reality) as a mechanism of change is delineated. In considering this, research has shown that TFP is effective in treating BPD in comparison to treatment-as-usual (Doering et al., 2010) and that TFP was associated with greater symptom reduction in anger and impulsivity in comparison to dialectical behaviour therapy (DBT; Clarkin, Levy, Lenzenweger, & Kernberg, 2007). Further, Mentalization-Based Treatment described above (Fonagy & Bateman, 2006; Fonagy & Luyten, 2009) has been found to be effective in treating BPD in comparison to treatment-as-usual (Bateman & Fonagy, 2008), and also focuses on enhancing self-reflexive capacities in individuals with BPD. The empirical associations outlined in this study may provide greater support for the likelihood that enhancing self-reflexive and narrative capacities will also reduce symptoms associated with maladaptive impulsivity, emotion dysregulation, and possibly identity disturbance. Future investigations should attempt to identify which particular treatment techniques address symptoms associated with identity disturbance, and if the inclusion of techniques specific to self-reflection and narrative construction address this symptom more readily.

Overall, the current investigation has provided new evidence to support the notion that deficits in self-reflection and narrative construction are in fact related to symptoms of BPD. Future research should focus on more clearly identifying the relationship between emotion dysregulation, BPD symptomology, and deficits in narrative construction, especially considering the unexpected findings obtained in this study. Nevertheless, it is hoped that this research will
prove fruitful in further advancing our current understanding of identity disturbance in the context of BPD. By doing so, treatment techniques can be implemented to provide a more holistic approach to alleviating symptoms associated with BPD, thereby enhancing the lives of individuals diagnosed with this disorder.
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IDENTITY DISTURBANCE AND BORDERLINE TRAITS

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## Appendix A: Connecting Definitions of Identity Disturbance in the Current Literature to Related Constructs

<table>
<thead>
<tr>
<th>Study</th>
<th>Definitions of Identity Disturbance found to be Related to BPD</th>
<th>Related Constructs</th>
</tr>
</thead>
</table>
2. Lack of commitment to specific goals, values, and beliefs | 1. Impulsivity and emotion dysregulation  
2. Deficits in self-reflection |
| Carlson et al. (2009) | Self-representation in relation to oneself in the context of relationships | Interpersonal disturbances |
| Wilkinson-Ryan & Westen (2001) | 1. Role absorption – define oneself in relation to a single role or cause  
2. Painful incoherence – subjective lack of coherence  
3. Inconsistency – objective lack of coherence | 1. Deficits in self-reflection  
2. Decreased narrative coherence  
3. Impulsivity and emotion dysregulation |
Appendix B: Factor Structure of Identity Disturbance, Three Hypothesized Models, and the Structural Relationship with a Measure of BPD Symptoms

Figure 1. One-factor structure of borderline personality disorder. BPD = Borderline Personality Disorder. AIM = Affective Intensity Measure. BPD = Borderline Personality Disorder. DERS = Difficulties in Emotion Regulation Scale. DII = Dickman Impulsivity Inventory-Short. ESQ = Emotion Sensitivity Questionnaire. I7 = Impulsiveness Questionnaire. SRIS = Self-Reflection and Insight Scale. TAS-20 = Toronto Alexithymia Scale. UPPS-P = UPPS-P Impulsive Behavior Scale. Residual arrows and subscales have been omitted.
Figure 2. Two-factor structure of identity disturbance and three-factor structure of borderline personality disorder traits. AIM = Affective Intensity Measure. BPD = Borderline Personality Disorder. DERS = Difficulties in Emotion Regulation Scale. DII = Dickman Impulsivity Inventory-Short. ESQ = Emotion Sensitivity Questionnaire. I7 = Impulsiveness Questionnaire. SRIS = Self-Reflection and Insight Scale. TAS-20 = Toronto Alexithymia Scale. UPPS-P = UPPS-P Impulsive Behavior Scale. Residual arrows and subscales have been omitted.
Figure 3. Two-factor structure of identity disturbance and three-factor model with three oblique factors. AIM = Affective Intensity Measure. BPD = Borderline Personality Disorder. DERS = Difficulties in Emotion Regulation Scale. DII = Dickman Impulsivity Inventory-Short. ESQ = Emotion Sensitivity Questionnaire. I7 = Impulsiveness Questionnaire. SRIS = Self-Reflection and Insight Scale. TAS-20 = Toronto Alexithymia Scale. UPPS-P = UPPS-P Impulsive Behavior Scale. Residual arrows and subscales have been omitted.
## Appendix C: Psychometric Properties and Patterns of Correlations

### Table 1

**Psychometric Properties of the Study Variables**

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<th>Variable</th>
<th>( n )</th>
<th>( M )</th>
<th>( SD )</th>
<th>( \alpha )</th>
<th>Potential</th>
<th>Actual</th>
<th>Skew</th>
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<td>ESQ</td>
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<td>35.70</td>
<td>8.06</td>
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<td>10-60</td>
<td>15-54</td>
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<td>I(_2)</td>
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<td>10-33</td>
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**Notes.** Bolded values are significant at $p < .05$ level. AIM = Affective Intensity Measure. BSL = Borderline Symptom List. DERS = Difficulties in Emotion Regulation Scale. DERS1 = Nonacceptance of Emotion Responses. DERS2 = Engaging in Goal-Directed Behaviour. DERS3 = Impulse Control Difficulties. DERS4 = Lack of Emotional Awareness, DERS5 = Limited Access to Emotion Regulation Strategies. DERS6 = Lack of Emotional Clarity. DII = Dickman Impulsivity Inventory – Short. DII1 = Functional Impulsivity. DII2 = Dysfunctional Impulsivity. ESQ = Emotion Sensitivity Questionnaire. HP1 = High Point Context. HP2 = High Point Chronology. HP3 = High Point Thematic Coherence. HP4 = High Point Meaning-Making. I1 = Impulsiveness Questionnaire. I1
Appendix D: Measurement Models and Associated Factor Loadings

![Diagram](image)

Figure 1. Emotion Dysregulation measurement model and factor loadings. AIM = Affective Intensity Measure. DERS = Difficulties in Emotion Regulation Scale. DERS1 = Nonacceptance of Emotional Responses. DERS2 = Engaging in Goal-Directed Behaviour. DERS3 = Impulse Control Difficulties. DERS4 = Lack of Emotional Awareness, DERS5 = Limited Access to Emotion Regulation Strategies. DERS6 = Lack of Emotional Clarity. ESQ = Emotion Sensitivity Questionnaire. All loadings significant at $p < .000$. Residual arrows have been omitted.
Figure 2. Impulsivity measurement model and factor loadings. DII = Dickman Impulsivity Inventory – Short. DII2 = Dysfunctional Impulsivity. UPPS = UPPS-P Impulsive Behaviour Scale. UPPS1 = Negative Urgency. UPPS2 = (lack of) Premeditation. UPPS3 = (lack of) Perseverance. UPPS4 = Sensation Seeking. UPPS5 = Positive Urgency. I7 = Impulsiveness Questionnaire. I71 = Impulsiveness. I72 = Venturesomeness. All loadings significant at $p < .000$. Residual arrows have been omitted.
Figure 3. Deficits in Narrative Construction measurement model and factor loadings. HP1 = High Point Context. HP2 = High Point Chronology. HP3 = High Point Thematic Coherence. HP4 = High Point Meaning-Making. LP1 = Low Point Context. LP2 = Low Point Chronology. LP3 = Low Point Thematic Coherence. LP4 = Low Point Meaning-Making. PW1 = Personal Wisdom Context. PW2 = Personal Wisdom Chronology. PW3 = Personal Wisdom Thematic Coherence. PW4 = Personal Wisdom Meaning-Making. TP1 = Turning Point Context. TP2 = Turning Point Chronology. TP3 = Turning Point Thematic Coherence. TP4 = Turning Point Meaning-Making. All loadings significant at $p < .001$. Residual arrows have been omitted.
Figure 4. Deficits in Self-Reflection measurement model and factor loadings. SRIS subscales are keyed in the opposite direction, such that higher scores on the SRIS are indicative of greater self-reflection abilities. DERS = Difficulties in Emotion Regulation Scale. DERS4 = Lack of Emotional Awareness. SRIS = Self-Reflection and Insight Scale. SRIS1 = Engagement in Self-Reflection. SRIS2 = Need for Self-Reflection. SRIS3 = Insight. TAS = Toronto Alexithymia Scale-20. TAS1 = Difficulty identifying feelings. TAS2 = Difficulty describing feelings. TAS3 = Externally-oriented thinking. All loadings significant at $p < .000$. Residual arrows have been omitted.
Figure 1. Identity Disturbance structural model with two oblique factors. DERS = Difficulties in Emotion Regulation Scale. DERS4 = Lack of Emotional Awareness. SRIS = Self-Reflection and Insight Scale. TAS-20 = Toronto Alexithymia Scale-20. The relationship between the two latent variables was not significant ($p = .395$). Residual arrows and subscales have been omitted.
Figure 3. Higher order BPD Traits four-factor model and factor loadings. AIM = Affective Intensity Measure. BPD = Borderline personality disorder. DERS = Difficulties in Emotion Regulation Scale. DERS4 = Lack of Emotional Awareness. DII = Dickman Impulsivity Inventory – Short (Dysfunctional Subscale). ESQ = Emotion Sensitivity Questionnaire. I7 = Impulsiveness Questionnaire. SRIS = Self-Reflection and Insight Scale. TAS-20 = Toronto Alexithymia Scale-20. UPPS-P = UPPS-P Impulsive Behaviour Scale. All significant values, *p < .000. Residual arrows and subscales have been omitted.
Figure 4. Model with four oblique factors and relationships between factors. AIM = Affective Intensity Measure. DERS = Difficulties in Emotion Regulation Scale. DERS4 = Lack of Emotional Awareness. DII = Dickman Impulsivity Inventory – Short (Dysfunctional Subscale). ESQ = Emotion Sensitivity Questionnaire. I7 = Impulsiveness Questionnaire. SRIS = Self-Reflection and Insight Scale. TAS-20 = Toronto Alexithymia Scale-20. UPPS-P = UPPS-P Impulsive Behaviour Scale. All factor loadings = .07 are non-significant. All other factor loadings are significant at $p < .047$. Residual arrows and subscales have been omitted.
Appendix F: Regression Model with Four Latent Variables Regressed on a Measure of BPD Traits

Figure 1. Regression model with four latent variables regressed on a measure of borderline personality disorder traits. AIM = Affective Intensity Measure. BSL-23 = Borderline Symptom List-23. BSL-sup = Borderline Symptom List Supplemental Form. DERS = Difficulties in Emotion Regulation Scale. DERS4 = Lack of Emotional Awareness. DII = Dickman Impulsivity Inventory – Short (Dysfunctional Subscale). ESQ = Emotion Sensitivity Questionnaire. I7 = Impulsiveness Questionnaire. SRIS = Self-Reflection and Insight Scale. TAS-20 = Toronto Alexithymia Scale-20. UPPS-P = UPPS-P Impulsive Behaviour Scale. All values are significant at $p < .013$. Residual arrows and subscales have been omitted.