EXPLAINING THE RELATIONSHIP BETWEEN BORDERLINE PERSONALITY FEATURES AND SUICIDAL IDEATION

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Researchers have previously identified substance use and borderline personality disorder as factors that increase risk for suicidal thoughts and behaviors. This study explored the relationship between these factors in samples of students and individuals seeking outpatient treatment. Supplemental data collected via the internet (MTurk) also looked at experiential avoidance (EA) with the Avoidance and Fusion Questionnaire for Youth. The Structured Clinical Interview for the DSM-IV, Alcohol Use Disorders Identification Test, Scale for Suicide Ideation, and Personality Assessment Inventory- Borderline Features Scale elicited information regarding severity and/or frequency of substance use, suicidal thoughts, and borderline features respectively. Additionally, the Psychiatric Diagnostic Screening Questionnaire was administered to the UNT sample. The UNT sample analyses indicate substance use moderates, strengthening, the relationship between borderline features and current suicidal thoughts. However, severity of suicidal thoughts was lower for individuals high in both borderline features and substance use disorder symptoms compared to those low in borderline features and high in substance use symptoms. The MTurk sample analyses suggest substance use functions as a mediator. A robust relationship existed between substance use severity and EA, showing substance use as a behavioral marker for EA. In conclusion, concurrent treatment of substance use and borderline personality features would be beneficial in reducing risk for suicidal thoughts. Further investigation into the role and utility of addressing EA is warranted.
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CHAPTER I

INTRODUCTION

A rate of 10.8 per 100,000 persons commit suicide in the United States each year, making suicide the 11th leading cause of death (Nock et al., 2008). An estimated 6.5 per 100,000 college students complete suicide each year (Lambert, McCarthy, Gilbert, Sebree, & Steinley-Bumgarner, 2006). These numbers suggest a growing public health concern that has a negative physical and emotional impact on those who commit, attempt or have thoughts about suicide, as well as affecting loved ones and contributing to economic costs.

Several studies have reported rates of suicidal ideation endorsed in college samples ranging from 6.2% to 21.6% (Brener, Hassan, & Barrios, 1999; Cukrowicz et al., 2011; Wilcox et al., 2010). The risk related to these substantial rates is emphasized by the finding that only 16% of a sample of 81 college students with current suicidal ideation has been in any form of treatment (Garlow et al., 2008). National survey studies have reported lifetime prevalence of suicidal ideation ranging from 3.7% to 14.3% in adults (Crosby, Han, Ortega, Parks, & Gfroerer, 2011; Nock et al., 2008). Research examining the variables contributing to suicidal thoughts and behaviors is needed to begin reducing the impact of suicide.

Suicidal ideation is a complicated construct that requires further exploration. As one of the criterion for major depressive disorder according to the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV; American Psychiatric Association [APA], 2000), ideation includes “a belief that others would be better off if the person were dead, to transient but recurrent thoughts of committing suicide, to actual specific plans of how to commit suicide.” The fifth edition of the Diagnostic and Statistical Manual of Mental Disorders also includes “a passive wish to not awaken in the morning” in its description of suicidal thoughts (DSM-5; APA,
Some research suggests that suicidal thoughts and behaviors may fall on a continuum (ideation to a suicide plan, then an attempt), while other authors have suggested the progression to suicide is not always linear and may be influenced by additional variables, such as impulsivity (Kessler, Borges, & Walters, 1999; Nock et al., 2008). Recommendations regarding an operational definition of suicide have suggested categorizing based on level of intent (want to die, unsure of desire to die, no desire to die) and severity of suicidality (casual, transient, passive, active, or persistent; Silverman, Berman, Sanddal, O’Carrol, & Joiner, 2007). An operational definition and understanding of the construct of suicidal ideation will assist researchers in conducting comparable research to identify risk markers and warning signs associated with suicidal thoughts and behaviors.

Many risk factors have already been identified as increasing the probabilistic risk for suicidal thoughts and behaviors. Age (particularly in the late teens, early twenties, and elderly), being female, African-American or Hispanic, previously married, lower education, previous suicide attempts and having an Axis I diagnosis have been statistically correlated to increased risk for suicidal ideation or behaviors (Borges, Walters, & Kessler, 2000; Brener et al., 1999; Kessler et al., 1999; Landheim, Bakken, & Vaglum, 2006; Rudd et al., 2006; Witte, Joiner, et al. 2006). Some differences have been identified; for instance, the elderly are at higher risk for completing suicide, while those in the younger risk group are at higher risk for thoughts, plans and attempts, not suicide itself. Additionally, one study did not find gender differences regarding risk (Brener et al., 1999). A review by Mann (2002) identified additional correlates as substance use, alcohol dependence, cigarette use, history of childhood adversity, family history of suicide, neurobiological factors, and available method for self-harm. In addition, several studies have identified a relationship between suicidality and psychiatric disorders (Bridge, Goldstein, &
There is evidence that being diagnosed with a personality disorder increases risk for suicidal thoughts and behaviors. A suicide rate of 4% to 8% has been identified for individuals with personality disorders across 23 study samples (Linehan, Razvi, Welch, & Page, 2000). Another review investigating the suicide rate across 19 studies estimated 20% to 40% of the suicides involved a personality disorder diagnosis (Duberstein & Conwell, 1997). Borderline, antisocial, avoidant, and schizoid personality disorders have been reported to be at increased risk (Duberstein & Conwell, 1997; Lieb, Zanarini, Schmahl, Linehan, & Bohus 2004; Hawton & Heeringen, 2009). A 3% to 9% suicide rate was calculated for individuals diagnosed with borderline personality disorder (Linehan et al., 2000). In addition, an examination of personality characteristics from a dimensional, rather than categorical, perspective has identified affect regulation difficulty, impulsive aggression, and perfectionism as personality characteristics associated with suicidal behavior (Links & Kolla, 2005). This study suggests that in addition to examining the relationship between suicidality and personality diagnoses, exploration of the symptoms and dimensional aspects of psychiatric disorders may provide clinically relevant information.

One psychiatric disorder of particular interest when discussing suicidal ideation and behaviors is borderline personality disorder (BPD). The 2004-2005 Wave 2 National Epidemiologic Survey on Alcohol and Related Conditions determined that 5.9% of individuals in the general population meet criteria for borderline personality disorder in the United States (Grant et al., 2008). It is estimated that 15% to 25% of individuals who present at clinical
settings have this diagnosis (Gunderson, 2009; Leichsenring, Leibing, Kruse, New, & Leweke, 2011). This means that 15% to 25% of clients experience a persistent and pervasive pattern of instability in interpersonal relationships, self-concept, mood, and demonstrates impulsivity that may lead to self-harm (physically, financially or interpersonally). This disorder is of particular interest when discussing suicidality, due to one of the nine diagnostic criteria being recurrent suicidal behaviors, gestures, or threats (*DSM-5*; APA, 2013).

Leichsenring and colleagues (2011) reported an 8% to 10% suicide mortality rate for individuals suffering from borderline personality disorder (APA, 2001). In addition, an estimated 60% to 70% of this clinical population makes suicide attempts (Gunderson, 2001; as cited in Oldham, 2006). A study by Mann, Waternaux, Haas, and Malone (1999) examined the characteristics of patients in a psychiatric hospital and determined that those who had attempted suicide in the past were more likely to have a diagnosis of borderline personality disorder than the individuals who had never made a suicide attempt. It is clear that this diagnosis indicates an increased risk for suicidal thought and behaviors. The characteristics of those with borderline personality disorder who are at higher risk for suicide include: previous attempters, older age, substance use history, comorbid mood disorders, high levels of hopelessness, family history of suicide or suicidal behavior, sexual abuse, and high levels of impulsivity or antisocial traits (APA, 2003; Black, Blum, Pfohl, & Hale, 2004; Brodsky, Malone, Ellis, Dulit, & Mann, 1997; Kullgren, 1988; Livesley, 2003; Oldham, 2006; Soloff, Fabio, Kelly, Malone & Mann, 2005; Soloff, Lynch, & Kelly, 2002; Soloff, Lynch, Kelly, Malone, & Mann, 2000; Stone, Stone, & Hurt, 1987; Yen et al., 2003). Another study, by Corbitt, Malone, Haas, and Mann (1996), determined that the number of personality symptoms better predicted past suicide behaviors than the number of depressive symptoms, suggesting examining both the presence of borderline
personality disorder and the severity of its symptoms are important to assessing risk. Thus, examining personality pathology on a continuum rather than dichotomy may be useful in determining risk factors for suicidal thoughts.

Several studies have also suggested clients with borderline personality disorder who have a comorbid substance use disorder may have increased risk for impulsive suicide attempts (Links & Kolla, 2005; Skodol, Oldham, & Gallaher, 1999; Yen et al., 2003; Zanarini et al., 1998). In one study (Stone, Stone & Hurt, 1987), a sample from this clinical population saw the suicide rate double for those experiencing alcohol problems (19%) compared to clients with borderline personality disorder without alcohol problems (8.5%). This suggests substance use may be contributing to increased suicide risk for this population.

Studies have examined the relationship between suicidal thoughts or behaviors and substance use, abuse, and dependence (Crosby, Espitia-Hardenman, Hill, Ortego & Clavel-Arcas, 2009; Kessler et al, 1999; Schaffer, Jeglic & Stanley, 2008). Pfaff, Almeida, Witte, Waesche, and Joiner (2007) determined that binge drinking behavior was associated with having a high number of suicide attempts. In an undergraduate population, those who endorsed current suicidal ideation were more likely to have used substances in the past 30 days (Brener et al., 1999). Pfaff and colleagues (2007) determined that heavy episodic drinkers were three to four times more at risk for suicide and individuals with alcohol abuse or dependence issues were ten times more at risk than the general population. Similarly, another study found individuals seeking treatment for opiate dependence were 13.5 times more at risk than the general population (Conner, Gunzler, Tang, Tu, & Maisto, 2011). Thus far, the literature indicates that both substance use and borderline personality disorder increase the risk for suicidal thoughts and behaviors.
Given this information it is concerning to think that as high as 60% and as low as 14% of individuals with borderline personality disorder also have a co-occurring substance use disorder (Drake, Williamson, Ross, Teesson & Lyskey, 2004; Links, Heslegrave, Mitton, Van Reekum, & Patrick, 1995; Senol, Dereboy & Yuksel, 1997; Trull, Sher, Minks-Brown, Durbin, & Burr, 2000; Zanarini et al., 2004). Findings from Preuss, Koller, Barnow, Eilmeier, and Soyka (2006) indicated individuals with comorbid personality disorders and alcohol dependence had increased rates of suicidal attempt and suicidal thoughts. Other research found suicide attempters with personality disorders were more likely to have had previous treatment, a substance use disorder diagnosis, and depressive symptoms when compared to attempters without a personality disorder diagnosis (Suominen, Isometsa, Henriksson, Ostsamom, & Lonnqvist, 2000). However, another study did not find a difference between two similar groups regarding alcohol or drug dependence (Berk, Jeglic, Brown, Heniques, & Beck, 2007). This may have been due to the use of categorical diagnoses rather than an examination of the severity of substance use disorder based on the number of symptoms. A study using 200 substance dependent men on an inpatient unit determined that those with a history of suicide attempts had increased rates of drug dependence and borderline personality disorder diagnoses (Evren, Cinar, Evren & Celik, 2011).

Considering the results discussed from previous research, it seems apparent that a relationship between suicide and borderline personality disorder, substance use and suicide, and borderline personality disorder and substance use. These relationships may be interacting in such a manner that substance use is functioning as a moderating variable in the relationship between borderline personality disorder and suicidal ideation and behavior. The current study explored this relationship and a potential interaction effect.
Experiential avoidance (EA) is thought to explain why substance use may moderate the relationship between BPD features and suicidal thoughts. EA is an unwillingness to experience unpleasant or unwanted thoughts, emotions, or sensations (Hayes, Wilson, Gifford, Follette & Strosahl, 1996). EA was identified as mediating problem behaviors that include substance use, deliberate self-harm, and other behaviors that could lead to negative consequences (Kingston, Clarke & Remington, 2010). EA has been correlated to psychological symptoms and measures of behavioral problems in several reviews (Hayes et al., 2004; Hayes, Luoma, Bond, Masuda, & Lillis, 2006; Kashdan, Barrios, Forsyth, Steger, 2006; Schmalz & Murrell, 2010). Linehan’s biosocial model of BPD also addresses the development of EA as a coping mechanism resulting in engagement in maladaptive behaviors (Linehan, 1993a, b). Additionally, several studies and theories have explained self-harm, non-fatal and suicide attempts alike, as a method of avoiding or escaping unwanted emotional arousal (Baumeister, 1990; Chapman, Gratz, & Brown, 2006; Joiner, 2002). Hayes et al. (1996) identified substance misuse as an effective way to alter one’s experience for the potential purpose of engaging in experiential avoidance.

The literature on experiential avoidance suggests that substance use may function as a behavioral marker for EA. Additionally, given the increased use of EA in those with BPD, it seems likely that with more borderline personality disorder features endorsed there may be more maladaptive EA (Baumeister, 1990; Berking, Neacsiu, Comtois, & Linehan, 2009; Chapman, Dixon-Gordon, & Walters, 2011; Chapman, Specht, & Celluncci, 2005; Grilo, Walker, Becker, Edell, & McGlashan, 1997; Kruegedelbach, McCormick, Schulz, & Grueneich, 1993; Linehan, 1993; Malow, West, Williams, & Sutker, 1989; Paxton & Diggins, 1997; Vollrath, Alneas, & Torgersen, 1995; Wagner & Linehan, 1995). Given this information, the current study theorizes EA may be the mechanism underlying the potential effect of substance use on the relationship
between BPD and suicidal thoughts. Therefore, this study additionally sought to confirm that
substance use functions as a behavioral marker for experiential avoidance
CHAPTER II
REVIEW OF LITERATURE

Suicide

Suicide is an ever growing public health concern in our society. Nock et al. (2008) identified a worldwide rate of 16.7 per 100,000 persons each year that commit suicide. In addition, the United States alone saw a rate of 10.8 per 100,000 persons commit suicide, resulting in suicide being the 11th leading cause of death in this country (Nock et al., 2008). These numbers only reflect the rate of completed suicide and do not include those who have attempted suicide without completion or those who have seriously considered suicide, both of which may impact economic costs and level of distress for the individual and their loved ones.

In 1999, Brener et al. conducted a national study on college campuses to determine the number of individuals who had seriously considered suicide. One in ten students endorsed contemplating suicide. Another study of college students at a single mid-Atlantic university identified a rate of 12% of individuals endorsing suicidal ideation during their time in college (Wilcox et al., 2010). Curkowicz et al. (2011) conducted three separate studies using three different self-report measures of suicidal ideation at two universities to determine if suicidal ideation spans a range of severity in depressive symptoms. Not only did they determine a significant difference in the presence of suicidal ideation between no depressive symptoms and mild to severe depressive symptoms, they also reported rates of elevated suicidal ideation ranging from 6.2% to 21.6% across the three studies. In addition, these researchers cited a rate of 6.5 per 100,000 college students completing suicide (Lambert et al., 2006). This is more disturbing when considering that one study determined that only 16% of 81 college students who endorsed current suicidal ideation have engaged in some form of treatment (Garlow et al., 2008).
The identification of additional correlates to suicidal ideation in the college population would help with suicide awareness and outreach efforts. The lifetime prevalence of adults in the United States who endorsed suicidal thoughts was 5.6 to 14.3% according to Nock et al. (2008). In 2011 the Centers for Disease Control reported that during a 2008-2009 collection period, an average of 3.7% of adults experienced suicidal thoughts nationwide. This estimated prevalence rate varied by state, with the highest being 6.8% of individuals in Utah. Despite the variability in the prevalence rates reported, there is a clear need to gain a better understanding of the risk markers associated with suicidal thoughts and behaviors. The following study aimed to identify and examine particular variables associated with suicide to determine the nature of their relationship.

Defining Suicidal Ideation

In order to study suicidal ideation an understanding of the construct must first be established. In psychiatric, diagnostic terms, suicidal ideation is a criterion for major depressive disorder, according to both the *Diagnostic and Statistical Manual of Mental Disorders, Fourth and Fifth Editions* (DSM-IV; APA, 2000; DSM-5; APA, 2013). Various levels of suicidal thoughts are described in the *DSM-IV*, “from a belief that others would be better off if the person were dead, to transient but recurrent thoughts of committing suicide, to actual specific plans of how to commit suicide”(APA, 2000). The *DSM-5* also includes “a passive wish to not awaken in the morning” in its description of suicidal thoughts (APA, 2013). In addition to its reference in major depression, recurrent suicidal behaviors and gestures are also presented as criterion for borderline personality disorder (APA, 2013; APA, 2000). As is alluded to in the description of suicidal thoughts, the frequency and intensity of suicidal thoughts or behaviors may vary based on the individual and time. Of the 9.2% of individuals identified by Nock et al. (2008) as having experienced suicidal thoughts in their lifetime, 60% subsequently developed a plan for suicide or
made an attempt within a year of suicidal ideation onset. Based on these findings, suicidal ideation and behaviors may fall on a continuum suggesting that individuals who have experienced suicidal ideation may be at high risk for attempt or completion of suicide later.

A study by Kessler et al. (1999) provides additional information regarding the consideration of this construct as functioning on a continuum. They examined data from a national survey and determined a probability of 57.9% for those with a history of suicidal ideation to later engage in a planned suicide attempt, while a 25.2% probability was present for attempts without a plan. Therefore, while some individuals took the next step to planning, others skipped the planning stage and went straight to an attempt. This indicates that another factor, such as impulsivity, may be playing a role in the progression of suicidal thoughts and behaviors. Severity of suicidal ideation and behaviors may also become confusing due to the rate of one completed suicides for every ten to twenty attempts (Pfaff et al., 2007). This rate of completions to attempts leaves one to wonder if the attempters were truly intending to die.

In an effort to establish a practical definition of suicidal ideation and behaviors to assist researchers, Silverman et al. (2007) re-evaluated the suicide terminology in relation to intent and severity. Having a cohesive definition would allow for more consistency across studies and therefore provide a method of comparing results across studies. Generally, suicide was identified as a number of varied behaviors rather than just one single act. Silverman et al. (2007) determined that being able to classify the level of intent and severity of suicidality would be most valuable. Intent refers to the individual’s reasons for the suicidal behavior; in other words, did they intend to die or was there another motivation (e.g. seeking attention)? After intent is determined, researchers may wish to examine whether the individual’s suicidal thoughts and behaviors fit best with one of the following five categories: casual, transient, passive, active, and
persistent. Identifying where a person fits in these two areas ensures a representation of the individual’s severity and intensity of suicidal thoughts and behaviors.

By utilizing this method of identifying severity and intensity of suicidal thoughts and behaviors we may be able to better categorize who is at higher risk for suicide and compare the characteristics of these individuals across studies. While there has not been any research to determine if this nomenclature improves the effective communication of research on suicide, it has been cited in over 60 articles, indicating that it has likely been incorporated in some studies. Having an understanding of the construct of suicidal ideation and behaviors helps researchers in identifying risk markers and warning signs that may indicate the presence of suicidal thoughts and behaviors.

*Risk Factors for Suicidal Ideation and Behaviors*

Several studies have explored the variables and conditions that may influence risk for suicidal thoughts or behaviors. Risk factors can be thought of as long-term or lifetime factors that are associated with an increased probabilistic risk for suicidal thought and behaviors. These factors may include any variable that has been statistically correlated to suicidal tendencies and may include age, gender, psychiatric diagnosis, and previous suicidal acts (Rudd et al., 2006). According to Kessler and colleagues (1999) those at highest risk for suicidal thoughts, plans and attempts are those who are in their early twenties and late teens. However, elderly individuals have been found to be at the highest risk of completing a suicide (Witte et al., 2006). Borges et al. (2000) identified being female, previously married, younger, and having a lower education as associated with attempting suicide. However, Brener et al. (1999) did not identify gender differences in suicidal thoughts and behaviors. Other studies have confirmed being female as a risk factor and have added previous suicide attempts, having an Axis I diagnosis (except
generalized anxiety disorder), and being African-American or Hispanic as associated with increased risk for suicidality (Brener et al., 1999; Landheim et al., 2006).

Mann (2002) conducted a review of the correlates identified through research and reported substance use, alcohol dependence, cigarette use, history of childhood adversity, and availability of methods for suicide as associated with increased risk for suicidal behavior. In addition, a review of literature regarding biological factors contributing to suicide risk included family history of suicide, neurobiological factors (e.g., reduced serotonin), neurologic disorders, and head injury (Mann, 2002). Psychological autopsy studies, which utilize medical record review and collateral information from family, have concluded that about 90% of those who complete suicide were experiencing a psychiatric disorder (Cavanagh et al., 2003).

Several mental health disorders have been associated with suicidal thoughts and behaviors. For example, 80% of a sample endorsing suicidality also met criteria for one or more psychiatric diagnoses in the 12 months preceding data collection for the National Comorbidity Survey-Replication (NCS-R; Kessler et al., 2005). Affective disorders, particularly major depression, anxiety disorders, and substance use disorders have been identified as being associated with suicidal ideation and behaviors (Kessler et al., 2005). Additionally, individuals who experience bipolar disorder (Goodwin & Jamison, 2007), schizophrenia (Palmer et al., 2005) and eating disorders (Bridge et al., 2006; as cited in Hawton & Heeringen, 2009) have higher risk of suicide. Mood and other Axis I disorders are not the only psychiatric disorders that contribute to the risk for suicide; personality disorders have also been identified as having an increased rate of suicidal behavior.

Rates of suicide reported by Linehan et al. (2000) across 23 samples of individuals with personality disorders identified a 4% to 8% rate of suicide. Individuals with borderline
personality disorder were examined and a suicide rate of 3% to 9% was identified for this diagnostic group (Linehan et al., 2000). In a review examining rates of suicides across 19 studies, approximately 20% to 40% of suicides were completed by individuals diagnosed with a personality disorder (Duberstein & Conwell, 1997). Individuals diagnosed with borderline, antisocial, avoidant and schizoid personality disorders were reported to be at increased risk (Duberstein & Conwell, 1997; Lieb et al., 2004; Hawton & Heeringen, 2009). Another study, conducted in Finland, compared 65 patients who did not have a personality disorder to 46 who were diagnosed with a personality disorder according to the DSM-III-R. Results suggested that individuals who suffered from a personality disorder were more likely to have made a suicide attempt in the past (Suominen et al., 2000). A match-controlled study by Lesage et al. (1994) identified 28% of those who died by suicide as having borderline personality disorder versus 4% with borderline personality disorder in the matched control group. While approximately 10% of those who complete suicide do not appear to have a psychiatric disorder, they may still be experiencing increased psychological symptoms and personality characteristics (Ernst, Lalovic, Lesage, Seguin, Tousignant, & Turecki 2004; Harwood, Hawton, Hope, & Jacoby, 2006; as cited in Hawton & Heeringen, 2009).

Hopelessness and depression have been shown to have strong associations with suicidal ideation; however, these variables do not necessarily indicate a linear causality (Shahar, Bareket, Rudd, & Joiner, 2006). This suggests that suicidal ideation may be influenced by hopelessness and depression, or a third variable may be significantly contributing in the variability of suicidal thoughts and behaviors. Sharar et al. (2006) suggest that these contributing variables may include neuroticism, impulsivity, substance use or another mental health disorder. Witte, Fitzpatrick, Warren, Schatschneider, and Schmidt (2006) similarly found that hopelessness and depression
have limited specificity for suicidal tendencies and instead suggests that an inability to regulate mood and ideation may be more pertinent. An inability to regulate affect was also suggested as a personality characteristic associated with suicidal behavior by Links and Kolla (2005). These researchers viewed personality disorders from a dimensional perspective, rather than categorical. They identified three personality traits that are associated with suicidal behaviors; emotional dysregulation, impulsive aggression, and perfectionism. These studies suggest that while inquiry into the categorical diagnostic influences on suicidal ideation and behaviors is important, examining the symptoms and dimensional aspects of psychiatric conditions may also provide clinically relevant information.

In addition to the factors described above, it is prudent to mention a theoretical perspective of suicide presented by Joiner, Van Orden, Witte, and Rudd (2009) called the interpersonal theory of suicide. This theory associates three factors to increased risk for suicidal thoughts and behaviors, including the individual’s perceived burdensomeness, failed belongingness, and acquired capability for self-harm. Perceived burdensomeness is relatively self-explanatory and relates to the persons belief that their friends and families would be better off without them. Failed belongingness is similarly impacted by the individual’s views about their social relationships and an inability to feel connected with others. This construct seems supported by the findings that social relationships such as marriage, cohabitation with a romantic partner, and involvement in college fraternity function as protective factors against suicidal ideation and behaviors (Brener et al., 1999). These social experiences may foster a sense of perceived belongingness, thus eliminating failed belongingness as risk factor for these individuals.
Acquired capability refers to the development of the ability to cause self-harm. This may be acquired through witnessing violence, engaging in occupations that contain exposure to bodily harm (e.g. being a physician), self-mutilating behaviors, injection drug use or past suicide attempts (Joiner et al., 2009; Joiner et al., 2005). While there are many means of acquiring the capability for suicide, previous attempts may be the most influential. A comprehensive study looking at four populations identified past suicidal behavior as the best predictor of current suicide symptoms; including ideation, plans, and intent (Joiner et al., 2005). While this result is clinically relevant, it does not identify contributing factors to the initial attempt, thus making research into suicidal thoughts paramount for further understanding of suicide risk. The scope of the current study did not directly allow investigation into the constructs presented in the interpersonal theory of suicide. However, these constructs are useful in explaining previous findings and future findings related to suicidal ideation and behaviors.

There are clearly many demographic, psychosocial, and psychiatric factors that are associated with increased risk for suicide, and thus potentially increased risk for suicidal thoughts. The field of psychology would benefit from gaining a better understanding of the specific nature of some of these relationships. The current study pursued specific exploration of the relationship between borderline personality disorder, substance use disorders and suicidal ideation.

Borderline Personality Disorder

An examination of data collected in a national survey, the 2004-2005 Wave 2 National Epidemiologic Survey on Alcohol and Related Conditions, identified a rate of 5.9% of individuals meeting criteria for borderline personality disorder in the United States (Grant et al., 2008). In clinical populations borderline personality disorder is the most common personality
diagnosis, constituting 15% to 25% of patients in a clinical setting (Leichsenring et al., 2011; Gunderson, 2009).

The *DSM-IV-TR* and *DSM-5* diagnostic criterion for borderline personality disorder includes a persistent and pervasive pattern of instability in interpersonal relationships, self-concept, and mood (APA, 2000; APA 2013). This disorder also features marked impulsivity that may result in self-harm (physically, financially or interpersonally). Five of nine additional symptoms must be present for this diagnosis, including: 1) efforts to avoid abandonment, 2) fluctuating views of interpersonal relationships, 3) unstable self-image, 4) impulsivity with the potential to be self-damaging, 5) mood reactivity, 6) feelings of emptiness, 7) anger management concerns, 8) transient paranoia or dissociative symptoms, and 9) recurrent suicidal behaviors or gestures. It is not surprising that borderline personality disorder is associated with high rates of suicide given that one of the criteria possible for meeting this diagnosis is to exhibit suicidal behaviors or gestures.

**Borderline Personality Disorder and Suicide**

The mortality rate from suicide is 8% to 10% in those with borderline personality disorder, 50 times higher than the mortality rate in the general population (Leichsenring et al., 2011; APA, 2001). According to Gunderson (2001) 60% to 70% of individuals with borderline personality disorder make suicide attempts (as cited in Oldham, 2006). Other researchers have estimated that up to 75% of those suffering from borderline personality disorder have made a nonlethal suicide attempt in their lifetime (Gunderson, 1984; Stanley & Brodsky, 2005). Mann et al. (1999) compared characteristics of patients in a psychiatric hospital and found that more people who had a past suicide attempt had comorbid borderline personality disorder than those who had never made an attempt. In addition, 80% of those hospitalized with borderline
personality disorder have engaged in self-mutilation behavior, physical harm without the intent to die (Shearer, Peters, Quaytman, & Wadman, 1988; Stanley & Brodsky, 2005). While the current study did not delve into the realm of self-mutilation, it is relevant to note that self-injurious behavior may still lead to unintentional death and may indicate the presence of suicidal ideation. In addition, when considering the interpersonal theory of suicide (Joiner et al., 2009), it seems likely that self-mutilation may increase acquired capability and this increase the risk for suicide. However, exploration of this potential relationship is not within the scope of the current study.

In addition to the evidence presented suggesting the borderline personality disorder is highly correlated to suicidal tendencies, several studies have suggested that interactions between borderline personality disorder and other factors may result in increased risk for suicide. Suicide risk factors identified for those with borderline personality disorder include: previous attempts, older age, substance use, mood disorders, high levels of hopelessness, family history of suicide or suicidal behavior, sexual abuse, and high levels of impulsivity or antisocial traits (APA, 2003; Black et al., 2004; Brodsky et al., 1997; Kullgren, 1988; Livesley, 2003; Oldham, 2006; Soloff, Fabio, Kelly, Malone & Mann, 2005; Soloff, Lynch, & Kelly, 2002; Soloff et al., 2000; Stone et al., 1987; Yen et al., 2003). Soloff et al. (2000) studied a group of inpatients to determine that those who experience borderline personality disorder with comorbid depression may experience a slower escalation and longer duration of suicidal ideation, with a higher frequency and intensity of suicide attempts. In comparison, those only meeting criteria for borderline personality disorder with depressive symptoms may be reacting impulsively to interpersonal stressor(s) if they make a suicide attempt.
In a sample of inpatients diagnosed with borderline personality disorder according to the *DSM-III-R*, impulsivity was discovered as the sole criterion for borderline personality disorder to contribute to the prediction of the numbers of suicide attempts. This analysis was conducted by excluding the self-destructive behavior criteria and controlling for the effects of major depression and substance abuse (Brodsky et al., 1997). Interestingly, this study also concluded that the severity of borderline personality disorder was not associated with suicidal acts. However, Corbitt et al. (1996) found contradicting results, suggesting that the number of personality symptoms was a better predictor of past suicidal behavior than the number of depressive symptoms. This study recommended that both the presence of borderline personality disorder and the severity of its symptoms should be utilized in assessing risk for suicidal ideation and behaviors in patients with major depressive disorder.

Another study (Corbitt et al., 1996) examined the relationship between borderline personality disorder and major depression, finding that those with comorbid depression and those with depression alone were equally likely to have made a highly lethal suicide attempt. However, those with comorbid borderline personality disorder were more likely to have multiple serious attempts. Therefore, major depression and its symptoms are not the only comorbid disorder that can increase risk for suicidal ideation and behaviors.

Individuals with both borderline personality disorder and substance use disorder may be at higher risk for an impulsive suicide attempt and have been recorded as being at greater risk for suicide (Links & Kolla, 2005; Skodol et al., 1999; Yen et al., 2003; Zanarini et al., 1998). A longitudinal study of borderline personality disorder patients conducted by Stone et al. (1987) determined that the suicide rate for those with comorbid alcohol problems doubled (19%) from the 8.5% suicide rate for borderline patients without alcohol problems. Additionally, women
diagnosed with borderline personality disorder, alcohol dependence, and an affective disorder had a shocking suicide rate of 38%. A psychological autopsy study conducted in Finland identified a similar relationship between suicide, borderline personality disorder and substance use (Isometsa, 2001). Of the 229 suicides examined, 29% were suffering from an Axis II disorder and at least one Axis I disorder, 95% of which were depressive disorders or substance use disorders. However, other studies have identified borderline personality disorder as an independent risk factor for suicidal behavior above and beyond that of substance use disorders and other Axis I disorders (Brodsky et al., 1997). Thus, previous research indicates that borderline personality disorder is a significant risk factor for suicidality. Investigation into its effect on suicidal ideation, as well as variables contributing to the influence of borderline features, should be conducted. However, it has been clearly illustrated that borderline personality disorder is not the only diagnosis identified as increasing risk for suicidal ideation and behaviors.

Substance Use and Suicide

Those diagnosed with a substance use disorder are also especially susceptible to suicidal ideation and behaviors. Individuals experiencing difficulty with substance use may be heavy episodic drinkers or may meet the diagnostic criteria for substance abuse or dependence of either licit or illicit drugs. While the DSM-5 changes the way we diagnose substance use disorders, requiring a severity specified of mild, moderate, or severe, the data collected in the present study utilized measures based on the DSM-IV-TR and therefore diagnoses in this study are presented using the DSM-IV-TR terminology. Within the context of the DSM-IV-TR, substance abuse is marked by impairment in social and/or occupational functioning, whereas dependence involves the addition of tolerance, withdrawal, and/or losing control of substance use (APA, 2000). Hersen, Turner, and Beidel (2007) identified a comorbidity rate of 44% with Axis I disorder.
This may include major depression, which means that people with substance use disorders may have a higher risk of suicidal ideation.

One study that explored the possibility of substance use as a predictive variable for suicide was conducted by Pfaff et al. (2007). This study examined how suicide risk was related to the frequency and quantity of substance use, as well as other factors. While depressive symptoms were identified as significantly predicting suicidal ideation and past behaviors, those who drank higher quantities of alcohol at lower frequencies, binge drinkers, were seen as having higher numbers of suicide attempts. However, the authors did consider the possibility of a third variable, such as impulsivity, contributing to this relationship. Before continuing to examine the previous literature regarding substance use and suicidality, a definition of heavy episodic drinking, or binge drinking, is necessary.

Traditionally, heavy episodic drinking has been considered five or more drinks and this has been utilized in a multitude of studies since 1969. However, there have been recent empirical attempts to define heavy episodic drinking as it relates to the problems (physically, mentally, and socially) associated with such intense consumption. Jackson (2008) collected data from a sample of 115 undergraduate students via internet-based surveys. These surveys collected data regarding alcohol consumption, hangovers, negative psychosocial problems related to drinking, and subsequent consequences measured 10 months later. The results indicated that the best prediction of negative consequences occurred at 13 or more drinks for men and 10 or more drinks for women. It is unclear what societal changes or other factors led to this increased threshold for drinking problems. However, given that this empirically supported definition has not been incorporated into the literature to an extent that allows for cross-study comparisons, the proposed
study will include heavy episodic drinking as five or more drinks with the consideration that higher quantities are likely to be stronger predictors of problematic consequences.

In 2000, Borges et al. utilized the National Comorbidity Survey to examined suicidal ideation as it related to substance abuse, dependence, and use occurring without reaching diagnostic categorization. Their investigation identified that the substance use predictor variables achieved an odds ratio ranging from 2.8 to 17.6 in relation to suicidal ideation and behavior criterion variables. Additionally, the researchers saw a decline in the odds ratio range to 2.2 to 5.9 when they controlled for comorbid mental health disorders. Regardless of this decline, substance use and substance use disorders remained significant predictors of suicidal ideation and behaviors. This suggests the effect was not contingent upon co-occurring disorders.

Substance use was identified as being a significant predictor of future suicide attempts regardless of substance type. This investigation also determined that substance use disorders exhibited an increasing odds ratio across use, abuse and dependence. However, alcohol, inhalants, and heroin were the only substances that yielded statistically significant incremental effect as the severity of use increased. The reason behind the incremental effects for these particular substances remains unclear. It is possible that common alterations in the neurobiological process, such as increased dopamine levels and depression of the central nervous system, may be contributing to the influence of these substances (Gilpin & Koob, 2008; National Institute of Drug Abuse (NIDA), 2005; NIDA, 2010). Borges and colleagues’ exploration also yielded evidence that the number of substances and current use were stronger predictors than the type of substance used or history of use. Another study identified undergraduate students who had used substances in the past 30 days as being at higher risk for current suicidal ideation (Brener et al., 1999). These studies
contribute to the identification of substance use as associated with suicidal thoughts and behaviors.

Additional evidence of the relationship between substance use and suicidality has been collected by many researchers (Crosby et al., 2009; Kessler et al, 1999; Schaffer et al., 2008). As mentioned previously, the elderly tend to be at increased risk for completed suicides. However, an examination of the effect of substance use on this population identified use as increasing the risk for suicide attempts but not completed suicides (Pfaff et al., 2007). Alcohol use was proposed by Joiner (2005) to increase the capability to employ suicidal behaviors. This proposal is supported by research indicating that individuals with alcohol abuse or dependence are at ten times more risk for suicide than the general population (Pfaff et al., 2007). The same study found heavy episodic drinkers were three to four times more at risk for suicide. A study of individuals hospitalized for self-harm found that 50% abused substances (Haw, Hawton, Cassey, Bale, & Shepard, 2005; Hawton, Houston, Haw, Townsend & Harriss, 2003). In an examination of individuals seeking treatment for opiate dependence, Conner, Britton, Sworts, & Joiner (2007) identified this group as being at 13.5 times more risk for suicide than the general population. Congruent with these findings, average drinking intensity and drinking frequency predicted suicidal ideation, with depression partially mediating, in a study of alcohol dependent individuals seeking treatment (Conner et al., 2011). Conversely, substance use disorders did not predict the onset of suicidal thoughts in a general population study that occurred over a three year period (Ten Have et al., 2009). However, clinical samples of poly-substance abusers were discovered to have a higher rate of suicide attempt than those meeting criteria for only alcohol dependence (Landheim et al., 2006). Examination of the literature leads to the conclusion that substance use increases the risk for suicidal thoughts and behaviors across multiple populations.
The findings described thus far have made it clear that suicidal ideation and behaviors are a particular area of difficulty for those who meet criteria for borderline personality disorder and those who use, or misuse, substances. The comorbidity of these two types of disorder and their features are of particular interest in the current study. An examination of the effects of substance use and borderline personality features on suicidal ideation is warranted.

**Borderline Personality Disorder and Substance Use**

As high as 60% of those diagnosed with borderline personality disorder were identified as having a comorbid substance use disorder, with the lowest rate reported as 14% (Drake et al., 2004; Links et al., 1995; Trull et al., 2000; Senol et al., 1997; Zanarini et al., 2004). Given this high rate of comorbidity it is no surprise that researchers have included substance use as a covariate when studying borderline personality disorder and suicide. Preuss et al. (2006) identified and increased rate of suicide attempts and suicidal thoughts in inpatients receiving treatment for alcohol dependence that experienced a comorbid personality disorder. Suominen and colleagues (2000) utilized *DSM-III-R* diagnostic criteria and found that suicide attempters with personality disorders were more likely to have been in previous treatment, have a substance use disorder diagnosis, and depressive symptoms than attempters without personality disorders. However, another study (Berk et al., 2007) did not find a difference between patients with borderline personality disorder and those without this diagnosis regarding alcohol or drug dependence. However, this study may have examined substance use disorders as categorical rather than examining groups based on the number of substance use disorder symptoms endorsed (i.e., severity), potentially leaving out valuable data regarding the spectrum of substance use problems experienced in this population.
Research has also been conducted with a substance abusing populations regarding suicide attempt history and borderline personality disorder features. Evren et al. (2011) collected data from 200 male substance dependent inpatients and discovered that those with a history of suicide attempt had higher rates of borderline personality diagnoses and drug dependence. In addition, this study identified the severity of borderline personality disorder features as predictive of having engaged in a suicide attempt. This study fits with the proposal that borderline personality disorder may be indirectly associated with suicide through substance dependence (Mehlum, 2009).

The research described thus far presents clear evidence of a relationship between suicide and borderline personality disorder, substance use and borderline personality disorder, and substance use and suicide. Given these relationships, it is possible that substance use may function as a moderating variable in the relationship between borderline personality disorder and suicidal ideation. The current study attempts to explain this relationship.

Experiential Avoidance

In addition to identifying the interaction that occurs between borderline personality disorder, substance use, and suicidal thoughts, this study utilizes experiential avoidance to theorize why these relationships may exist. Experiential avoidance is an unwillingness to experience unwanted thoughts, emotions or sensations that the individual has appraised as negative. In order to avoid these unpleasant experiences the individual may take action to change the unwanted event or emotion (Hayes et al., 1996). Some behaviors that may be indicative of experiential avoidance include restriction of emotional expression, thought suppression, actively avoiding situations, using distracting activities to avoid thoughts or emotions, substance use, self-harm, binge eating, or suicide attempts (Chapman et al., 2011). The individual may engage
in these or other behaviors and use coping strategies to avoid negative internal experiences that ultimately result in an increase in the individual’s level of distress (Abramowitz, Tolin, & Street, 2001; Davies & Clark, 1998; Hayes et al., 1996; Macrae, Bodenhausen, Milne, & Ford, 1997; Wegner & Erber, 1992). Additionally, there may be social, psychological and physical consequences from the ways a person avoids these unwanted experiences (i.e., social withdrawal, substance use, or risky sexual behavior; Biglan, Hayes & Pistorello, 2008). Kingston et al. (2010) identify experiential avoidance as mediating problem behaviors that include substance use, deliberate self-harm, sexual promiscuity, and aggression.

Several reviews have identified EA as significantly correlated to psychological symptoms and measures of behavioral problems (Hayes et al., 2004, Hayes, et al., 2006, Kashdan et al., 2006, Schmalz & Murrell, 2010). Additionally, a review by Chapman et al. (2011) concluded that repeated and consistent employment of experiential avoidance behavior may have a long-term consequence of increasing distress. EA is thought to play an important role in the development and maintenance of psychopathology (Hayes et al., 1996). Additionally, experiential avoidance, such as thought suppression, may result in heightened levels of emotional distress and maladaptive behaviors in individuals with BPD (Chapman et al., 2005; Chapman et al., 2011; Cheavens et al., 2005). Chapman et al. (2011) describe the potential for a vicious cycle in which an individual with BPD experiences distress which increases behaviors intended to experientially avoid that may increase their physiological arousal and subjective distress resulting in chronic EA.

Linehan’s biosocial model of BPD (1993a, b) suggests that BDP develops in children with a biological vulnerability to emotions which is paired with an invalidating environment. This emotionally invalidating environment is not conducive to learning new coping skills or
methods to regulate one’s emotions. As an adult this individual may have difficulty responding appropriately to intense emotions and instead resort to maladaptive behaviors to escape their emotions, thus engaging in experiential avoidance. Researchers have suggested particular factors may contribute to the use of EA as a coping strategy, including: a) increased intensity of emotional responses, b) specific emotional responses that may be more self-directed and aversive (i.e., shame), c) lack of emotion regulation skills, d) low tolerance for emotional distress, and e) adverse life events (i.e., childhood trauma; Chapman et al., 2011; Sheehy, Goldsmith & Charles, 1980). Linehan’s biosocial theory indicates that individuals with BPD likely have increased levels of many of these traits.

Low tolerance for emotional distress may develop in those with BPD due to the increased emotional sensitivity researchers have identified through laboratory tasks. Lynch et al. (2006) used an emotion recognition task by a slowly morphing neutral to emotional face. Those with BDP identified the emotional state faster than the control group. This sensitivity may increase the frequency of distress and lower the coping resources available to the individual, thus resulting in low tolerance for emotional distress and reliance on avoidant coping (Chapman et al., 2011). Subsequent inability to regulate emotion may also result in the use of EA behaviors. Frustration tolerance, taken from rational emotive cognitive-behavioral therapy, may also play a role in the use of EA. Frustration tolerance is the expectation or belief that one’s emotions, experiences and problems should not be as distressing or unpleasant as they are experienced (Chapman et al., 2011). When an event, emotion or stressor develops the individual with low frustration tolerance will focus on the thought that it should not be occurring or their reaction should not be as intense as it is. This process results in reactionary behaviors that serve to escape
the problems and subsequent emotions rather than working to solve the issue or reframe the situation in an adaptive manner (Chapman et al., 2011).

Additionally, negative self-focused emotions and cognitive schemas like shame and defectiveness seem to be prominent among those with BPD (Chan, Hess, Whelton, & Yonge 2005; Crowe, 2004; Jovev & Jackson, 2004; Linehan, 1993a, b; Rusch et al., 2007). Increase levels of these types of emotions and schemas may result in the use of experientially avoidant behaviors (Baumeister, 1990; Chapman et al., 2011). Kruedelbach et al. (1993) determined that individuals with BPD who also abused substances we more impulsive and more likely to cope with avoidance/escape strategies than substance users without BPD. Additionally, BPD scores on the Millon Clinical Multiaxial Inventory-III were positively correlated to coping strategies of denial, self-distraetion, behavioral disengagement, and substance use (Vollrath et al., 1995). Avoidance behaviors such as dissociation, bulimia, and substance abuse have been identified as having higher rates among individuals with BPD (Linehan, 1993; Grilo et al., 1997; Malow et al., 1989; Paxton & Diggins, 1997; Wagner & Linehan, 1995; found in Chapman et al., 2005). Chapman et al. (2005) explored whether the severity of BPD is correlated to EA in a female inmate sample and hypothesized that EA functions as a moderator in the relationship between BPD and self-harm. This was done by collecting data on thought suppression, avoidant coping, and attitudes toward unwanted emotions. Results from this study indicated that BPD features were related to self-harm behaviors and EA. However, EA did not mediate the relationship between BPD and self-harm.

Several theories suggest that suicidal behavior, both non-fatal self-harm and suicide attempt, are a result of a desire to escape or reduce unwanted and aversive emotional arousal (Baumeister, 1990; Chapman et al., 2006; Joiner, 2002). A study by Chapman and Dixon-
Gordon (2007) examined the emotional antecedents and consequences of suicidal behavior in a female inmate sample. All participants who engaged in deliberate self-harm and an ambivalent suicide attempt reported negative emotions preceding the behavior (i.e., anger, sadness, guilt, and boredom). Of those who attempted suicide without ambiguity the largest proportion reported feeling anger prior to the attempt; however, participants in this group also reported relief, indifference, and calmness. Additionally, Chapman and Dixon-Gordon (2007) discovered that those who engaged in deliberate self-harm largely felt relief following the behavior and ambivalent suicide attempters felt guilt, whereas suicide attempters experienced anger after their attempt. The researchers suggested that these attempters may feel angry as a result of the attempt having failed. Ultimately their findings support the theory that EA plays a role in deliberate self-harm (Chapman & Dixon-Gordon 2007). The findings that some suicide attempters experience neutral or positive emotion does not necessarily eliminate EA as a factor in intended suicidal behavior. It is possible that the emotional avoidance is taking place earlier in the process, perhaps during suicidal thoughts and planning for an attempt.

In addition to research suggesting EA plays a role in both BPD and suicidal thoughts and behaviors, research also suggest that substance use functions as a behavioral marker for EA. Hayes et al. (1996) suggests that substance abuse is an effective way to alter an individual’s experience and some substance abusers are likely experiential avoiders. It is possible that even if the substance abusers did not initially begin substance use as a method to avoid experiences, over time the dysphoric and withdrawal states that result from substance use likely maintain the pattern of use (Baker, Piper, McCarthy, Majeskie & Fiore, 2004; Chawala & Ostafin, 2007; Marlatt & Gordon, 1985). While research examining the effect of EA on substance use has been mixed (Forsyth, Parker & Finlay, 2003), Steward, Zyolemsky and Eifert (2002) found that EA
was the best predictor of drinking for the purpose of coping and enhancement of experience. Additionally, drinkers who scored high on EA and had a negative life event were more likely to have a relapse than individuals with a negative life event that scored low on EA (Westrup, 1999). These studies suggest that EA may be a mechanism of action in initiating and maintaining substance use disorders.

Based on the above described research, experiential avoidance is seen as being a likely maladaptive method of coping among individuals with features of borderline personality disorder. Additionally, the research suggests that experiential avoidance mediates problem behaviors such as substance use and suicidal behaviors. Therefore, the current study theorized that substance use represents a behavioral marker for experiential avoidance and thus experiential avoidance may be the mechanism underlying the effect substance use potentially has on the relationship between BPD features and suicidal thoughts. The following research questions and hypotheses were the focus of the current study.

**Research Questions and Hypotheses**

**Research Questions**

Did substance use function as a moderator in the relationship between borderline personality disorder and suicidal ideation and behaviors? How did substance use affect this relationship?

**Hypotheses**

1) Based on the research by Borges et al. (2000), Evren et al. (2011), Pfaff et al. (2007), and Stone et al. (1987) indicating relationships exist between both borderline personality disorder and substance use with suicidality, substance use would be identified as functioning as a
moderator in the relationship between borderline features and lifetime severity of suicidal ideation and behaviors.

2) Provided that substance use indicates higher risk for suicide in studies by Conner et al. (2007) and Pfaff et al. (2007), it was predicted that increased severity of substance use, as measured by the number of substance use disorder symptoms, would strengthen the relationship between borderline personality disorder features and suicidal ideation and behaviors.

3) Determined whether substance use is a behavioral marker for experiential avoidance, as suggested by Hayes et al. (2006) and Kingston, Clarke, and Remington (2010).
CHAPTER III

METHODS

Participants

Power Analysis

A power analysis was conducted to estimate the number of participants needed to detect a moderate effect, Cohen’s $f^2=.35$, using an analysis of variance with four groups and 80% power. Results indicated a sample size of 142 would be needed to adequately power analyses for this study.

Subjects

The study utilized data drawn from a previously collected sample. The previously collected data consists of participants from two population pools: undergraduate students and clients recruited from an outpatient community clinic. The undergraduate students were recruited through their enrollment in psychology courses at the University of North Texas (UNT). This was done through the psychology department research participant pool, SONA, or via collaboration with professors announcing this research opportunity for extra credit. Each student participant received three research credit hours for participation. This sample was similar in demographic variables as that of the general population of students at UNT. Based on the UNT Fact Book (Spring 2012) demographics for the UNT campus include approximately 57% European-American, 13.9% African-American, 17.2% Hispanic, 6.4% Asian and Pacific Islander, 1.4% Native American and Alaskan, 2.7% non-resident alien, and 1.0% other or unknown. In addition, the UNT campus consists of approximately 55% females and 45% males. Demographics for the present study can be found in Table 1.
The second sample was recruited through the University of North Texas Psychology Clinic, located on the UNT campus in Denton, Texas. This clinic offers outpatient services that include assessment, individual therapy, group therapy, and family therapy. Clients seek treatment at this location for a variety of reasons ranging from severe mental illness with psychotic features to individuals seeking counseling for common life stressors. The typical demographic composition for the UNT Psychology Clinic consists of 80% White, 12% Black, and 8% other. In addition, approximately 8% of clinic clients are Hispanic and 72% are non-Hispanic. According to the clinic, gender representation reflects 58% women and 42% men (J. Rice, personal communication). Participants from the UNT Psychology Clinic were recruited by fliers being presented in the waiting room and handed to clients by staff at check-in for their scheduled services. Clients were offered a ten dollar incentive for their participation in this study.

In order to supplement the data previously collected, IRB approval was sought and a survey was posted on-line through Amazon Mechanical Turk (MTurk; www.MTurk.com). The MTurk site included the consent form and a link to the Qualtrics Survey. Both websites are secure and function as independent websites with no association each other. This allowed separation of the participant’s responses from the recruitment and compensation process making their responses anonymous. Participants were compensated two dollars for completion of the survey, determined by participants inputting the completion code from the end of the survey into MTurk. While MTurk participants have been shown to be from over 50 different countries (Buhrmester, Kwang & Godling, 2011) the current study restricted participants to those located in the United States. A sample of over 3,000 MTurk participants (including international) included 55% females, 36% non-whites, 31% non-Americans and an average age of 32.8 (SD = 11.5; Buhrmester et al, 2011). Surveys inquiring about depressive features, suicidal thoughts, and
similar constructs have been administered via internet and mail in self-report in previous studies; including studies conducted by individuals at the Center for Disease Control and Prevention (Brener et al., 1999; Drum, Brownson, Denmark & Smith, 2009; Rudd, Goulding & Bryan, 2011; Straiton, Roen, & Hjelmeland, 2012). Thus the methodology utilized is consistent with accepted research standards in this area.

Measures

Participants in this study were administered the measures described below.

*Structured Clinical Interview for DSM-IV (SCID) Substance Use Module*

The SCID (First, Gibbon, Spitzer, & Williams, 2002) assesses the presence of psychopathology through a structured interview that was developed based on the diagnostic criteria indicated in the *Diagnostic and Statistical Manual of mental disorders, 4th edition*. The SCID-I examines psychopathology related to Axis I disorders, whereas an alternated version, the SCID-II, examines personality disorders. While there are two versions of the SCID, clinical and research, the current study utilized the research version. This version has the advantage of identifying specifics for many disorders. More specifically, the SCID-I (research) covers the diagnostic criteria for mood episode, psychotic symptoms, psychotic disorders, mood disorders, substance use disorders, anxiety disorders, somatoform disorders, eating disorders, and adjustment disorders. This study utilized the substance use module of the SCID-I in identifying the frequency and severity of substance use.

The inter-rater reliability for the SCID-I substance use modules has been assessed with an adolescent sample and determined there was no significant difference between 71 inter-rater interviews (Martin, Pollock, Bukstein, and Lynch, 2000). Alcohol use disorders obtained a mean
kappa coefficient of 0.97 and substance use disorders ranged from .82 to 1.0. This indicates that the SCID can be reliably administered by multiple clinicians with sufficient agreement.

Another study found the SCID-I to have excellent inter-rater reliability on six of 10 diagnoses and fair to good reliability for the remaining modules (Zanarini et al., 2000). Test-retest reliability earned scores in the excellent to poor range. Broken down by module there were three modules identified as having excellent reliability, six fair to good, and one was poor (dysthymia). This measure is useful in both diagnosing substance abuse and dependence, based on the DSM-IV-TR criteria, but also obtaining data regarding the severity and frequency of substance use.

Notably, this measure needed to be modified to allow for data collection via internet survey. While the SCID-I Research Version was intended to allow modification by researchers utilizing the measure in not-for-profit studies, these modifications may affect the validity and reliability of the measure. However, in order to allow comparison to the previously collected data and acquire all data of interest regarding substance use, this modified version of the SCID-I was utilized.

Alcohol Use Disorders Inventory Test (AUDIT)

The AUDIT (Babor, Higgins-Biddle, Saunders, & Monteiro, 2001) was developed by the World Health Organization in 1989 as a method of identifying patients with hazardous and harmful patterns of alcohol consumption. An additional goal of this measure is to function as a screening tool to see if an individual may benefit from reducing or ceasing alcohol consumption. This measure was developed using the definition of alcohol use disorder according to the ICD-10. However, this measure has been cross-nationally standardized and is widely used to indicate possible alcohol use problems.
The AUDIT contains 10 self-report questions. A cutoff score of eight points provides sensitivity to problematic drinking, but may be adjusted for age, weight/body mass, national and cultural standards. Babor et al., (2001) determined that the AUDIT retains high internal consistency and good test re-test reliability ($r = .86$). This measure was used as an overall measure of problematic drinking and for question number three which provided relevant information on heavy episodic drinking.

*Psychiatric Diagnostic Screening Questionnaire (PDSQ)*

The PDSQ was created as a self-report screener for Axis I diagnoses that could be administered by clinicians or office workers. Zimmerman (2002) collected normative data from medical and outpatient mental health settings. There are 13 subscales on the PDSQ, including: Major Depressive Disorder, Posttraumatic Stress Disorder, Bulimia/Binge Eating Disorder, Obsessive Compulsive Disorder, Panic Disorder, Psychosis, Agoraphobia, Social Phobia, Alcohol Abuse/Dependence, Drug Abuse/Dependence, Generalized Anxiety Disorder, Somatization Disorder, and Hypochondriasis. The total score is useful as a global measure of psychopathology.

Internal consistency for the subscales is reported to be .85, with a coefficient alpha range of .66 to .94 (Zimmerman, 2002). A range of .61 to .93 was identified for test-retest reliability. Zimmerman (2002) also reported an average convergent validity coefficient of approximately .64. Upon assessment of the factor structure of the PDSQ items, 13 factors accounted for 50% of the variance (Sheeran & Zimmerman, 2004). Two factors were composites, while 10 mapped on to the intended psychiatric diagnoses. The two composites included panic/agoraphobia, and hypochondriasis/somatization. An additional factor consisted of the six items inquiring about suicidal ideation and behaviors, therefore suicidality was seen as a separate factor. The authors
hypothesized that this indicated suicidality does not occur exclusive of depression or the items were not diverse enough from each other, therefore forming their own factor.

*Personality Assessment Inventory- Borderline Features Scale (PAI-BOR)*

The PAI-BOR (Morey, 1991) is a self-report measure consisting of 24 items. This measure assesses borderline features based on four characteristics: affect instability, identity problems, negative relationships, and self-harm. Affect instability refers to the tendency that individuals with borderline personality disorder have when experiencing intense and uncontrolled emotions. Identity problems signify the uncertainty a person may experience in their self-concept and difficulty separating the view of self from others. Negative relationships is a feature consisting of dependence on others and fearing their abandonment. Self-harm intends to measure the level of impulsive, self-destructive behaviors.

Morey (2007) reported good internal consistency alphas for the PAI-BOR based on three populations: clinical (.91), college (.86) and a census- matched normative sample (.87). Internal consistency scores for the subscales ranged from .68 to .81 for the clinical sample, .65 to .78 for the college sample and .62 to .71 for the census sample, with Affective Instability having the highest internal consistency scores across all samples. Another study, Trull (1995), also examined the internal consistency of the PAI-BOR and found an alpha coefficient of .84, consisted with the high consistency reported by Morey (1991). Morey (2007) also reported good test re-test reliability coefficients for the census, college, and clinic samples described above (.90, .82, .86, respectively). Subscales for the PAI-BOR indicated test re-test correlations ranging from .67 to .85.

Validity studies have been conducted by various researchers. Trull (1995) conducted a study of undergraduates which he identified on the PAI-BOR as being positive for borderline
personality disorder with a *T-score* of 70 and included a second group scoring under this value. The positive group had more symptoms of borderline personality disorder and more met criteria for this disorder on the Structured Inventory for *DSM-III-R* Personality (SIDP-R) than did the negative group. This suggests the measure has good criterion validity. Similarly, another study determined a sensitivity rate of 81.8% and specificity rate of 77.3% regarding the accurate identification of borderline personality disorder in 22 psychiatric inpatients (Bell-Pringle, Pate, & Brown, 1997). The PAI-BOR was used in the current study to measure the features of borderline personality disorder in the study sample.

*The Scale of Suicide Ideation (SSI)*

The SSI (Beck, Kovacs, & Weismann, 1979) is a 19-items semi-structured interview which inquires about both current (SSI-C) and worst period (SSI-W) experiences with suicidal thoughts and some behaviors. The goal of the measure is to assess the individual’s severity of suicidal thoughts or wishes. The first five questions functioned as screeners in a clinical setting, inquiring about wish to live or die, reasons for living/dying, desire to make an attempt, and passive suicidal thoughts. The remainder of the interview collects detailed information about duration and frequency of suicidal ideation, planning, behaviors exhibited to carry out a plan, motivation, number of previous attempts, and other variables related to suicide. Items are given a quantitative value from 0 to 2 based on descriptive criteria.

A factor analysis identified three components to the SSI, including: Active Suicidal Desire, Preparation, and Passive Suicidal Desire (Beck et al., 1979). Another study by Beck, Brown, and Steer (1997) obtain results indicating a two factor structure, “Preparation” and “Motivation.” Reliability was assessed among inpatients with self-destructive ideation and resulted in an internal consistency coefficient alpha of .89 and an interrater reliability of .83 (*p* <
The SSI-W was assessed alone with a resulting internal consistency of .89 among a sample for 1764 outpatients with a history of suicidal ideation (Beck et al., 1997). The SSI-C obtained a high internal consistency ($\alpha = .84$) among 444 outpatients currently experiencing suicidal ideation. Concurrent validity was measured by comparison to the Beck Depression Inventory (BDI) and identified a correlation of .41 ($p < .001$; Beck et al., 1979). As an additional check of concurrent validity, hopelessness as measured on the Beck Hopelessness Scale and depression measured with the BDI were compared to scores on the SSI ($r = .47, p < .001$ and $r = .39, p < .001$, respectively). When factors were isolated, depression did not retain its statistical significant correlation with the SSI. Discriminant validity utilized a sample of inpatients hospitalized for suicidal ideation and a sample of depressed outpatients (Beck et al., 1979). A statistical significance was identified between groups ($t = 4.14, p < .001$). The SSI provided quantitative and detailed qualitative information regarding the participant's current and worst period of suicidal ideation for the previously collected data. The SSI was modified for use with the on-line sample and only collected information on the worst period of suicidal thoughts.

Avoidance and Fusion Questionnaire for Youth (AFQ-Y)

The AFQ-Y (Greco, Lambert, & Baer, 2008; Greco, Murrell, & Coyne, 2005) is a 17-item, one factor, measure of psychological inflexibility and the acceptance/avoidance continuum. While the AFQ-Y was initially created for adolescents, it has been validated with an undergraduate and clinical adult sample (Fergus et al., 2012; Schmalz & Murrell, 2010). The measure produced values representing good internal consistency (Cronbach’s $\alpha = .90$ to .93) and adequate convergent validity with the Acceptance and Action Questionnaire-II (AAQ-II; $r = .68$ to .70; Fergus et al., 2012; Schmalz & Murrell, 2010). Discriminant validity was assessed by examining the AFQ-Y’s correlations to the AAQ-II as compared to a measure of anxiety, finding
adequate discriminant validity \( r = .46, z = 3.17, p < .01; \) Fergus et al., 2012). Additionally, acceptable concurrent validity was demonstrated when in examining measures of psychological symptoms \( r = .31 \) to \( .47 \).

Fergus and colleagues (2012) concluded that the AFQ-Y may be a preferred measure of psychological inflexibility as compared to the AAQ-II considering the lower reading level, reduced need for knowledge of acceptance and commitment therapy to understand the meaning of the questions, and appropriateness for adults (Fergus et al., 2012; Schmalz & Murrell, 2010). This measure was used with the MTurk sample in the analyses to determine if substance use functions as a behavioral marker for experiential avoidance.

**Procedure**

Participants recruited through UNT were given the informed consent document (Appendix A) to read. The interviewer explained study procedures that could be expected, as well as the participant’s option of discontinuing the study without repercussions. The interview was audio recorded, with the participant’s verbal consent, to ensure accuracy of the data collection. If the participant became uncomfortable or refused to be audio recorded the interviews were conducted without this device. Confidentiality was maintained through assignment of an identification number that was not attached to any identifiable information. This identification number is strictly used to keep the de-identified data organized. All data is kept in a locked cabinet, in a locked room, and any data entered electronically is password protected. Consent forms are kept separate from the data.

Upon completion of the consent form procedures, the participant completed the demographics questionnaire (Appendix B). The interviews and self-report measures were counter balanced to account for order effect and alternating by participant. A trained interviewer,
a graduate student with at least two semesters of training, administered the Structured Clinical Interview for the *DSM-IV*- Version I, substance use module and the Scale for Suicide Ideation with the participant. The following self-report measures were given to the participant: Alcohol Use Identification Test, Psychiatric Diagnostic Screening Questionnaire, and Personality Assessment Inventory- Borderline Features Scale. Upon completion the interviewer debriefed the participant, provided a clinical resource list, and answered any questions.

Participants who found the study on MTurk viewed the consent form (also found in Appendix A) on this site. They were informed that by clicking on the link to the Qualtrics survey they accepted the informed consent. At the end of the survey information was provided regarding calling 911 or going to an emergency room if they or someone else is at risk for suicide. Additionally, national suicide and substance use hotline phone numbers were provided. Upon completion of the survey they were provided a code to enter into MTurk to allow for appropriate payment for their time.
CHAPTER IV
RESULTS

Descriptive Statistics

Substance Use and Suicidal Ideation

Information about substance use, suicidal ideation, and borderline features were gathered from a total of 82 participants from the University of North Texas and UNT Psychology Clinic, combined these will be called the UNT sample. Seventeen of these participants were removed from the analysis due to missing data or outliers among the variables of interest. Of these 65 remaining participants, 41 were recruited through the University of North Texas undergraduate SONA system and 24 were recruited from the University of North Texas Psychology Clinic. Additionally 255 participants were recruited through Mturk, of which 243 were retained for analysis. Additional demographic and frequency data may be found in Table 1.

Regarding lifetime experiences with suicidal thoughts, 75.4% of the UNT sample \(n = 49\) and 62.1% of the MTurk sample \(n = 151\) endorsed having had some form of suicidal thoughts. These rates are clearly higher than the 5.6 to 14.3% rate reported by Nock et al. (2008) in a national survey of adults. This may be explained by the titles of the current studies having been transparent regarding their purpose of inquiry into suicidal thoughts. This transparency may have solicited individuals who for various reasons could be inclined to endorse suicide items. Or this may be a result of more questions being asked about both passive and active suicidal thoughts. Regarding substance use, 33.8 % \(n = 22\) of the UNT sample and 36.2% \(n =88\) of the MTurk sample met criteria for substance dependence; 16.9% \(n =11\) from UNT and 9.9% \(n =24\) MTurk participants met criteria for substance abuse based on the criteria set in the \textit{DSM-IV-TR}. Heavy episodic drinking was assessed by examining question three on the Alcohol Use
Disorders Identification Test (AUDIT), “How often do you have five or more drinks on one occasion?” Removing those who met criteria for dependence or abuse, participants who endorsed less than monthly or higher frequency of heavy episodic drinking included 6.2% of the UNT (n = 4) sample and 13.6% of the MTurk sample (n = 33).

An examination of the SSI, PDSQ, SCID-I, AUDIT, PAI-BOR, AFQ-Y and the relevant versions of these measures that were modified for on-line use revealed the means, standard distributions, skew and kurtosis scores presented in Tables 2 and 3. Several variables in this data appear to have a non-normal distribution that was sustained after transformations were attempted. For many variables removing outliers brought the skew and kurtosis at or under a value of 3.3. In order to bring the kurtosis for the total number of drug symptoms endorsed on the modified SCID-I down, the inverse of this variable was utilized in the relevant analyses among the MTurk sample. It seems likely that the nature of suicidal ideation and substance use as constructs are not normally distributed phenomenon, however, a conservative approach was maintained and nonparametric analyses were utilized.

Inferential Statistics

UNT Sample Analyses

Spearman’s rho correlations were examined for both samples and shown in Tables 4 and 5. Among the UNT sample significant relationships were found between borderline features and suicidal thoughts as reported on the SSI and PDSQ suicide scale (worst, r = .43, p < .01; current, r = .41, p < .01; PDSQ suicide, r = .37, p < .01). Additional relationships were identified between borderline features and the number of alcohol disorder symptoms reported on the SCID-I (r = .48, p < .01), the number of drug disorder symptoms endorsed on the SCID-I (r = .41, p < .01) and the combined number of both alcohol and drug disorder symptoms endorsed (r = .50, p <
The relationship between borderline features and substance use is also apparent when examining the PSDQ’s alcohol and drug subscales \( (r = .42, p < .01; r = .37, p < .01) \), respectively. Moderate relationships also exist between suicidal thoughts as reported on the SSI worst and alcohol, drug and combined symptoms on the SCID-I \( (r = .32, p < .01; r = .35, p < .01; r = .40, p < .01) \), respectively. Additionally, significant relationships were found between severity of current suicidal thoughts on the SSI and SCID-I alcohol, drug and combined number of symptoms \( (r = .30, p < .05; r = .39, p < .01; r = .37, p < .01) \), respectively. Surprisingly, suicidal thoughts as measured by the PDSQ does not have a significant relationship with substance use among the UNT sample based on either the PSDQ alcohol and drug subscales \( \text{(PDSQ, } r = .09, p = .50; r = .12, p = .36, \text{ respectively)} \) or alcohol, drug and combined symptoms endorsed on the SCID-I \( (r = .12, p = .36; r = .19, p = .14; r = 14, p = .26, \text{ respectively)} \). The SSI and SCID-I may allow for identification of significant relationship due to these measures containing a larger number of questions on suicide and substance use than the PDSQ. Given the weaker and non-significant relationships regarding the PDSQ suicide, alcohol, and drug subscale, and lack of normality it was not utilized in the remainder of the analyses.

A series of logistic regressions were utilized to test the hypothesis that substance use moderates the relationship between borderline features and suicidal thoughts. The dependent variables used were the median split for both current score for suicidal thoughts on the SSI and the score for the worst period of suicidal thoughts. Each possible measure of substance use severity from the SCID-I was used in independent regressions; including total number of drug symptoms, maximum number of drug disorder symptoms among drug classification, total number of alcohol disorder symptoms, combined total number of alcohol and drug symptoms, and the total number of alcohol symptoms combined with maximum number of drug symptoms...
among classification. Additionally, a dichotomous variable indicating whether the individual endorsed ever drinking five or more drinks on one occasion was used to test heavy episodic drinking as a moderator. To reduce multicollinearity, all independent and moderator variables were centered and these centered variables were used to create the cross products in the equation. In total, 12 logistic regressions were run to examine this hypothesis in the UNT sample.

Of these 12 analyses only the interaction terms for borderline personality disorder features to the total number of substance use disorder symptoms and borderline features to total drug disorder symptoms as they related to current suicidal thoughts were significant. These significant results are summarized in Table 6. Figures 1 and 2 depict these results in graphics. Given these results, borderline features increases severity of current suicidal thoughts for people with an increased severity of substance use disorder; however, the direction of the relationship changes for individuals high in both borderline features and substance use disorder. Thus, those high in borderline features have a slightly lower severity of suicidal thoughts than those low in borderline features when the individuals are high in the number of symptoms of substance use disorder.

The findings do not support the hypothesis that substance use moderates the relationship between borderline disorder features and lifetime severity of suicidal ideation (measured by worst period of suicidal thoughts). However, the results indicate that this moderation occurs for current severity of suicidal thoughts. This suggests that higher lifetime drug use disorder symptoms or both drug and alcohol use disorder symptoms strengthens the relationship between borderline features and severity of current suicidal thoughts. Additionally, an examination of the logistic regressions within each group, clinic clients and undergraduate student, was conducted. However, the findings were not significant.
**MTurk Sample Analyses**

A Spearman’s Rho correlational analysis of the MTurk sample indicates strong relationships between the borderline features and suicidal thoughts \( (r = .59, p < .01) \) and borderline features to the level of avoidance based on the AFQ-Y score \( (r = .71, p < .01; \text{Table 5}) \). In this sample moderate relationships were identified when looking at borderline features and drug symptoms \( (r = .31, p < .01) \), and the combined number of alcohol and drug symptoms \( (r = .30, p < .01) \). While a relatively weak, but still significant, relationship was found between borderline features and alcohol symptoms alone \( (r = .22, p < .01) \). Significant relationships were also seen between suicidal thoughts and alcohol disorder symptoms \( (r = .25, p < .01) \), drug disorder symptoms \( (r = .30, p < .30) \) and the combined number of alcohol and drug disorder symptoms \( (r = .32, p < .05) \). These relationships warrant further testing of the hypothesis.

Again a series of logistic regressions were utilized to examine whether substance use moderates the relationship between borderline personality features and suicidal thoughts. None of the analyses yielded significant results indicating that substance use does not moderate the relationship between borderline personality disorder and suicidal thoughts (Table 7). However, results suggested mediation may be occurring instead.

A four-step approach was used to examine mediation; this method has been described by Baron and Kenny (1986), James and Brett (1984), and Judd and Kenny (1981). In the first step the correlation between the independent, borderline features, and dependent variable, suicidal thoughts, was examined \( (r = .59, p < .01) \). Then a logistic regression was used to determine if there is in fact an effect that may be mediated in the relationship between borderline features and suicidal thoughts \( (b = .121, R^2 = .313, p < .01) \). The second step was to determine if a relationship exists between borderline features and the various mediator variables used to
represent substance use via a series of logistic regressions. Step three examined the relationship between the mediators and outcome variable while controlling for the independent variable. Utilizing logistic regressions, borderline features and the various substance use variables were entered as predictor variables in separate equations for each substance use variable and the median split for suicidal thoughts was entered as the outcome variable. In the fourth and final step the effects of the independent variable on the outcome variable when controlling for the mediating variable is examined. Finally, the Sobel Test (Sobel, 1982) was utilized to determine the significance of identified mediating relationships.

These steps were completed for the following proposed mediating variables: Total number of SCID symptoms for both alcohol and all drugs, total number of SCID symptoms for alcohol and drug classification with the highest number of symptoms endorsed, total number of drug related SCID symptoms, maximum number of drug symptoms endorsed within a classification, total number of alcohol symptoms endorsed, and whether or not heavy episodic drinking was endorsed. The total substance use symptoms endorsed on the SCID was identified as mediating the relationship between borderline features and suicidal thoughts ($p = .04$, $r = .33$, Figure 3). While the other mediators did not reach significance using the four step approach, consideration was given to the potential loss of information that may have occurred by turning a continuous dependent variable into a dichotomous variable that could be used for logistic regressions. Therefore, as recommended by Hayes (2013) an alternate analysis procedure was utilized, PROCESS, to examine this possibility.

Examining the same mediating variables through PROCESS found that in addition to the total number of symptoms endorsed on the SCID ($p = .03$, $R^2 = .38$, Figure 4), the maximum number of symptoms endorsed within each substance classification was also seen as having a
significant mediating effect \((p = .02, R^2 = .38, \text{Figure 5})\) on the relationship between borderline features and suicidal thoughts. Additionally, the total number of alcohol symptoms endorsed on the SCID was found to mediate the association between borderline features and suicidal thoughts \((p < .05, R^2 = .38, \text{Figure 6})\).

**Avoidance as an Underlying Theory**

Additional analyses were needed to determine if substance use is a behavioral marker for experiential avoidance (EA); thereby providing an underlying theory on why substance use may interact in the relationship between borderline personality features and suicidal ideation. A stepwise regression was conducted with number of drug disorder symptoms endorsed on the SCID-I and the number of alcohol use disorder symptoms endorsed on the SCID-I entered as independent variables. The AFQ-Y total score was utilized as the measure of avoidance and entered as the dependent variable. SCID-I drug use disorder symptoms was the only significant predictor \((p = .001, B = -7.95, \text{SE } B = 2.26, R^2 = .049, \text{adjusted } R^2 = .045)\).

Due to the low variance represented, bootstrapped confidence intervals (95%) using the bias corrected and accelerated method were computed to demonstrate the robustness of the significant finding that drug use disorder symptoms is a behavioral marker for experiential avoidance. This robustness is illustrated with the biased corrected confidence intervals of this bootstrapped regression ranging from -12.78 to -2.97 \((p = .003)\).
CHAPTER V
DISCUSSION

As outlined previously, several studies have broadly identified relationships among borderline personality disorder, substance use and suicidal thoughts (Crosby et al., 2009; Drake et al., 2004; Feske, Tarter, Kirisci & Pilkonis, 2006; Kessler et al., 1999; Ross, Dermatis, Levounis, Galanter, 2003; Rounsaville, Kranzler, Tennen, Poling & Triffleman, 1998; Schaffer et al., 2008; Trull et al., 2000; Preuss et al., 2006; Zanarini et al., 1998). The purpose of the current research study was to specifically determine if substance use strengthens the relationship between borderline personality features and lifetime severity of suicidal thoughts. Interestingly, moderation only occurred among the sample recruited from UNT and looking at current suicidal thoughts, rather than lifetime severity of suicidal thoughts. Within this association substance use disorder symptoms were shown to strengthen the relationship. This is congruent with findings from Links, Eynan, Heisel and Nisebaum (2008) that reported higher frequency of suicidal behaviors among individuals with both borderline personality disorder and substance use disorder than either condition alone. The current study expands these findings by looking at the effect on suicidal thoughts rather than behaviors.

Surprisingly, the direction of the relationship changes for those with a high number of substance use disorder symptoms so that individuals with both high substance use severity and high borderline features had a lower severity of suicidal thoughts than those with high substance use severity and low borderline features. Given individuals with borderline personality disorder often have decreased distress tolerance, this change in direction could be a function of avoidance (Buie & Maltsberger, 1989; Chapman et al., 2011). Heavy substance use may function to numb (or avoid) this distress (Hayes et al., 1996; Sheehy et al., 1980; Steward et al., 2002; Westrup,
1999); therefore, the inability to tolerate distressing suicidal thoughts may trigger the individual to use substances. Or the change in direction may be a result of other factors associated with borderline personality disorder such as impulsivity (Lieb et al., 2004; Linehan, 1993, Links et al., 1995; Siever, Torgersen, Gunderson, Livesley & Kendler, 2002; as seen in Bomovalova, Lejues, Daughters, Rosenthal & Lynch, 2005). It is possible that those with high intensity of borderline personality disorder and substance use disorder symptoms, while still experiencing suicidal thoughts higher than those with lower levels of substance use symptoms, have higher levels of impulsivity. This may result in reacting to distressing thoughts with substance use which then alleviates the suicidal thoughts temporarily, thus leading to lower intensity of suicidal thoughts than those who have a lower number of borderline symptoms. Additional research is necessary to distinguish the mechanism behind the change in direction in the moderating relationship among those high in both borderline personality features and substance use disorder symptoms.

Moderation was elusive in the secondary data collection. Instead, mediation by substance use symptoms was identified in the larger MTurk sample between borderline features and worst period of suicidal thoughts. Therefore, substance use is identified as being one of the mechanisms by which borderline personality features influences suicidal thoughts. Interestingly, this is contrary to findings from Lee, Bagge, Schumacher and Coffey (2010) who indicated that a sample of females with borderline personality disorder with and without comorbid substance use disorder did not significantly vary on several variables, including self-harming/suicidal tendencies. However, that study did not examine suicidal thoughts; thus substance use may help to explain the impact of borderline personality features and suicidal thoughts, but not necessarily suicidal behaviors.
Studies have identified those with borderline personality disorder and substance use disorder as commonly using avoidance as a maladaptive coping method (Cooper, Wood, Orcutt & Albino, 2003; Gratz & Roemer, 2004; Simons, Ducette, Kirby, Stahler & Shipley, 2003). Several studies have suggested that substance misuse may be a method of experientially avoiding perceived negative thoughts, feelings or sensations (Chapman et al., 2011; Hayes et al., 1996; Kingston et al., 2010; Steward et al., 2002; Westrup, 1999). The current study supported the notion that substance use functions as a behavioral marker for experiential avoidance. Given the literature suggesting suicidal behaviors may also be indication of a coping style of experiential avoidance (Baumeister, 1990; Chapman et al., 2006; Chapman et al., 2011; Joiner, 2002), those individuals who misuse substances should be closely monitored for other behavior markers for experiential avoidance (i.e. self-harm; Chapman et al., 2011; Kingston et al., 2010).

Clinical Implications

Given the standing of suicide as the 11th leading cause of death in the United States (Nock et al., 2008), it is prudent that research focus on understanding the factors associated with suicidal thought and behaviors. Additionally, monitoring suicidal thoughts and behaviors is a necessary aspect of clinical work. However, many studies have found screening for suicidal thoughts may not be an effective way to identify those having suicidal thoughts. For example, a retrospective study of veteran’s who committed suicide in Oregon found that 18 of the 112 veterans seen within a year of their suicide were asked about suicidal thoughts and only five acknowledged these thoughts (Denneson, Basham, Dickinson, Crutchfield, Millet, Shen & Dobscha, 2010). Denial of suicidal thoughts may result from several factors; not experiencing suicidal thought at the time of the screening, misperception of these thoughts as weakness, clinician presentation at inquiry, or other factors. Several researchers have concluded routine
suicide risk screenings may not be sufficient in identifying those at risk for suicide (Gaynes et al., 2004; Mann et al., 2005; Shekelle, Bagley & Munjas, 2009; as seen in Denneson et al., 2010). Therefore, it is important to monitor the risk factors for suicide in addition to inquiry of suicidal thoughts. Given this concern and the findings in the current study, clinicians must be prudent in monitoring the severity of symptom among those with borderline features and substance use to assess the individual’s level of risk for suicidal thoughts and potential subsequent behaviors. This implies in addition to looking at diagnoses from a categorical perspective, therapists should look at the continuum of symptoms and maintain awareness of the severity of both disorders. Additionally, given that distinguishing current substance use from the worst period of substance use was not included in this analysis it may be important to assess both current use as well as history of use. Assessment of these variables may also inform appropriate treatment interventions.

While the current study did not assess treatment provisions, the findings are suggestive of future directions to examine in therapeutic interventions. To reduce the risk for suicidal thoughts, treatments should address both borderline personality disorder and substance use disorders simultaneously. Additionally, when a clinician observes behaviors associated with experiential avoidance they should assess for use of substances and self-harm as avoidance behaviors. Exploration of acceptance, mindfulness skills and distress tolerance may be useful in reducing avoidance behaviors, including subsequent substance use, thus, potentially lowering the risk for suicidal thoughts. While treating a client with suicidal thoughts often feels like a daunting task, assessment and interventions are available to lower an individual’s risk for suicide.
Limitations and Future Research

The current study provides valuable information regarding the relationships and mechanisms among borderline personality features and suicidal thoughts; however, as with every study there are limitations. While the UNT sample was representative of the racial/ethnic population at UNT and the UNT Psychology clinic, the findings presented in the current research may not be generalizable to other populations. The MTurk sample may assist in alleviating some of these concerns; however, by utilizing a sample through Amazon’s MTurk the sample may remain limited to those with a higher level of education and socio-economic status. By increasing the sample size researchers may increase variability in the sample, thus improving generalizability, and increase the statistical power. Additionally, many of the measures used were selected for their utility with face-to face interviews and therefore were not originally intended for use in a self-report internet format. It would be beneficial to collect information on the validity and reliability of these measures when used in this manner. Finally, this study did not take into account other variables like childhood sexual abuse (Briere & Zaidi, 1989), impulsivity (Bomovalova et al., 2005), co-occurring mood disorders, family history (Shearer et al., 1988), perceived burdensomeness, failed sense of belonging or acquired capability, (Joiner et al., 2009) that may influence the relationship between borderline personality features and suicidal thoughts.

While additional research is needed, the present study examined the relationship between borderline personality features, substance abuse, and suicidality from a new perspective. Not only exploring the way these variables interact but also looking at suicidal ideation rather than suicidal behaviors. The hope of this research is to gain insight into the impacting factors on suicidal thoughts to allow earlier intervention to prevent any potential behaviors.
Table 1

Demographics

<table>
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<tr>
<th>Variable</th>
<th>Frequency (%)</th>
<th>UNT Client</th>
<th>UNT Student</th>
<th>MTurk</th>
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</tr>
<tr>
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<td>3 (7.3)</td>
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*Note. In a committed relationship (Rx) was an option only provided to the MTurk sample.*
Table 2

Descriptive Statistics – Combined UNT Samples

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<th>$SD$</th>
<th>Skew</th>
<th>Kurtosis</th>
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<td>2.58</td>
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<td>PDSQ- Alcohol</td>
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<td>2.29</td>
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<td>1.11</td>
<td>3.76</td>
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<td>.260</td>
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<tr>
<td>Drug Total</td>
<td>1.69</td>
<td>2.60</td>
<td>1.59</td>
<td>1.84</td>
</tr>
<tr>
<td>Drug Max</td>
<td>1.49</td>
<td>2.24</td>
<td>1.53</td>
<td>1.74</td>
</tr>
<tr>
<td>All SUD</td>
<td>3.86</td>
<td>4.72</td>
<td>1.28</td>
<td>.86</td>
</tr>
<tr>
<td>Max SUD</td>
<td>3.66</td>
<td>4.45</td>
<td>1.22</td>
<td>.51</td>
</tr>
<tr>
<td>Heavy Episodic Drinking</td>
<td>.75</td>
<td>.95</td>
<td>1.42</td>
<td>1.76</td>
</tr>
<tr>
<td>PAI-BOR</td>
<td>64.77</td>
<td>11.82</td>
<td>-.15</td>
<td>-.72</td>
</tr>
</tbody>
</table>

Note. $N = 65$; Suicidal Thoughts = number of items endorsed on the Scale for Suicide Ideation; PDSQ = The Psychiatric Diagnostic Screening Questionnaire; Alcohol = The number of alcohol disorder symptoms endorsed on the SCID-I; Drug Total = The number of drug disorder symptoms endorsed on the SCID-I; Drug Max = The maximum number of drug abuse or dependence symptoms endorsed on any drug classification; All SUD = The total number of alcohol and drug abuse and dependence symptoms endorsed on the SCID-I across all substances; Max SUD = The maximum number of drug disorder symptoms endorsed on any drug classification plus alcohol use disorder symptoms; Heavy Episodic Drinking = Question 3 on the AUDIT; PAI-BOR = Personality Assessment Inventory- Borderline Scale T-Score.
Table 3

Descriptive Statistics – MTurk Sample

<table>
<thead>
<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
<th>Skew</th>
<th>Kurtosis</th>
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<tr>
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<td>6.90</td>
<td>7.65</td>
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<td>-.39</td>
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<tr>
<td>Alcohol</td>
<td>1.99</td>
<td>2.46</td>
<td>1.31</td>
<td>.98</td>
</tr>
<tr>
<td>Drug Max</td>
<td>1.41</td>
<td>2.54</td>
<td>1.80</td>
<td>2.16</td>
</tr>
<tr>
<td>Drug Total</td>
<td>2.26</td>
<td>4.67</td>
<td>2.55</td>
<td>6.45</td>
</tr>
<tr>
<td>All SUD</td>
<td>4.25</td>
<td>6.00</td>
<td>1.84</td>
<td>3.05</td>
</tr>
<tr>
<td>Max SUD</td>
<td>3.40</td>
<td>4.16</td>
<td>1.23</td>
<td>.75</td>
</tr>
<tr>
<td>Heavy Episodic Drinking</td>
<td>.70</td>
<td>.97</td>
<td>1.53</td>
<td>1.98</td>
</tr>
<tr>
<td>PAI-BOR</td>
<td>54.56</td>
<td>13.81</td>
<td>.65</td>
<td>-.06</td>
</tr>
<tr>
<td>AFQ-Y</td>
<td>23.17</td>
<td>13.69</td>
<td>.48</td>
<td>-.30</td>
</tr>
</tbody>
</table>

Note. N = 243; Suicidal Thoughts = Total score taken from a modified self-report version of the Scale for Suicide Ideation; Alcohol = The number of alcohol abuse or dependence symptoms endorsed; Drug Max = The maximum number of drug abuse or dependence symptoms endorsed on any drug classification; Drug Total = The total number of drug abuse or dependence symptoms endorsed on all drug classification; All SUD = The number of alcohol and drug abuse or dependence symptoms endorsed across all substances; Max SUD= The maximum number of drug disorder symptoms endorsed on any drug classification plus alcohol use disorder symptoms; Heavy Episodic Drinking = Question 3 on the AUDIT; PAI-BOR T-Score = Personality Assessment Inventory- Borderline Scale T-Score; AFQ-Y= Avoidance and Fusion Questionnaire for Youth.
Table 4

*Summary of Spearman Correlations for BOR, Substance Use and Suicide Variables in Combined UNT Sample*

<table>
<thead>
<tr>
<th>Variable</th>
<th>PAI-BOR</th>
<th>PDSQ Alcohol</th>
<th>PDSQ Drug</th>
<th>Alcohol</th>
<th>Drug Total</th>
<th>All SUDS</th>
<th>AUDIT</th>
<th>PDSQ Suicide</th>
<th>Current Suicidal Thoughts</th>
<th>Worst Suicidal Thoughts</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAI-BOR</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PDSQ Alcohol</td>
<td>.42**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PDSQ Drugs</td>
<td>.37**</td>
<td>.24</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcohol</td>
<td>.48**</td>
<td>.54**</td>
<td>.31*</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drug Total</td>
<td>.41**</td>
<td>.34**</td>
<td>.54**</td>
<td>.55**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All SUDS</td>
<td>.50**</td>
<td>.49**</td>
<td>.45**</td>
<td>.90**</td>
<td>.82**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AUDIT</td>
<td>.41**</td>
<td>.69**</td>
<td>.30**</td>
<td>.73**</td>
<td>.58**</td>
<td>.77**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PDSQ Suicide</td>
<td>.37**</td>
<td>.09</td>
<td>.12</td>
<td>.12</td>
<td>.19</td>
<td>.15</td>
<td>.08</td>
<td>.08</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Current Suicidal thoughts</td>
<td>.41**</td>
<td>.11</td>
<td>.08</td>
<td>.30*</td>
<td>.39**</td>
<td>.37**</td>
<td>.20</td>
<td>.48**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Worst Suicidal thoughts</td>
<td>.43**</td>
<td>.26*</td>
<td>.27*</td>
<td>.32**</td>
<td>.35**</td>
<td>.40**</td>
<td>.33*</td>
<td>.35**</td>
<td>.49**</td>
<td></td>
</tr>
</tbody>
</table>

*Note. N = 65; PAI-BOR = Personality Assessment Inventory- Borderline scale T-score; PDSQ = The Psychiatric Diagnostic Screening Questionnaire subscale scores; Alcohol = The number of alcohol disorder symptoms endorsed on the SCID-I; Drug Total = The number of drug disorder symptoms endorsed on the SCID-I; All SUD = The total number of alcohol and drug abuse and dependence symptoms endorsed on the SCID-I across all substances; AUDIT = Alcohol Use Disorders Identification Test; Suicidal thought = items endorsed on the Scale for Suicide Ideation. *p< .05, **p < .01, two-tailed.*
Table 5

*Summary of Spearman Correlations for MTurk Sample.*

<table>
<thead>
<tr>
<th>Variable</th>
<th>PAI-BOR</th>
<th>AFQ-Y</th>
<th>Alcohol</th>
<th>Drug Total</th>
<th>All SUD</th>
<th>AUDIT</th>
<th>Suicidal Thoughts</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAI-BOR</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>AFQ-Y</td>
<td>.71**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcohol</td>
<td>.22**</td>
<td>.19**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drug Total</td>
<td>-.31**</td>
<td>-.20**</td>
<td>-.48**</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All SUD</td>
<td>.30**</td>
<td>.23**</td>
<td>.88**</td>
<td>-.79**</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AUDIT</td>
<td>.14*</td>
<td>.12</td>
<td>.60**</td>
<td>-.42**</td>
<td>.60**</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Suicidal Thoughts</td>
<td>.59**</td>
<td>.54**</td>
<td>.25**</td>
<td>-.30**</td>
<td>.32*</td>
<td>.15*</td>
<td>-</td>
</tr>
</tbody>
</table>

_Note. N = 243; PAI-BOR = Personality Assessment Inventory- Borderline scale T-score; AFQ-Y = The Acceptance and Fusion Questionnaire-Youth; Alcohol = The number of alcohol use disorder symptoms endorsed on the SCID-I; Drug = The number of drug use disorder symptoms endorsed on the SCID-I; All SUD = The total number of alcohol and drug abuse and dependence symptoms endorsed on the SCID-I across all substances; AUDIT = Alcohol Use Disorders Identification Test; Suicidal Thoughts = items endorsed on the modified Scale for Suicide Ideation. *p < .05, ** p < .01, two-tailed._
Table 6

Main and Interactions Effects of Borderline Features and Substance Use on Suicidal Thoughts for UNT Sample

<table>
<thead>
<tr>
<th>Variable</th>
<th>Current Suicidal Thoughts</th>
<th>Worst Suicidal Thoughts</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>SE B</td>
</tr>
<tr>
<td>Eq. 1:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Borderline</td>
<td>.04</td>
<td>.03</td>
</tr>
<tr>
<td>All SUD</td>
<td>.18*</td>
<td>.09</td>
</tr>
<tr>
<td>Borderline x All SUD</td>
<td>-.01*</td>
<td>.01</td>
</tr>
<tr>
<td>NagelKerke R²</td>
<td>.30</td>
<td></td>
</tr>
<tr>
<td>Eq. 2:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Borderline</td>
<td>.06</td>
<td>.03</td>
</tr>
<tr>
<td>Drug Total</td>
<td>.35*</td>
<td>.17</td>
</tr>
<tr>
<td>Borderline x Drug Total</td>
<td>-.03*</td>
<td>.02</td>
</tr>
<tr>
<td>NagelKerke R²</td>
<td>.34</td>
<td></td>
</tr>
</tbody>
</table>

Note. N = 65. All variables entered on step one; Borderline= The number of symptoms endorsed on the Personality Assessment Inventory Borderline Scale; All SUD = The total number of symptoms endorsed on the SCID-I; Drug = The total number of drug abuse and dependence symptoms endorsed on the SCID-I across all substances.

*p = .05. **p = .01.
Figure 1. The moderator effect of borderline features on suicidal thoughts by total substance use disorder symptoms. $N = 65$. 
Figure 2. The moderator effect of borderline features on suicidal thoughts by drug use disorder symptoms. $N = 65$. 
Table 7  
Substance Use as Moderator of Borderline Features and Suicidal Thoughts for MTurk Sample

<table>
<thead>
<tr>
<th>Variable</th>
<th>SSI Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
</tr>
<tr>
<td>Eq. 1:</td>
<td></td>
</tr>
<tr>
<td>Borderline</td>
<td>.12</td>
</tr>
<tr>
<td>All SUD</td>
<td>.05</td>
</tr>
<tr>
<td>Borderline x All SUD</td>
<td>-.00</td>
</tr>
<tr>
<td>NagelKerke $R^2$</td>
<td>.45</td>
</tr>
<tr>
<td>Eq. 2:</td>
<td></td>
</tr>
<tr>
<td>Borderline</td>
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</tr>
<tr>
<td>Drug total</td>
<td>-.49</td>
</tr>
<tr>
<td>Borderline x Drug Total</td>
<td>.03</td>
</tr>
<tr>
<td>NagelKerke $R^2$</td>
<td>.43</td>
</tr>
<tr>
<td>Eq. 3:</td>
<td></td>
</tr>
<tr>
<td>Borderline</td>
<td>.12</td>
</tr>
<tr>
<td>Alcohol</td>
<td>.12</td>
</tr>
<tr>
<td>Borderline x Alcohol</td>
<td>-.01</td>
</tr>
<tr>
<td>NagelKerke $R^2$</td>
<td>.45</td>
</tr>
<tr>
<td>Eq. 4:</td>
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</tr>
<tr>
<td>Borderline</td>
<td>.12</td>
</tr>
<tr>
<td>Drug Max</td>
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</tr>
<tr>
<td>Borderline x Drug Max</td>
<td>-.01</td>
</tr>
<tr>
<td>NagelKerke $R^2$</td>
<td>.45</td>
</tr>
<tr>
<td>Eq. 5:</td>
<td></td>
</tr>
<tr>
<td>Borderline</td>
<td>.12</td>
</tr>
<tr>
<td>Max SUD</td>
<td>.08</td>
</tr>
<tr>
<td>Borderline x Max SUD</td>
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</tr>
<tr>
<td>NagelKerke $R^2$</td>
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<tr>
<td>Eq. 6:</td>
<td></td>
</tr>
<tr>
<td>Borderline</td>
<td>.14</td>
</tr>
<tr>
<td>HED</td>
<td>.29</td>
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<tr>
<td>Borderline x HED</td>
<td>-.04</td>
</tr>
<tr>
<td>NagelKerke $R^2$</td>
<td>.43</td>
</tr>
</tbody>
</table>

Note. $N = 243$. Borderline= The number of symptoms endorsed on the Personality Assessment Inventory Borderline Scale; All SUD= The total number of symptoms endorsed on the SCID-I; Drug Total= The total number of drug abuse and dependence symptoms endorsed on the SCID-I; Drug Max= The maximum number of drug abuse or dependence symptoms endorsed on any drug classification; Max SUD= The maximum number of drug disorder symptoms endorsed on any drug classification plus alcohol use disorder symptoms; HED= Heavy episodic drinking as endorsed on the Alcohol Use Disorders Identification Test.

$p = .05$. 

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Figure 3. Total number of symptoms on the SCID partially mediates the relationship between borderline features and suicidal thoughts. $N = 243$. 
Figure 4. Using PROCESS to explore mediating relationship of SCID total between borderline features and suicidal thoughts. N = 243.
Figure 5. Using PROCESS to explore mediating relationship of SCID maximum symptoms between borderline features and suicidal thoughts. \( N = 243 \).
Figure 6. Using PROCESS to explore mediating relationship of SCID-I alcohol between borderline features and suicidal thoughts. N = 243.
APPENDIX A

CONSENT FORMS
University of North Texas Institutional Review Board
Informed Consent Form

Before agreeing to participate in this research study, it is important that you read and understand
the following explanation of the purpose and benefits of the study and how it will be conducted.

Title of Study: The Predictive Power of Impulsivity and Substance Use

Principal Investigator: Dr. Craig Neumann, University of North Texas (UNT) Department of
Psychology.

Purpose of the Study: You are being asked to participate in a research study which involves the
assessment of suicidal ideation in the both general and psychiatric population, as well as how
these traits are related to mood disorders and substance use. The purpose is to determine how
these things relate to one another in an undergraduate sample versus those who are seeking
outpatient psychological treatment.

Study Procedures: You will be asked to fill out 3 paper-and-pencil assessments as well as
complete 2 assessment interviews that will take about 2-3 hours of your time.

Foreseeable Risks: Some people experience discomfort when discussing personal psychological
information. Should the interview become too overwhelming you may ask to stop or take a
break. However, some people find the process of talking about their experiences somewhat
therapeutic.

Benefits to the Subjects or Others: We expect the project to be of no direct benefit to you, but
it may benefit others in that it will contribute to the field of research by increasing the limited
knowledge regarding suicidal thoughts and their correlates among the general population.

Compensation for Participants: You will be able to use your participation in this study to meet
your research credit requirement or as extra credit in undergraduate psychology courses if your
instructor has arranged for that credit. Credit will be received whether you complete the study or
not.

Procedures for Maintaining Confidentiality of Research Records: Your confidentiality will
be strictly maintained as all records will be placed in a locked location. Additionally, your name
will not appear on any of the raw data collected, so there will be no way to reference your
performance on any of the assessments. Also, the confidentiality of your individual information
will be maintained in any publications or presentations regarding this study.

Exceptions to Confidentiality: However, there are three exceptions to confidentiality;
  1) If there is reason to believe you are planning to hurt yourself or someone else
  2) If there is reason to believe that child or elder abuse is taking place
  3) If it is mandated by a court order.
Questions about the Study: If you have any questions about the study, you may contact Dr. Craig Neumann at telephone number (940) 565-3788.

Review for the Protection of Participants: This research study has been reviewed and approved by the UNT Institutional Review Board (IRB). The UNT IRB can be contacted at (940) 565-3940 with any questions regarding the rights of research subjects.

Research Participants’ Rights:

Your signature below indicates that you have read or have had read to you all of the above and that you confirm all of the following:

- Dr. Craig Neumann or a research assistant has explained the study to you and answered all of your questions. You have been told the possible benefits and the potential risks and/or discomforts of the study.
- You understand that you do not have to take part in this study, and your refusal to participate or your decision to withdraw will involve no penalty or loss of rights or benefits. The study personnel may choose to stop your participation at any time.
- You understand why the study is being conducted and how it will be performed.
- You understand your rights as a research participant and you voluntarily consent to participate in this study.
- You have been told you will receive a copy of this form.

________________________________
Printed Name of Participant

______________________________  ______________________
Signature of Participant Date

For the Principal Investigator or Designee:

I certify that I have reviewed the contents of this form with the subject signing above. I have explained the possible benefits and the potential risks and/or discomforts of the study. It is my opinion that the participant understood the explanation.

______________________________  ______________________
Signature of Principal Investigator or Designee Date
Before agreeing to participate in this research study, it is important that you read and understand the following explanation of the purpose and benefits of the study and how it will be conducted.

Title of Study: Explaining the Relationship between Borderline Personality Features and Suicidal Ideation

Principal Investigator: Dr. Jennifer L. Callahan, University of North Texas (UNT) Department of Psychology.

**Purpose of the Study:** You are being asked to participate in a research study which involves the assessment of suicidal ideation in a general population, as well as how these traits are related to mood disorders, personality features and substance use. The purpose is to determine how these features and behaviors relate to one another.

**Study Procedures:** You will be asked to fill out a survey consisting of demographic questions and 5 measures, taking approximately 30 minutes to 1 hour of your time.

**Foreseeable Risks:** Some people experience discomfort when considering their own strong emotions. Should the survey become too overwhelming you may stop or take a break at any time. Additionally, you may utilize the following resources:

If you or another individual is at imminent suicidal or homicidal risk, or may be a danger to self or others, *the fastest way to ensure immediate care and safety is to call 911 or go to the nearest hospital emergency room.*

- National Suicide Prevention Lifeline 1-800-273-8255
- MHMR Crisis Hotline 1-800-762-0157
- Drug Hotline 1-800-262-2463

**Benefits to the Subjects or Others:** We expect the project to be of no direct benefit to you, but it may benefit others in that it will contribute to the field of research by increasing the limited knowledge regarding suicidal thoughts and their correlates among the general population.

**Compensation for Participants:** Participants will receive $2.00 for completing the study. Upon completion of the survey, a study completion code will be provide for you to enter into MTurk for credit. Compensation will be paid via Amazon’s MTurk payment system.

**Procedures for Maintaining Confidentiality of Research Records:** Your confidentiality will be strictly maintained as all records will be placed in a locked or password protected location. Additionally, this survey is anonymous and your name will not appear on any of the raw data collected. Given the separation of MTurk from the survey responses, there will be no way to
reference your responses on this survey to your identity. Also, the confidentiality of your individual information will be maintained in any publications or presentations regarding this study.

**Exceptions to Confidentiality:** The survey is anonymous, with no connection between your responses on the survey and your identifying information. However, if you choose to break anonymity in some manner, then there are certain exceptions to confidentiality:

1) If there is reason to believe you are planning to hurt yourself or someone else
2) If there is reason to believe that child, elder, or abuse of a disabled individuals is taking place
3) If it is mandated by a court order.

**Questions about the Study:** If you have any questions about the study, you may contact the key person for the study Erica Nichols at EricaNichols@my.unt.edu or the principle investigator, Jennifer L. Callahan, Ph.D. ABPP at JenniferCallahan@unt.edu

**Review for the Protection of Participants:** This research study has been reviewed and approved by the UNT Institutional Review Board (IRB). The UNT IRB can be contacted at (940) 565-3940 with any questions regarding the rights of research subjects.

**Research Participants’ Rights:** Going to the survey link below and beginning the survey indicates that you have read the above and that you confirm all of the following:

- You have been told the possible benefits and the potential risks and/or discomforts of the study.
- You understand that you do not have to take part in this study, and your refusal to participate or your decision to withdraw will involve no penalty or loss of rights or benefits. The study personnel may choose to stop your participation at any time.
- You understand why the study is being conducted and how it will be performed.
- You understand your rights as a research participant and you voluntarily consent to participate in this study.
- Upon completion of the survey a study completion code will be provide for you to enter into MTurk for credit. It is your responsibility to enter this code in order to receive compensation for completing the study.
APPENDIX B

DEMOGRAPHICS QUESTIONNAIRE
Demographics Questionnaire

Please circle or fill in the answer that most closely describes you.

Sex:  Male  Female
Age: _______

Marital Status:  Single  Married  Divorced  Separated

Ethnicity:  European-American (Caucasian)
African-American
Hispanic
Asian or Pacific Islander
Native American
Other _______________

Highest Level of Education Completed:
  8th grade
  High School/GED
  Some College
  Associates Degree
  Bachelors Degree
  Masters Degree
  Doctoral Degree

Have you ever seen a counselor, therapist, or psychiatrist? ______________
If so, how many times have you been in treatment? ______________
What is the longest period of time that you have been in treatment? ______
Have you ever been hospitalized for mental health difficulties? __________
Have you ever had 10 or more drinks in one sitting? ______________
In the past two weeks have you had 10 or more drinks in one sitting? ______
Have you ever use a non-prescribed drug by method of injection? __________
Demographics Questionnaire Continued

Has anyone in your family ever attempted suicide? _____
   What is your relationship with this person(s)? ____________________________

Has anyone in your family ever committed suicide? _____
   What is your relationship with this person(s)? ____________________________

Has anyone in your family ever had problems with alcohol? _____
   What is your relationship with this person(s)? ____________________________

Has anyone in your family ever has problems with other drugs? _____
   What is your relationship with this person(s)? ____________________________

Has anyone in your family ever been told by a professional that they have a mental health disorder? ___
   What is your relationship with this person(s)? ____________________________
   What was the diagnosis? ____________________________________________
REFERENCES


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