



January 2016

Purging Pathology And Interpersonal- Psychological Variables As Predictors Of Suicidal Ideation

Alexandra Thiel

Follow this and additional works at: <https://commons.und.edu/theses>

Recommended Citation

Thiel, Alexandra, "Purging Pathology And Interpersonal-Psychological Variables As Predictors Of Suicidal Ideation" (2016). *Theses and Dissertations*. 2075.

<https://commons.und.edu/theses/2075>

This Thesis is brought to you for free and open access by the Theses, Dissertations, and Senior Projects at UND Scholarly Commons. It has been accepted for inclusion in Theses and Dissertations by an authorized administrator of UND Scholarly Commons. For more information, please contact zeinebyousif@library.und.edu.

PURGING PATHOLOGY AND INTERPERSONAL-PSYCHOLOGICAL
VARIABLES AS PREDICTORS OF SUICIDAL IDEATION

by

Alexandra Marie Thiel
Bachelor of Arts, University of Notre Dame, 2014

A Thesis

Submitted to the Graduate Faculty

of the

University of North Dakota

in partial fulfillment of the requirements

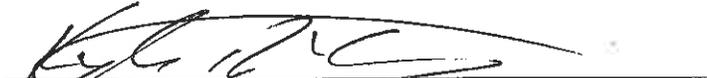
for the degree of

Master of Arts

Grand Forks, North Dakota

August
2016

This thesis, submitted by Alexandra Marie Thiel in partial fulfillment of the requirements for the Degree of Master of Arts from the University of North Dakota, has been read by the Faculty Advisory Committee under whom the work has been done and is hereby approved.



Kyle De Young, Ph.D.



Jeffrey Holm, Ph.D.

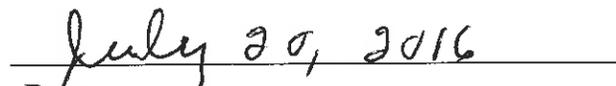


Joseph Miller, Ph.D.

This thesis is being submitted by the appointed advisory committee as having met all of the requirements of the School of Graduate Studies at the University of North Dakota and is hereby approved.



Wayne Swisher
Dean of the School of Graduate Studies



Date

PERMISSION

Title Purging Pathology and Interpersonal-Psychological Variables as
Predictors of Suicidal Ideation

Department Psychology

Degree Master of Arts

In presenting this thesis in partial fulfillment of the requirements for a graduate degree from the University of North Dakota, I agree that the library of this University shall make it freely available for inspection. I further agree that permission for extensive copying for scholarly purposes may be granted by the professor who supervised my thesis work or, in his absence, by the Chairperson of the department or the dean of the School of Graduate Studies. It is understood that any copying or publication or other use of this thesis or part thereof for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and to the University of North Dakota in any scholarly use which may be made of any material in my thesis.

Alexandra Thiel
07/19/2016

TABLE OF CONTENTS

LIST OF FIGURES	vi
LIST OF TABLES	vii
ACKNOWLEDGMENTS	viii
ABSTRACT.....	ix
CHAPTER	
I. INTRODUCTION.....	1
The interpersonal-psychological theory of suicidal behavior	2
Suicidality and eating disorders	10
The interpersonal-psychological theory of suicidality and eating disorders	13
Purpose of the present study	19
II. METHOD.....	21
Participants.....	21
Materials.....	22
Purging pathology	22
Perceived burdensomeness and thwarted belongingness.....	23
Hopelessness	24
Suicidal ideation.....	25
Eating disorder symptom severity	26

	Past suicidality	27
	Depressive symptoms	29
	Impulsivity	30
	Procedure	31
	Analytic Strategy.....	32
	Statistical Power.....	33
III.	RESULTS	35
IV.	DISCUSSION	40
	Limitations	45
	Future directions	46
V.	CONCLUSION.....	47
	APPENDICES	48
	REFERENCES	70

LIST OF FIGURES

Figure	Page
1. Multiple Mediation Model.....	38

LIST OF TABLES

Table	Page
1. Baseline Characteristics of Participants	36
2. Multiple Mediation Analysis	39

ACKNOWLEDGMENTS

I wish to express my profound gratitude to my advisor and committee chairperson, Dr. Kyle De Young. The dedication, enthusiasm, and guidance he offered throughout the process of designing, implementing, and writing of this project were invaluable and have aided my personal growth as a writer, researcher, and clinician. I would also like to offer my appreciation to all the members of my advisory committee, Dr. Jeffery Holm, Dr. John-Paul Legerski, and Dr. Joseph Miller, whose critiques and suggestions for my project have added to its quality, and challenged me to think more analytically of my own work. Additionally, I am grateful for the guidance and suggestions of Dr. Ross Crosby, who selflessly assisted me in the task of statistical analysis. Finally, I am appreciative of the financial support provided by the Department of Psychology, which allowed me to provide monetary incentives to participants

ABSTRACT

The Interpersonal-Psychological Theory of Suicidal Behavior (IPTS; Joiner, 2005; Joiner, Ribeiro, & Silva, 2012), proposes that active suicidal ideation is formed when an individual experiences high perceived burdensomeness, low perceived belongingness, and hopelessness (Joiner et al., 2012). Eating disorders (ED) are associated with high mortality rates from suicide (Harris & Barraclough, 1997), and recently researchers have begun applying IPTS to ED symptomatology (Smith et al., 2013; Dodd, Smith, & Bodell, 2014). In particular, purging-type EDs are associated with increased risk for suicide (Fedorowicz et al., 2007; Milos, Spindler, Hepp, & Schnyder, 2004; Protzky, van Heeringen, & Vervaeke, 2014). Thus, the current study used a multiple mediation analysis with bias-corrected bootstrap confidence intervals to test the hypothesis that change in perceived burdensomeness, perceived belongingness, and hopelessness over five weeks mediated the relationship between purging pathology and the change in suicidal ideation over 10 weeks in an undergraduate sample ($N = 171$). Results indicated no significant indirect effects (i.e., all 95% CIs contained 0, $p > .05$). Limitations of the study include small sample size and low power for detecting effects, little variability within study variables, and use of a primarily female and ethnically White sample of undergraduate students. Future directions include rigorous testing in longitudinal samples of the role purging pathology might play in the formation of an acquired capability for suicide (i.e., higher pain tolerance, low fear of death).

CHAPTER I

INTRODUCTION

In 2012, over 800,000 people died by suicide across the world (World Health Organization, 2012). The most recent report by the U.S. Department of Health and Human Services (2014) found death by suicide to be the tenth leading cause of death in the United States. Epidemiological research has identified mental illness as one of the most prominent risk factors for death by suicide, and it is implicated in over 90% of attempted or completed suicides (Harris & Barraclough, 1997; Moscicki, 1997). In an extensive meta-analysis, Harris and Barraclough found that individuals with eating disorders (EDs) had a suicide risk 23 times larger than the expected risk for suicide in the general population. This is one of the largest risk increases, comparable to the risk for individuals with mixed drug use and dependence, and major depression (a mean of 20 times the expected risk for suicide; Harris & Barraclough). Only a past suicide attempt, suicidal ideation, or suicidal threats were associated with a higher risk for suicide (47 times the expected risk in the general population; Harris & Barraclough).

The apparent increased risk for suicide among EDs gives cause for the urgent and necessary task to identify suicide risk factors in the context of EDs. Theories on risk for suicidality have attempted to explain the distinct risks among different aspects of suicidality, such as suicidal ideation, suicide attempts, and completed suicides. The most

recent and comprehensive of these theories is Joiner's (2005) interpersonal-psychological theory of suicidal behavior (IPTS).

The Interpersonal-Psychological Theory of Suicidal Behavior

Joiner (2005) proposes that completed suicides and severe, lethal suicide attempts occur only if an individual currently has a strong desire for death and has the capability to commit suicide. The active desire for death results from concurrently experiencing high perceived burdensomeness and thwarted belongingness, as well as a sense of hopelessness regarding these states (Joiner, Ribeiro, & Silva, 2012; Van Orden et al., 2010). An individual's capability for suicidal action is acquired throughout his or her life through provocative and painful experiences (e.g., nonsuicidal self-injury, physical fights, etc). Taken together, the active desire for death *and* the capability to inflict lethal harm on oneself present the most imminent risk for death by suicide.

The first construct for suicide risk as described by IPTS is perceived burdensomeness (Joiner, 2005). Perceived burdensomeness is conceptualized by self-hatred and a sense of liability that one's death is worth more than one's life to others (Van Orden et al., 2010). In a recent literature review, Hill and Pettit (2014) found that perceived burdensomeness was consistently related to suicidal ideation and suicide attempts. For example, in a sample of adult outpatients, Van Orden, Lynam, Hollar and Joiner (2006) identified perceived burdensomeness as a significant predictor for suicidal symptoms (i.e., past suicide attempts and current suicidal ideation) above and beyond the predictive effects of depressive symptoms. Furthermore, in a study examining suicidal ideation in veterans, a population at increased risk for suicide, Monteith, Manefee, Pettit,

Leopoulos, and Vincent (2013) identified a significant main effect of perceived burdensomeness in predicting suicidal ideation. Perceived burdensomeness accounted for variance in suicidal ideation beyond that accounted for by depressive symptoms and Posttraumatic Stress Disorder symptom clusters (Monteith et al.). Similarly, Kanzler, Bryan, McGeary, and Morrow (2012) examined perceived burdensomeness and suicidal ideation in a sample of chronic pain patients. Again, perceived burdensomeness was found to significantly predict patients with suicidal ideation (Kanzler et al.). This effect was significant above and beyond the effect of depressive symptoms and pain severity (Kanzler et al.). The results from these studies indicate that perceived burdensomeness is a consistent and unique predictor of suicidal ideation in a variety of populations.

Hill and Pettit (2014) also reported that perceived burdensomeness was often a mediator between risk factors and suicidal behaviors. For example, Hawkins and colleagues (2014) examined the relationship between anger, perceived burdensomeness, and suicidal ideation in a sample of community mental health outpatients. They found that perceived burdensomeness, when controlling for depressive symptoms, mediated the relationship between anger and suicidal ideation. This finding suggests that negative cognitions, such as anger, may lead individuals to perceive themselves as a burden on others, which in turn, precipitates suicidal ideation (Hawkins et al.). Additionally, Rasmussen, Slish, Wingate, Davidson, and Grant (2012) examined perfectionism as it relates to perceived burdensomeness and suicidal ideation. They theorized that maladaptive perfectionism would promote feelings of ineffectiveness, self-hatred, and an overall perception of burdensomeness on others. The perception of burdensomeness

would then elicit suicidal ideation. Results supported the hypotheses and identified perceived burdensomeness as a mediator for perfectionism and suicidal ideation (Rasmussen et al.). Taken together, the findings from these studies indicate that perceived burdensomeness is a robust predictor of suicidal ideation, and may be an important element in identifying individuals most at risk for suicidal behavior.

The second construct described by IPTS is thwarted belongingness. An individual experiencing thwarted belongingness feels socially isolated and disconnected from friends and family (Ribeiro & Joiner, 2009; Van Orden et al., 2010). According to IPTS, individuals who feel lonely and perceive themselves as disconnected from close social relationships may believe that they have no one to turn to for support and that no one would notice, or even care, if they were gone; therefore, these individuals have fewer meaningful ties to the people in their lives, and may have a greater desire to die (Joiner, 2005; Van Orden et al., 2010). In support of this claim, Van Orden, Witte, James and colleagues (2008) examined how levels of suicidal ideation in undergraduate students varied in relation to changes in the school's social composition across academic terms. Predictions that suicidal ideation would be highest during the summer term, due to the decrease in social networks available to students, were found to be significant (Van Orden, Witte, James et al.). These findings give support to the proposition that when social connection and sense of belongingness are lacking, a desire for death will be more likely to emerge. Thwarted belongingness is also associated with suicide attempts. Conner, Briton, Sworts, and Joiner (2007) investigated this association in a sample of methadone patients. Results indicated that patients who had previously attempted suicide

experienced less belonging than non-attempters (Conner et al.). Lester and Gunn (2012) examined 11 samples of suicide notes, from both suicide attempts and completed suicides, for the presence of thwarted belongingness. Thwarted belongingness was defined by the authors as subjects experiencing disconnectedness from others, feeling isolated from or misfitting in their social groups, expressing feelings of loneliness, or associating their suicide with the recent loss of someone meaningful to their life. From these criteria, thwarted belongingness was present in 14% to 65% (median 42.5%) of the suicide notes. Furthermore, there was no significant difference in the presence of thwarted belongingness between the notes from attempted suicides versus completed suicides (Lester & Gunn). Thus, evidence suggests thwarted belongingness plays an influential role in prompting suicidal acts.

A key prediction of IPTS is the concurrent experience of thwarted belongingness and perceived burdensomeness in predicting suicidal ideation. Specifically, IPTS proposes that suicidal ideation will most likely occur when an individual has both high levels of thwarted belongingness and high levels of perceived burdensomeness (Joiner, 2005). Joiner and colleagues (2009) have found support for this hypothesis. In a large, representative sample ($N = 815$), the interaction of low family social support (a proxy for thwarted belongingness) and low “mattering” (a proxy for perceived burdensomeness) significantly predicted suicidal ideation above and beyond the main effects of low family social support and low mattering for predicting suicidal ideation (Joiner et al.). In further support of the IPTS hypothesis, Van Orden, Witte, Gordon, Bender, and Joiner (2008) found a significant interaction between perceived burdensomeness and thwarted

belongingness in a sample of undergraduate students. The interaction effects indicate that high perceived burdensomeness and high thwarted belongingness significantly predicted current suicidal ideation above and beyond the main effects of perceived burdensomeness and thwarted belongingness.

Additionally, Shelef, Frutcher, Mann, and Yacobi (2014) investigated the relationships between loneliness (a proxy for thwarted belongingness), burdensomeness, and suicidal ideation in a sample of Israeli military service members. Members were divided into three groups: members who had previously attempted suicide, those who had received psychological services, and a control group. Both the suicide attempters and the psychologically treated group had significantly higher levels of loneliness than the control group, which suggests that loneliness may be a core element of psychological distress (Shelef et al.). However, burdensomeness and suicidal ideation were found to be significantly higher only in the group of suicide attempters. Furthermore, the interaction of loneliness and burdensomeness was a significant predictor for suicidal ideation and accounted for variance beyond that explained by the main effect of burdensomeness (Shelef et al.). This suggests that, though loneliness may be common among psychological disorders, when an individual also perceives oneself as a burden to others, the risk for suicidal ideation and suicide attempts significantly increases (Shelef et al.). These findings support the distinct IPTS hypothesis that the combined experience of thwarted belongingness and perceived burdensomeness most increases the likelihood of experiencing a desire to die (suicidal ideation; Joiner, 2005).

Recently, Joiner and colleagues have further developed predictions about suicidal ideation by including hopelessness as an additional component. Theoretically, individuals experiencing thwarted belongingness and burdensomeness without hopelessness may develop *passive* suicidal desire, (i.e., “I wish I were dead”; Van Orden et al., 2010). However, when individuals also experience a negative, unchanging view of the future (hopelessness) regarding their belongingness and burdensomeness to others, they may develop *active* suicidal desire (i.e., “I want to kill myself”; Joiner et al., 2012; Van Orden et al., 2010). This active suicidal desire is posited to be more critical, as individuals actively desiring death may consider lethal behaviors more seriously than when experiencing only a passive suicidal desire (Van Orden et al., 2010). To date, only one study has directly tested the hopelessness hypothesis from IPTS. Christensen, Batterham, Soubelet, and Mackinnon (2013) reported mixed results in participants ($N = 6,133$) from three age groups, 20 to 30 year-olds, 40 to 50 year-olds, and 60 to 70 year-olds. Analyses using the entire sample revealed neither the two-way interaction between thwarted belongingness and perceived burdensomeness, nor the three-way interaction among thwarted belongingness, perceived burdensomeness, and hopelessness significantly predicted suicidal ideation (Christensen et al.). However, when age groups were analyzed separately, the two-way interaction became significant for all three age groups. Furthermore, the three-way interaction significantly predicted suicidal ideation for the 60 to 70 year-old group (Christensen et al.). Thus, while the IPTS was partially supported by Christensen and colleagues, further testing of the theory’s hopelessness hypothesis is needed.

The final construct for suicide risk that Joiner (2005) proposes in IPTS is the acquired capability for suicide (ACS). Because suicidal behavior contradicts the evolutionary motive for self-preservation, a sufficient explanation for the mechanism by which an individual can overcome the biological drive for self-preservation must be articulated. IPTS posits that the ACS is this mechanism, such that individuals who experience many painful and provocative events throughout their lives develop an increased tolerance for physical pain, and fearlessness toward pain and death (Joiner, 2005). This development is based on opponent-process theory (Solomon, 1980), which asserts that after repeated exposure to an affective stimulus, the initial response to the stimulus is weakened, and the opposite response is strengthened. Applied to the ACS hypothesis, the repeated exposure to painful and fearful events results in habituation to such experiences, higher pain tolerance, and an overall fearlessness about pain and death, all of which form the capability for lethal self-harm (Joiner et al., 2009).

In support of this hypothesis, a study by Franklin, Hessel, and Prinstein (2011) examined the relationship between the number painful and provocative life events and participants' ACS. Participants' pain threshold, pain intensity at threshold, pain tolerance, and pain intensity at tolerance were assessed using a cold-pressor task. Mediation analyses indicated that only pain tolerance significantly mediated the relationship between provocative experiences and ACS (Franklin et al.). This suggests that ACS may develop out of high numbers of painful and provocative life events by way of an increase in pain tolerance (Franklin et al.). In further support, a study by Bender, Anestis, Anestis, Gordon, and Joiner (2012) investigated the effects of distress tolerance and sensation

seeking on ACS. They hypothesized that distress tolerance, defined as the ability to tolerate negative psychological states, may equip individuals to become fearless towards death, and lead to the capability for lethal self-harm. Furthermore, Bender et al. proposed that sensation seeking behaviors would increase the number of potentially painful events an individual might experience, which, as has been previously discussed by Franklin et al., may contribute to a capability for suicide. Therefore, the combination of distress tolerance and sensation seeking was hypothesized to predict ACS in participants. Results supported this hypothesis (Bender et al., 2012). The results from these studies give support to the hypothesis that ACS may be derived from the experience of painful and provocative events (by way of a high tolerance for pain), and from characteristics that reduce fear of death and pain (i.e., distress tolerance, sensation seeking).

A clarification is needed concerning the predictive role of ACS for suicide and suicide attempts. IPTS hypothesizes that ACS alone will not necessarily predict which individuals are most likely to attempt, or succeed, at suicide because ACS does not provide *motivation* for suicide; ACS simply provides a means and capability for committing suicide. Therefore, according to IPTS, suicidal ideation must also be present and interact with a developed ACS for an individual to make a lethal attempt at suicide (Joiner, 2005). Van Orden, Witte, Gordon, and colleagues (2008) have found support for this hypothesis. In a sample of adult outpatients, ACS was not a significant predictor for clinician-rated risk for suicide; however, the interaction of ACS and perceived burdensomeness significantly predicted clinician-rated risk for suicide. This suggests that risk for suicidal behavior is highest when an individual has both a desire to die and the

capability to inflict lethal self-harm on oneself (Van Orden, Witte, Gordon et al.). Similarly, Christensen and colleagues (2013) found that the interaction of suicidal ideation and ACS was significantly associated with participants' suicide plans and suicide attempts within the previous year. Taken together, these studies support IPTS hypotheses, and indicate that both suicidal ideation and the capability for self-harm are essential in identifying which individuals are at most risk for suicide.

As has been shown, support for IPTS in the literature is plentiful. Its hypotheses have been upheld in a variety of populations, including undergraduate, clinically disordered, and military. Recently, researchers have begun applying the theory to eating disorders (EDs), in order to gain a fuller understanding of how EDs may drive individuals to attempt or complete suicide. The specific role of EDs in suicidality is still unknown; however, recent investigations have substantiated IPTS's predictions within ED populations.

Suicidality and Eating Disorders

Eating disorders are characterized by an overvaluation of weight and shape and maladaptive eating behaviors (American Psychiatric Association [APA], 2013). The *Diagnostic and Statistical Manual (DSM-5)* identifies three primary ED diagnoses. Anorexia nervosa (AN) is most clearly characterized by low body weight, experiencing an intense fear of gaining weight, and a disturbance in experiencing one's body weight and shape, such that body weight and shape have an inordinate influence on self-evaluation, or there is a lack of awareness of the seriousness of low body weight (APA, 2013). Bulimia nervosa (BN) is characterized by episodes of binge eating (i.e., eating a

large amount of food in two hours or less while experiencing lack of control), compensatory behaviors (e.g., self-induced vomiting, use of laxatives or diuretics, excessive exercise), and excessive influence of shape and weight on self-evaluation that do not occur solely during episodes of AN (APA, 2013). Binge-eating disorder (BED) was added to the *DSM-5* and is distinguished from AN and BN by a lack of low body weight and compensatory behaviors following binge episodes (APA, 2013). The estimated lifetime prevalence of any ED ranges from 0.8% to 2.3% (Smink et al., 2014).

As previously stated, individuals with EDs are at a substantially increased risk for attempting and committing suicide (Harris & Barraclough, 1997). Researchers have begun identifying correlates and predictors of suicides, suicide attempts, and suicidal ideation in ED populations. Comorbidity with other psychiatric disorders, most especially depressive and substance use disorders, and the severity of symptoms, is one of the more robust predictors of suicidality in EDs (Corcos et al., 2002; Franko et al., 2004; Milos, Spindler, Hepp, & Schnyder, 2004). Other correlates and predictors of suicidality are personality characteristics such as impulsivity and high persistence in goal pursuit, and a history of sexual abuse (Franko & Keel, 2006). These findings are not entirely specific to EDs, but rather are consistent with risk factors for suicidality identified across clinical populations (Cavanagh et al., 2003; Goldston et al., 2009; Moscicki, 1997).

In order to identify a distinct pattern of risk factors for suicidality distinct to ED populations, researchers have closely examined ED symptom severity, ED diagnoses, and ED symptom clusters with regard to suicidality outcomes. More severe overall ED psychopathology, as evidenced by duration of illness and hospitalizations, is associated

with suicide attempts in AN and BN (Favaro & Santonastaso, 1997; Franko et al., 2004). Milos and colleagues (2004) noted that more severe cognitive ED symptoms, such as a fixation on being underweight, fearing weight gain, and being unduly preoccupied with appearance and weight, predicted current suicidal ideation in an ED sample of women with AN, BN, or an ED-not-otherwise-specified (EDNOS). Thus, suicide risk appears to increase as ED pathology increases in severity. Furthermore, mounting evidence supports diagnostic distinctions when identifying predictors for suicidality in EDs. For example, a BN diagnosis is often associated with more suicide attempts than an AN diagnosis, whereas AN diagnoses are linked to greater numbers of death by suicide (Franko et al., 2004; Franko & Keel, 2006). The higher number of suicide deaths in AN may suggest that individuals with AN suffer from more severe suicidality and are at higher risk for suicide than individuals with BN (Guillaume et al, 2011; Holm-Denoma et al., 2008). However, other researchers have identified BN as conferring greater risk for suicidal ideation, suicide plans, and attempts (Bodell, Joiner, & Keel, 2013; Ruuska, Kaltiala-Heino, Rantanen, & Koivisto, 2005). The mixture of results when comparing AN and BN diagnoses has spurred researchers to examine suicidality in regard to specific symptom clusters and ED subtypes, which may be able to offer more specific predictions and explanations of mechanisms for increased suicide risk (Fedorowicz et al., 2007). For example, the purging subtype diagnoses, AN-binge-eating/purging type (AN-BP) and BN-purging type (BN-P), are associated with higher suicidal ideation, higher number of suicide attempts, and increased risk for suicide attempts more so than non-purging subtypes, such as AN-restricting type (AN-R) and BN-non-purging type (Fedorowicz et

al., 2007; Milos et al., 2004; Protzky et al., 2014; Stein, Lilienfeld, Wildman, & Marcus, 2004; Youssef et al., 2004). These findings suggest that ED purging subtypes may confer higher risk for suicidality. Taken all together, research thus far indicates that EDs hold distinct risk for suicidality, a risk that may be especially evident not only in severe and highly comorbid ED cases, but also in specific ED symptoms, such as purging.

The Interpersonal-Psychological Theory of Suicidality and Eating Disorders

Though much about suicidality in EDs has been described and identified, researchers have only recently begun to synthesize such information and formulate a comprehensive theory for suicide risk in the context of EDs. Given Joiner's well-researched IPTS, some ED researchers have begun to test its validity within the context of EDs and have found promising results.

Early applications of IPTS in ED research concerned the acquired capability for suicide (ACS), such that the ED symptoms of self-induced vomiting, excessive exercise, and severe restriction were hypothesized to serve as painful and provocative experiences that theoretically increase pain tolerance and fearlessness, and ultimately develop the capability for suicide (Selby et al., 2010). This hypothesis has received partial support in samples of undergraduates and individuals diagnosed with AN and BN (Selby et al.; Smith et al., 2013). Selby and colleagues (2010) demonstrated that the relationship between AN and suicidal behavior was mediated by such provocative behaviors as self-induced vomiting, severe restriction, and non-suicidal self-injury. Interestingly, distinct predictive paths were noted for AN-BP diagnoses and AN-R diagnoses, such that provocative behaviors mediated the relationship between AN-BP and suicidal behavior,

but did not account for the relationship between AN-R and suicidal behavior (Selby et al.). Furthermore, when fasting behavior was removed from the provocative behavior latent variable in the analyses, the direct relationship between AN-R and suicidal behavior was strengthened (Selby et al.). These results suggest that the different paths to suicidal behavior in individuals with AN may be functions of AN subtypes. In a similar test, meant to extend these findings beyond clinical samples, individuals who reported fasting in the past month were examined based on the ACS components of pain tolerance and fearlessness about death (Zuromski & Witte, 2015). Those individuals who fasted were more likely to have previously attempted suicide; however, there were no significant differences between fasters and non-fasters with regard to pain tolerance or fearlessness (Zuromski & Witte). Because fasting is rarely done in isolation from other ED cognitions and behaviors, the results from this particular study may indicate that fasting in and of itself may not be a critical mechanism for developing ACS (Zuromski & Witte).

The two previous studies both focused on individuals with AN or restrictive symptoms. Smith and colleagues (2013) examined aspects of bulimic pathology in reference to developing an ACS and predicting past suicide attempts. Focusing on over-exercising, results indicated that in a sample of BN or subclinical BN individuals, over-exercise was the only compensatory behavior that was significantly associated with past suicide attempts. In samples of undergraduates, Smith and colleagues reported that pain insensitivity accounted for the relationship between over-exercise and ACS; furthermore, a developed ACS accounted for the relationship between over-exercise and past suicide

attempts. These results suggest that over-exercisers are more likely to develop ACS by becoming less sensitive to physical pain, and thus are at higher risk for attempting suicide (Smith et al.). Taken together, the findings from these studies indicate that eating pathology may contribute to an individual's ACS development, possibly through provocative behaviors and/or excessive exercising. More importantly, these studies support IPTS in eating disorder populations; however, research testing other components of IPTS, such as perceived burdensomeness, thwarted belongingness, and hopelessness, must be evaluated as well.

Research examining the interpersonal aspects of IPTS (perceived burdensomeness, thwarted belongingness, and hopelessness) in ED samples is limited; however, some studies do exist. A recent study indicates that individuals with EDs (i.e., AN, BN, EDNOS) demonstrated significantly elevated levels of perceived burdensomeness and thwarted belongingness compared to non-ED controls (Smith et al., 2014). In an attempt to identify the mechanisms by which ED diagnoses are associated with burdensomeness and thwarted belongingness, the role of negative life events was examined (Dodd, Smith, & Bodell, 2014). Results suggest that number of negative life events accounts for the relationship between restraint behaviors and perceived burdensomeness and thwarted belongingness (other ED behaviors were not directly assessed; Dodd et al.). Because few studies have directly tested the IPTS constructs of perceived burdensomeness and thwarted belongingness within EDs, a presentation of research examining components of these constructs, namely self-hatred and a sense of

liability on others for burdensomeness, and loneliness and lack of reciprocal care for thwarted belongingness, is appropriate.

Several studies have examined the role of self-hatred and guilt in individuals with EDs. Berghold and Lock (2002) examined guilt in adolescent girls with AN and found significant elevations in the self-hate facet of guilt when compared to adolescent norms. Prospective studies investigated outcomes of EDs with regard to levels of self-hatred and found that changes in key ED diagnostic symptoms and interpersonal relationships at a 3-year follow-up were most strongly predicted by their respective initial levels, followed by individuals' initial self-hatred (Bjorck, Clinton, Sohlberg, & Norring, 2007). Furthermore, although an overall pattern emerged with self-dislike predicting poorer outcomes in both BN and AN diagnostic groups, differences between diagnoses were noted, such that high self-hatred and low self-love were stronger predictors of poor outcomes at follow-up for individuals with BN, but self-control was a stronger predictor of poor outcomes for individuals with AN (Birgegard et al., 2009). Together, these results suggest that self-hatred is not uncommon in individuals with EDs.

Aspects of thwarted belongingness have also been investigated among ED populations. For example, loneliness has been associated with ED symptoms such as body dissatisfaction and restraint (Pritchard & Yalch, 2009; Rotenberg & Flood, 1999), and differences in ED recovery status (Harney, Fitzsimmons-Craft, Maldonado, & Bardone-Cone, 2014). When comparing groups of women who were recovered from an ED (determined by behavioral and cognitive measures), partially-recovered from an ED, or actively suffering from an ED, loneliness was significantly greater in only the active

ED group, and was not significantly different between the fully-recovered and partially-recovered groups (Harney et al.). This finding suggests that there may be important associations between loneliness and ED symptom severity. Additionally, even among different subtypes of EDs, reports of differences in loneliness exist (Troop & Bifulco, 2002). When comparing non-ED, AN, BN, and AN-BP groups of women, AN-BP individuals reported significantly higher levels of loneliness than non-ED and AN-R individuals (Troop & Bifulco). It appears that EDs, especially AN-BP, are more closely associated with experiencing loneliness.

Examinations of perceptions of social support among ED individuals support hypotheses that EDs are associated with low belongingness. In a comparison of individuals with AN and their siblings, the siblings rated their experience of social support, defined as reliable alliance, attachment, guidance, opportunity for nurturance, social integration, and reassurance of worth, significantly higher than the individuals with AN (Dimitropoulos, Freeman, Bellai, & Olmsted, 2013). This finding may be a result of biased perceptions of interpersonal relationships that individuals with EDs often experience (Carter, Kelly, & Norwood, 2012; Oldershaw et al., 2011), or a genuine lack of social support for individuals with EDs. Regardless, if individuals with EDs perceive a lack in social reciprocity, they may be more likely to experience low belongingness (Joiner et al., 2012; Van Orden et al., 2010). Together, these results indicate that individuals with EDs, perhaps especially those with purging symptoms, may be more apt to perceive rejection in their interpersonal relationships (loneliness). Furthermore, these individuals may consider themselves unable to receive or offer any meaningful support to

others (reciprocity). Thus, individuals with EDs may more readily experience thwarted belongingness.

It should be noted that loneliness is also associated with depressive symptoms (Lasgaard, Goossens, Holm-Bramsen, Trillingsgaard, & Elklit, 2011). Thus, in an attempt to distinguish the distinct effects of EDs on loneliness, Nickel and colleagues (2006) compared suicide attempters with BN-P to suicide attempters with major depressive disorder (MDD). Whereas having a “feeling of loneliness despite family and friends” was a significant risk factor for suicide attempts among BN-P, it was not a significant factor for MDD participants. BN-P attempters were more likely than MDD attempters to report feelings of loneliness despite family and friends, and low life satisfaction with interpersonal relationships. Results indicated that BN-P attempters were 11 times more likely than MDD attempters to have a poor quality of life (Nickel et al.). These results suggest that a distinct relationship between loneliness and EDs exists.

Evidence of an association between ED psychopathology and hopelessness is sparse; however, a few recent studies have begun investigating such a relationship. In a sample of female adolescent psychiatric inpatients, endorsement of body dissatisfaction was significantly correlated with endorsement of hopelessness, even when controlling for current depressive symptoms (Zaitsoff & Grilo, 2010). Significant correlations between endorsements of hopelessness and disordered eating attitudes have also been identified in a sample of young adult women (Ward & Hay, 2015). Similarly, researchers have also found that scores on hopelessness measures are significantly greater among adolescent girls who also endorse ED symptoms than those who do not (Alpaslan et al., 2015;

Hernandez, 1995; Miotto, de Coppi, Frezza, & Preti, 2003). Thus, while it appears that a relationship exists between ED symptoms and hopelessness, the exact nature (i.e., directionality) of the relationship has yet to be investigated.

Purpose of the Present Study

The development of ACS through ED behaviors has been substantiated (Selby et al., 2010; Smith et al., 2013); however, examination of the development of suicidal desire and ideation through perceived burdensomeness, thwarted belongingness, and hopelessness has not been the focus of extensive empirical scrutiny. Thus, the aim of the present study is to empirically test the associations among perceived burdensomeness, thwarted belongingness, hopelessness, and suicidal ideation within the context of ED pathology. More specifically, given that prior research has identified purging pathology, seen in both AN and BN, as particularly predictive of suicidality (Fedorowicz et al., 2007; Milos et al., 2004; Protzky et al., 2014; Stein et al., 2004; Youssef et al., 2004), it is of interest to more clearly establish the role of purging pathology within the IPTS framework.

I hypothesize that purging pathology, defined as affirmative attitudes and cognitions towards purging behaviors, and engagement in purging behaviors, will act as a distal risk factor for suicidal ideation over time. This relationship will be mediated by the more proximal risk factors of perceived burdensomeness, thwarted belongingness, and hopelessness over time. This predicted variable order is expected for several reasons. First, purging pathology has been linked both to facets of perceived burdensomeness (Birgegard et al., 2009) and thwarted belongingness (Nickel et al., 2006; Troop &

Bifulco, 2002), as well as various forms of suicidality, including suicidal ideation (Milos et al., 2004; Protzky et al., 2014). Additionally, perceived burdensomeness and thwarted belongingness have predicted variance in suicidality beyond other more distal risk factors (Joiner et al., 2009; Monteith et al., 2013), and have mediated the effects of such variables (Hawkins et al., 2014; Rasmussen et al., 2012). Thus, it appears that perceived burdensomeness and thwarted belongingness are proximal risk factors for suicidal ideation. As previously established, empirical evidence of a specific association between purging pathology and hopelessness is lacking. However, IPTS posits that hopelessness serves as a third proximal risk factor for suicidal ideation. Because this hypothesis has been previously untested in the ED literature, it is an interest of the present study to empirically test this prediction. Therefore, the present study posits that perceived burdensomeness, thwarted belongingness, and hopelessness will mediate the relationship between purging pathology and suicidal ideation over time.

CHAPTER II

METHOD

Participants¹

Participants at baseline included 379 undergraduate students recruited at a large Midwestern university. Throughout the course of data collection, 142 (37.5%) participants did not complete the five-week follow-up, and an additional 59 (15.6%) participants did not complete the 10-week follow-up. This left 178 participants who provided data at all three measurement time points. Of these participants, seven (1.8%) provided incomplete data on one or more of the variables. Thus, 171 participants (M_{age} (SD) = 19.6 (1.76), 81% female, 93% White) provided complete data at all three measurement time points and were included in the mediation analyses. There were no significant differences among variable means between participants who completed only the baseline, those who completed the baseline and five-week follow-up, and those who completed all parts of the study.

¹ Data collection occurred in collaboration with another study investigating non-prescription stimulant use. Participants provided information about past and current non-prescription stimulant use, and completed two additional measures: the Questionnaire for Academic Procrastination and the Self-efficacy for Learning Form.

Materials

Purging Pathology

The Purgative Behavior Subscale of the Multifactorial Assessment of Eating Disorders Symptoms (MAEDS-PUR; Anderson, Williamson, Duchmann, Gleaves, & Barbin, 1999) is a seven-item, self-report measure that assesses purging pathology, and includes items evaluating behaviors and beliefs about purging (e.g., “Purging is a good way to lose weight”). Items are presented on a 7-point scale ranging from 1 (*always*) to 7 (*never*) with higher scores indicating more frequent purging pathology endorsement (Anderson et al.). The purging subscale is one of six subscales (i.e., depression, binge eating, purgative behavior, fear of fatness, restrictive eating, and avoidance of forbidden foods) that form the MAEDS. The MAEDS-PUR demonstrated acceptable internal consistency in this study with a coefficient alpha of .73.

The MAEDS was validated using samples of undergraduate women, and women diagnosed with an ED who also completed other measures of ED psychopathology. Correlations between the MAEDS subscales and the other ED measures were significant. Most relevant to the current study, the MAEDS-PUR subscale was significantly correlated ($r = .28-.42$) with ED symptoms such as drive for thinness, radical weight loss, laxative abuse, vomiting, exercise, and fear of fatness (Anderson et al., 1999). These associations suggest that the MAEDS-PUR subscale is assessing relevant aspects of eating disorder and purging pathology.

Martin, Williamson, and Thaw (2000) investigated the discriminant potential of the MAEDS-PUR subscale by comparing PUR scores among female participants

diagnosed with BN-P, AN-BP, AN-R, and Binge Eating Disorder. The discriminant utility of the MAEDS-PUR subscale was supported; for example, participants with BN-P or AN-BP scored significantly higher on the MAEDS-PUR subscale than participants with AN-R or BED (Martin et al.). These results suggest that the MAEDS-PUR subscale assesses purging pathology related to ED purging subtypes (Martin et al.). Thus, the MAEDS-PUR subscale may be considered reliable and valid for use in assessing purging pathology.

Perceived Burdensomeness and Thwarted Belongingness

The Interpersonal Needs Questionnaire is a 15-item, self-report measure of perceived burdensomeness and thwarted belongingness (INQ; Van Orden, Cukrowicz, Witte, & Joiner, 2012). Respondents rate the applicability of items to their own, recent personal beliefs and experiences (e.g., “These days the people in my life would be happier without me”) by using a 7-point scale ranging from 0 (*Not at all true for me*) to 7 (*very true for me*). Higher scores indicate more endorsement of the constructs. Exploratory and confirmatory factor analyses using samples of undergraduate students, outpatient psychiatric clients, and healthy adults indicate a 2-factor solution with six items loading onto a burdensomeness factor, and nine items loading onto a thwarted belongingness factor (Van Orden et al.). Internal consistency measures for the factors were excellent in the present study with Cronbach’s alpha at .91 for thwarted belongingness and .95 for perceived burdensomeness.

Aspects of the INQ’s convergent validity were supported in a young adult sample. For example, perceived burdensomeness was significantly related, in the theorized

directions, to measures of autonomy, responsibility to family, and self-competence, while thwarted belongingness was also significantly related, in expected directions, to measures of loneliness, social support, and self-liking (Van Orden et al., 2012). Tests of convergent validity in an older adult sample were also supported as perceived burdensomeness was significantly associated with death ideation and (lower) social worth, and thwarted belongingness was significantly associated with loneliness, social support, and (lower) meaning in life (Van Orden et al., 2012). The INQ has also displayed predictive validity, as perceived burdensomeness and thwarted belongingness were significantly, positively associated with suicidal ideation tested one month later (Van Orden et al., 2012). Thus, the INQ can be considered an adequate measure of perceived burdensomeness and thwarted belongingness.

Hopelessness

The Hopelessness subscale of the Helplessness-Hopelessness-Haplessness Scale (HS; Lester, 1998) is a 10-item, self-report measure of negative expectations for the future (e.g., “All I can see ahead of me is unpleasantness rather than pleasantness”). Items are presented on a 6-point scale ranging from 1 (*Strongly disagree*) to 6 (*Strongly agree*) with higher scores indicating more endorsement of hopeless cognitions.

The HS demonstrated good internal consistency in the present study with a coefficient alpha of .84. The HS has been significantly correlated ($r = .67-.72$) with other measures of hopelessness in both undergraduate and clinical samples (Lester & Walker, 2007; Vatan & Lester, 2008). Additionally, the HS has evidenced concurrent validity by exhibiting larger correlations with measures of hopelessness ($r = .72$) than the

Helplessness subscale ($r = .54$) or Helplessness subscale ($r = .49$; Vatan & Lester). Furthermore, correlations between the HS and measures of depressive symptoms are smaller ($r = .43-.50$) than the HS's correlations with other hopelessness measures, consequently providing some evidence of discriminant validity (Lester, 1998; Lester, 2001). More applicable to the present study are associations between the HS and suicidal ideation. In a large sample of undergraduates ($N = 419$), the HS was significantly correlated ($r = .36$) with suicidal ideation (Gencoz, Vatan, Walker, & Lester, 2008). Thus, the HS can be considered an adequate measure of hopelessness.

Suicidal Ideation

The Suicidality Subscale of the Depressive Symptom Inventory (DSI-SS; Joiner, Pfaff, & Acres, 2002) from the Hopelessness Depression Symptom Questionnaire (Metalsky & Joiner, 1997) is a four-item, self-report measure of active suicidal ideation. For each item, respondents choose one of four response options by selecting the response that best applies to them. Response options vary for each item, but all range from least severe options, 0 (e.g., *I do not have thoughts of killing myself*), to most severe options, 3 (e.g., *I always have thoughts of killing myself*). Item scores are summed for a total score, and higher scores represent more severe endorsement of suicidal thoughts. Joiner and colleagues have suggested a cutoff score of 3 based on a study in which 85% of the young adult sample scored below 3 (2002). Those that scored greater than 3 also elevated at least one standard deviation above the sample mean on measures of depression and general distress (Joiner et al.).

The DSI-SS evidenced excellent internal consistency in the present study with a coefficient alpha of .92. The DSI-SS has been significantly associated with theoretically-related constructs such as depression ($r = .60$) and emotional distress ($r = .49$; Joiner et al.). Because the DSI-SS was more strongly related to depressive symptoms, Joiner and colleagues suggested that the DSI-SS measures a construct more closely related to depressive symptoms than general emotional distress, such as suicidal ideation (2002). DSI-SS scores were also more strongly related to individuals presenting with psychological (rather than physical) complaints to a general practitioner (Joiner et al.). Specifically relevant to the present study, in undergraduate samples, the DSI-SS was significantly correlated, in expected directions, with measures of depression, perceived burdensomeness, and thwarted belongingness (Rasmussen & Wingate, 2011; Rasmussen et al.). Thus, the DSI-SS appears to be a brief and reliable measure of suicidal ideation in various adult populations.

Eating Disorder Symptom Severity

Greater purging frequency and pathology has been associated with greater overall ED severity (Edler, Haedt, & Keel, 2007). Furthermore, more severe ED symptomatology has also been linked to increased risk for suicidality (Favaro & Santonastaso, 1997; Franko et al., 2004; Milos et al., 2004). Thus, in order to better determine the unique variability in suicidal ideation accounted for by purging pathology, measurement of overall ED severity is necessary. The Eating Disorders Examination-Questionnaire (EDE-Q; Fairburn & Beglin, 1994) is a self-report measure of cognitive and behavioral ED symptoms. The EDE-Q's 32 items assess ED symptoms over the past

28 days (e.g., “On how many of the past 28 days have you had a strong desire to lose weight?”). Respondents rate behavioral and cognitive ED symptom frequencies on a 7-point scale ranging from 0 (*No days* or *None of the times* or *Not at all*) to 6 (*Every day* or *Every time* or *Markedly*). Higher scores on the global scale and the four subscales (i.e., restraint, shape concern, weight concern, eating concern) indicate more severe ED pathology.

The EDE-Q’s psychometric properties are well established. The EDE-Q’s concurrent validity has been assessed by comparing the EDE-Q subscale scores to scores from its parent measure, the Eating Disorder Examination, which assesses ED symptoms in an interview format. Correlations between the subscales from the two measures were large ($r > .68$) and significant (Mond, Hay, Rodgers, Owen, & Beumont, 2004), providing support for the EDE-Q’s concurrent validity. Additionally, criterion validity has been assessed in a community sample of women by comparing participants diagnosed with a *Diagnostic and Statistical Manual (DSM-IV-TR; APA, 2000)* ED to healthy participants. Mond and colleagues found that the EDE-Q’s global scale and subscale scores were significantly greater for individuals diagnosed with an ED. The EDE-Q can be considered an adequate measure of ED symptom severity within the past 28 days. Cronbach’s alpha of the global scale score for the current study was excellent at .95.

Past Suicidality

Previous suicide attempts and suicidal ideation are the most robust predictors of future suicidality (Brown, Beck, Steer, & Grisham, 2000; Joiner et al., 2005; Lewinsohn, Rohde, & Seeley, 1994). Thus, in order to accurately quantify the unique variability in

suicidal ideation explained by purging pathology, perceived burdensomeness, thwarted belongingness, and hopelessness, it is necessary to assess for past suicidality. Researchers often assess the frequency of past suicide attempts (Joiner et al.). The single item, “How many suicide attempts have you made in your life?”, will be used to quantify participants’ self-reported, lifetime number of suicide attempts. Joiner and colleagues used this specific item phrasing to evaluate the association between number of past suicide attempts and current suicidal ideation in middle-aged adults with Major Depressive Disorder. They found that the frequency of past attempts was significantly associated with current suicidal ideation ($r = .32$; Joiner et al.). Using an item with similar, though not identical wording, a significant association between number of past suicide attempts and current suicidal ideation was also identified in a sample of undergraduate students ($r = .48$; Joiner et al.). Thus, it appears that the item adequately assesses past suicide attempts in various populations.

Past suicidal ideation will be assessed via a past-tense version of one item from the previously discussed DSI-SS measure (Joiner et al., 2002), which assesses current suicidal ideation. DeShong, Tucker, O’Keefe, Mullins-Sweatt, and Wingate (2015) reformatted the item into a question, “Have you ever experienced thoughts of killing yourself?”, and the verb tenses for the answer choices were changed to past tense (i.e., *I have never had thoughts of killing myself*). DeShong and colleagues used this altered item to examine associations between past suicidality, current suicidality, and personality factors. Results were consistent with past literature and hypothesized predictions about suicidality and personality, such that individuals endorsing past or current suicidal

ideation scored higher on measures of neuroticism (i.e., depressiveness, impulsivity) and lower on measures of extroversion (i.e., positive emotions) than individuals without past or current suicidal ideation (DeShong et al). This suggests that both the DSI-SS and the altered item assess a similar suicidality construct. Considering DeShong et al.'s consistent empirical results, and the DSI-SS's strong case for its own validity in assessing current suicidal ideation, it can be argued that the altered DSI-SS item adequately measures past suicidal ideation.

Depressive Symptoms

Depressive symptoms are often associated with, and predictive of, suicidality (Conner & Goldston, 2007); thus, assessment of participants' depressive symptoms is needed in order to clearly determine the unique variability in suicidal ideation explained by the hypothesized predictors. The Patient Health Questionnaire (PHQ-9; Spitzer, Kroenke, Williams, & PHQ Primary Care Study Group, 1999) is a nine-item, self-report measure of depressive symptoms over the past two weeks (e.g., "Little interest or pleasure in doing things"). Items are rated on a frequency scale ranging from 0 (*Not at all*) to 3 (*Nearly every day*), and higher scores indicate more frequent symptom endorsement. The PHQ-9 exhibited good internal consistency in the current study with a coefficient alpha of .86.

The PHQ-9 has also demonstrated adequate convergent and predictive validity. In samples of medical patients, elevated PHQ-9 scores were significantly associated with increased physical and social impairment (Spitzer et al., 1999). In a community sample, PHQ-9 scores were significantly associated with lower life satisfaction ($r = -.42$), poorer

health generally and mentally (r 's = $-.52, -.61$), and lower social functioning ($r = -.60$; Kocalevent et al., 2013). A recent meta-analysis further assessed the PHQ-9's predictive validity using operating characteristics (Gilbody, Richards, Brealey, & Hewitt, 2007). Pooled results from 14 studies, each of which used a standardized diagnostic interview schedule for diagnosing depression, indicate that a cut-off of score of 10 produces sensitivity of .80 and specificity of .92 for detecting depression (Kroenke et al., 2001). Additionally, other researchers have examined the PHQ-9's AUC values and reported values ranging from .93 (Watnick, Wang, Demadura, & Ganzini, 2005) to .95 (Gilbody et al.; Kroenke et al.), demonstrating that the PHQ-9 may accurately detect depressive symptoms. Together, these results suggest that the PHQ-9 is a reliable and valid measure of depressive symptoms.

Impulsivity

Research has associated impulsivity with BN (Bjorck, Clinton, Sohlberg, Hallstrom, & Norring, 2003) and suicidality (Bender, Gordon, Bresin, & Joiner, 2011). Impulsivity is regarded as a multidimensional construct composed of various facets (e.g., negative urgency, sensation-seeking, etc; Whiteside & Lynam, 2001). Of the identified facets, negative urgency in particular has been consistently linked to both ED symptoms and suicidality (Klonsky & May, 2010; Peterson & Fischer, 2012); therefore, in order to determine the unique effects of the hypothesized variables on suicidal ideation, negative urgency among participants must be assessed. The 12-item Negative Urgency subscale of the Urgency-Premeditation-Perseverance-Sensation Seeking-Positive Impulsive Behavior Scale (UPPS-P; Lynam, Smith, Cyders, Fischer, & Whiteside, 2007) assesses self-

reported negative urgency (e.g., “I have trouble controlling my impulses”) and utilizes a 4-point Likert-type scale, ranging from 1 (*agree strongly*) to 4 (*disagree strongly*). Higher scores indicate more endorsement of negative urgency. The negative urgency subscale exhibited excellent internal consistency in the present study with a coefficient alpha of .93.

The negative urgency subscale has been significantly correlated with past suicidal ideation, past suicide attempts, and high risk for future suicidality (Lynam, Miller, Miller, Bornovalova, & Lejuez, 2011). In a sample of high school and college students, negative urgency was significantly higher in students who endorsed either suicidal ideation or past suicide attempts (Klonsky & May, 2010). Additionally, negative urgency was significantly associated with ED symptoms (e.g., binge eating, purging) in samples of undergraduate students (Anestis, Selby, & Joiner, 2007; Peterson & Fischer, 2012). Thus, the negative urgency subscale may be considered an appropriate instrument for measuring the negative urgency facet of impulsivity.

Procedure

Participants completed self-report measures on Qualtrics at three time points over approximately ten to 11 weeks. At baseline (Time 1), participants completed all measures and provided demographic and contact information. At follow-up, approximately five to six weeks after baseline (Time 2) and ten to 11 weeks after baseline (Time 3), participants completed only the MAEDS-PUR, INQ, HS, DSI-SS, EDE-Q, and PHQ-9. Participants were provided the links to the follow-up surveys via email, text message, and phone three times over the course of five days during each follow-up time points. Suicide

risk during the study was monitored for participants who endorsed past suicidality or current suicidal ideation. In order to provide immediate resources to participants who endorsed past or current suicidality, the Qualtrics surveys were programmed to provide participants with contact information for national suicide support systems, such as websites and phone hotlines. Additionally, participants had the option to request information from the author about local mental health resources.

Upon completing the measures at Time 1, participants chose to receive either one SONA credit or one entry into a raffle drawing to win one of eight \$10 gift cards. After completing the battery of measures at Time 2, participants were offered either a half of a credit on SONA, or one entry into a raffle drawing to win one of seven \$15 gift cards. Finally, after completing the battery of measures at Time 3, participants were offered either a half credit on SONA or one entry into a raffle drawing to win one of 11 \$20 gift cards.

Analytic Strategy

Multiple mediation analyses were conducted to test whether changes from Time 1 to the Time 2 in perceived burdensomeness, thwarted belongingness, and hopelessness mediated the relationship between purging pathology at Time 1 and suicidal ideation at Time 3. This model included controls for Time 1 measurements of past suicide attempts, past suicidal ideation, current suicidal ideation (DSI-SS), current ED severity (EDE-Q), current depressive symptoms (PHQ-9), and impulsivity (UPPS-P). Analyses used the PROCESS macro (Hayes, 2013) within SPSS version 23.0. The total effect (c) includes the direct effect (c') and the overall indirect effect (ab). The overall indirect effect is the

product of the effects of purging pathology on the mediators (a_1 - a_3) and the effects of the mediators on suicidal ideation (b_1 - b_3), controlling for purging pathology. Thus, the indirect effect tests whether changes in suicidal ideation are mediated by changes in perceived burdensomeness, thwarted belongingness, and hopelessness. Bias-corrected bootstrap confidence intervals were generated, drawn from 10,000 bootstrap samples, as recommended by Preacher and Hayes (2004; 2008) and Williams and MacKinnon (2008). A significant mediated effect is assumed present when the confidence interval does not contain zero (Preacher & Hayes, 2004). Whereas simple percentile bootstrap confidence intervals assume a normal distribution of the mediation effect, bias-corrected confidence intervals do not, and are thus adjusted to account for the indirect effect's often skewed distribution (Williams & MacKinnon). Statistical simulation studies have compared different mediation analyses for simple and multiple mediation models, and have concluded that bias-corrected confidence intervals produce the most accurate Type I error rates and attain greatest power for detecting effects (Fritz & MacKinnon, 2007; MacKinnon, Lockwood, & Williams, 2004; Williams & MacKinnon).

Statistical Power

Few effect sizes have been reported in the research on the present study's specific variables. Results from studies using broader definitions of the variables have reported varying effect sizes (Conner, Britton, Sworts, & Joiner, 2007; Bodel, et al., 2013; Fedorowicz et al., 2007; Huth-Bocks, Kerr, Ivey, Kramer, & King, 2007; Monteith et al., 2013; Nickel et al., 2006; Stice, Marti, & Rohde, 2013; Kuo, Gallow, & Eaton, 2004). Thus, given the limited information and erring on the side of caution, effect sizes of the

mediational pathways for computing a priori power were estimated to be small and small-medium in size, using established effect size definitions (Cohen, 1988; Fritz & MacKinnon, 2007). In the present study, the completely standardized indirect effect size was -.0004 for the change in perceived burdensomeness, .0039 for the change in thwarted belongingness, and -.0004 for the change in hopelessness.

CHAPTER III

RESULTS

Variable scores were prorated to account for missing data. At least 50% of the items of a measure were required to be completed in order for a variable scale to be computed. Overall, the proportion of participants who provided incomplete data on a given scale ranged from 0% to 5.0%. The mean BMI of participants at Time 1 was 25.01 ($SD = 5.09$) kg/m². In the 28 days prior to Time 1, 5.8% of participants reported self-induced vomiting for the purposes of controlling weight or shape. At Time 1, 8.1% of participants reported a history of suicide attempts. Past suicidal ideation was endorsed by 40.3% of participants, with 38.1% of the participants reporting past suicidal ideation as occurring “rarely” or “sometimes”. Current suicidal ideation was endorsed by 16.3% of the sample. Several variables, including lifetime suicide attempts, lifetime suicidal ideation, Time 1 suicidal ideation (DSI-SS Time 1), ED severity (EDE-Q), depressive symptoms (PHQ-9), negative urgency (NEG-URG), purging pathology (MAEDS-PUR), change in thwarted belongingness (INQ-TB Δ), and change in hopelessness (HS Δ) exhibited non-normal distributions with significant positive skewness. Of these variables, floor effects were observed for lifetime suicide attempts, lifetime suicidal ideation, DSI-SS Time 1, and MAEDS-PUR, with at least 59% of participants scoring in the bottom 25% or less of the variable ranges. Change in perceived burdensomeness (INQ-PB Δ) also exhibited a non-normal distribution; however, its distribution was significantly

negatively skewed. Change in suicidal ideation (DSI-SS Δ) exhibited a normal distribution. See Table 1 for the means and standard deviations of participants' baseline scores on the variables of interest and covariates.

Table 1

Baseline Characteristics of Participants

Variable	Mean (SD)
MAEDS-PUR	10.70 (4.54)
INQ-PB	9.72 (6.12)
INQ-TB	21.97 (10.63)
HS	20.52 (6.53)
DSI-SS	.57 (1.52)
EDE-Q	1.74 (1.32)
PHQ-9	14.06 (4.56)
UPPS-P	24.27 (8.85)

With regard to the changes over time in the mediation and outcome variables, on average, there was a $-.34$ unit ($SD = 4.63$) change in perceived burdensomeness between Time 1 and Time 2 with 49.1% of the sample reporting no change in perceived burdensomeness, 29.7% reporting a decrease in perceived burdensomeness, and 21.2% reporting an increase in perceived burdensomeness. The mean change in thwarted belongingness was $.20$ units ($SD = 7.07$) with 13.1% of the sample reporting no change,

46.6% reporting a decrease, and 40.3% reporting an increase. The mean change in hopelessness between Time 1 and Time 2 was .09 ($SD = 4.98$) with 13.6% of the sample reporting no change, 45.5% reporting a decrease, and 40.9% reporting an increase in hopelessness. Finally, the mean change in current suicidal ideation between Time 1 and Time 3 was $-.14$ ($SD = 1.35$) with 81.7% of the sample reporting no change, 12.0% reporting a decrease in suicidal ideation, and 6.3% reporting an increase in suicidal ideation.

Using Jacobson and Truax's (1991) reliable change index to determine statistically significant differences between scores, 11.4% of the sample reported a significant increase in perceived burdensomeness between Time 1 and Time 2, and 14.2% reported a significant decrease. For thwarted belongingness, 7.3% of the sample reported a significant increase while 6.7% reported a decrease. Between Time 1 and Time 2, 4.5% of the sample reported a significant increase in hopelessness, and 3.4% reported a decrease. Finally, between Time 1 and Time 3, 2.8% of participants reported a significant increase in suicidal ideation while 9.6% reported a decrease.

Figure 1 shows the individual paths of the multiple mediation model, and the tests of mediation are presented in Table 2. The total effect of purging pathology on change in suicidal ideation was not significant, indicating that there was not a significant relationship between purging pathology and change in suicidal ideation when testing the combined direct and indirect effects. Furthermore, the direct effect of purging pathology on change in suicidal ideation was not significant, thus suggesting no significant relationship between purging pathology and change in suicidal ideation when indirect

effects are held constant. The overall indirect effect was not significant, as were all the specific indirect effects, indicating that the change in perceived burdensomeness, thwarted belongingness, and hopelessness did not mediate the relationship between purging pathology at Time 1 and change in suicidal ideation at Time 3. Thus, analyses indicate no significant relationship between purging pathology and change in suicidal ideation, and furthermore, changes in perceived burdensomeness, thwarted belongingness, and hopelessness do not account for a relationship between purging pathology and changes in suicidal ideation.

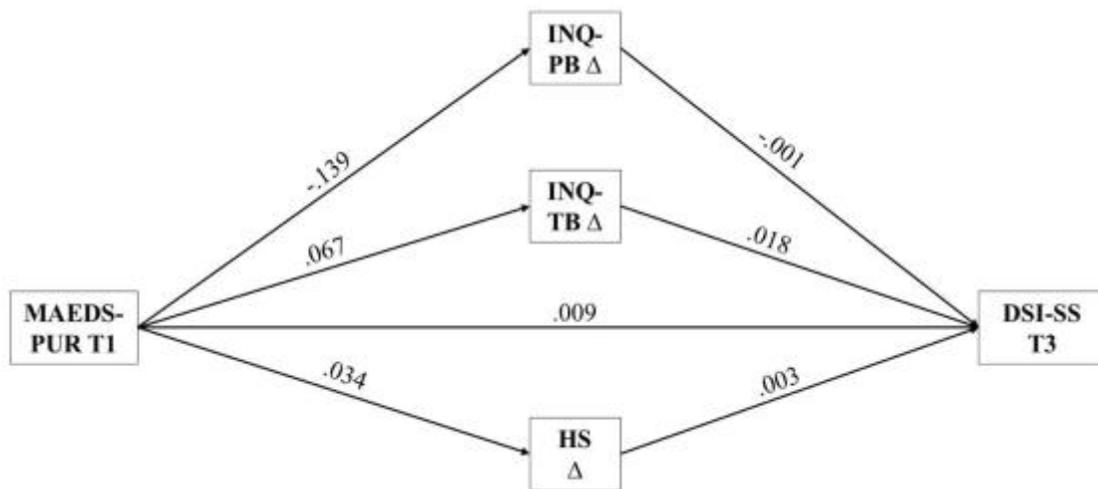


Figure 1. Path coefficients from the multiple mediation analysis. MAEDS-PUR T1 = purging pathology subscale at Time 1, INQ-PB Δ = change in perceived burdensomeness, INQ-TB Δ = change in thwarted belongingness, HS Δ = change in hopelessness, DSI-SS T3 = suicidal ideation at Time 3. Numbers represent regression coefficients.

Table 2

Multiple Mediation Analysis

Effect	Coeff.	SE	<i>p</i>	Lower CI	Upper CI
<i>Total effect of purging pathology on suicidal ideation</i>					
<i>c</i>	.010	.025	.679	-.039	.059
<i>Direct effect of purging pathology on suicidal ideation</i>					
<i>c2</i>	.009	.025	.712	-.040	.059
<i>Indirect effect of purging pathology on suicidal ideation</i>					
<i>ab</i> (overall indirect)	.001	.010	.923	-.025	.018
<i>a1b1</i> (INQ-PB change)	-.0001	.008	.971	-.020	.017
<i>a2b2</i> (INQ-TB change)	.001	.005	.734	-.004	.021
<i>a3b3</i> (HS change)	-.0001	.002	.957	-.007	.004

Note. CI = confidence interval.

CHAPTER IV

DISCUSSION

The interpersonal-psychological theory for suicide (IPTS) predicts that individuals are at greatest risk for suicide when experiencing active suicidal ideation in combination with a developed acquired capability for suicide (i.e., high pain tolerance and fearlessness towards death; Joiner et al., 2009; 2012). Active suicidal ideation is predicted to develop when individuals experience perceived burdensomeness, thwarted belongingness, and hopelessness regarding future reductions in their perceived burdensomeness and thwarted belongingness (Joiner et al., 2012). Support for the validity of IPTS has been indicated in numerous studies largely using cross-sectional data (Anestis & Joiner, 2011; Bryan, Ray-Sannerud, Morrow, & Etienne, 2013; Christensen, Batterham, Mackinnon, Donker, & Soubelet, 2014; Van Orden et al., 2008). Thus, one purpose of the present study was to test IPTS predictions in a longitudinal sampling. Given that individuals with eating disorders, and especially those with purging symptoms, have high rates of suicide (Fedorowicz et al., 2007; Franko et al., 2004; Harris & Barraclough, 1997; Milos et al., 2004; Protzky et al., 2014), another purpose of the present study was to examine whether positive attitudes towards, and engagement in purgative behaviors (i.e., purging pathology) contribute to the development or increase in suicidal ideation using the IPTS framework.

The mediation analyses did not support the hypothesis that perceived burdensomeness, thwarted belongingness, and hopelessness mediate the relationship between purging pathology and suicidal ideation. Based on these findings, a number of questions must be examined regarding methodological and theoretical limitations.

Firstly, the impact of sample size on the analyses must be evaluated. Numerous simulation studies have examined power for simple mediation models using cross-sectional data (Fritz & MacKinnon, 2007; MacKinnon et al., 2004; Williams & MacKinnon, 2008). Results from these simulations recommend a sample size of 377 for adequate power (0.8) to detect small and small-medium effect sizes (Fritz & MacKinnon). The effect sizes in the present study, as reported earlier, were small. Thus, the sample size of 171, although sampled in a longitudinal design, likely did not provide adequate power to reject the null, if indeed the null truly is false.

The amount of variability over time within perceived burdensomeness, thwarted belongingness, hopelessness, and suicidal ideation should also be considered. Because IPTS ultimately seeks to predict which individuals will go on to develop suicidal ideation, it is assumed that the levels of perceived burdensomeness, thwarted belongingness, hopelessness, and current suicidal ideation will change over time (Joiner, 2005; 2012; Van Orden et al., 2010). Thus, if variability within the variables is lacking, prediction of change over time will be impractical. As noted earlier, the majority of the sample (> 75%) reported no significant changes within perceived burdensomeness, thwarted belongingness, hopelessness, or current suicidal ideation. It is possible that,

given the low rates of significant change within the variables of interest, there was insufficient variance to meaningfully test the proposed mediation model.

Another consideration to evaluate is the timing of the follow-up surveys. Because the vast majority of studies examining the IPTS predictions have used cross-sectional data, the amount of time over which perceived burdensomeness, thwarted belongingness, hopelessness, and suicidal ideation change is relatively unknown. According to IPTS, perceived burdensomeness, thwarted belongingness, hopelessness, and suicidal ideation are malleable constructs and thus, would display change over time (Joiner, 2005; 2012; Van Orden et al., 2010). For example, Collins, Best, Stritzke, and Page (2016) experimentally induced perceived burdensomeness and thwarted belongingness during a single experimental session, and observed significant changes between the pre-treatment and post-treatment scores. Of the few studies examining and identifying significant longitudinal change in suicidal ideation, lengths of follow-ups vary from six weeks to two years (Kleiman, Law, & Anestis, 2014; Smith, Mota, Monteith, Harpaz-Rotem, Southwick, & Pietrzak, 2016; Adrian, Bryant Miller, McCauley, & Vander Stoep, 2016; Noel, Moniruzzaman, Somers, Frankish, Strehlau, Schutz, & Krausz, 2016). Additionally, a small number of studies have examined suicidal ideation at a momentary level using ecological momentary assessment (EMA); Husky, Olie, Guillaume, Genty, Swendsen, and Courtet (2014) evaluated participation rates and compliance to EMA protocols in four samples of participants with differing levels of risk for suicide. Overall, they found participants to be satisfactorily compliant and concluded that EMA methods might be a useful approach for examining suicidality (Husky et al., 2014). Nock,

Prinstein, and Sterba (2009) examined suicidal ideation, among other variables (e.g., self-injurious thoughts and behaviors), in a sample of adolescent and young adult participants over a period of 14 days. Suicidal ideation was reported an average of 1.1 times per week, and most frequently preceded worry, a bad memory, feeling pressure, or arguing with someone (Nock et al.). The results from these studies suggest that EMA methods may be an appropriate and advantageous approach to examining predictors of suicidal ideation. Taken together, it appears plausible that over the course of the current study, changes in perceived burdensomeness, thwarted belongingness, hopelessness, and suicidal ideation could have occurred, but the frequency of measurement may not have adequately captured them.

Other aspects of the sample to consider include the severity and frequency of purging pathology, perceived burdensomeness, thwarted belongingness, hopelessness, and suicidal ideation. Within literature examining suicidality and eating disorders or eating psychopathology, many studies use clinical eating disorder samples (i.e., Crow et al., 2014; Favaro & Santonastaso, 1997; Forcano et al., 2011; Guillaume et al., 2011; Preti et al. 2011); however, there are some studies that examined nonclinical populations such as undergraduate students (i.e., Berg et al., 2009; Brausch & Gutierrez, 2009; Zuromski & Witte, 2014). The prevalence rate of purgative behaviors in undergraduate samples is estimated to range from 8.8% to 10% within the previous 28 days (Luce, Crowther, & Pole, 2008; Schaumberg et al., 2014); the current study observed only a 5.8% prevalence rate of self-induced vomiting within the previous 28 days. Within the literature specifically testing IPTS predictions, there is also a mixture of both clinical and

nonclinical samples (i.e., Cero et al., 2015; Christensen et al., 2013; Czyz et al., 2015; Horton et al., 2015; Kleiman et al., 2014; Van Orden et al., 2008). The prevalence of suicidal ideation among nonclinical samples (9-17%) was comparable to the prevalence of suicidal ideation found in the present study (16.3%; Cero et al., 2015; Christensen et al., 2013; Van Orden et al., 2008). Additionally, examinations of IPTS predictions in the presence of ED psychopathology have utilized participants with clinical and nonclinical ED symptoms (Forrest et al., 2016; Zuromski & Witte, 2015). Therefore, considering prevalence rates of purgative behaviors and suicidal ideation in the present study, the comparatively low prevalence of purgative behaviors within the sample may have limited the mediation analyses. Furthermore, although the initial frequency of suicidal ideation in the current sample may have been sufficient for the testing of IPTS predictions in cross-sectional data, as is often the case (Van Orden et al., 2008; Cero et al., 2015), the small amount of significantly positive increases in suicidal ideation severity (as noted above) may have also limited the mediation analyses.

The limitations discussed thus far have offered explanations for the non-significant results of the mediation analyses. It is possible that small sample size, low variability, measurement schedule, protocol duration, and the prevalence of variables of interest within the sample resulted in analyses that incorrectly rejected the null, thus producing a Type II error. However, it is also possible that the null hypothesis is in fact, true. If this were true, then the changes in perceived burdensomeness, thwarted belongingness, and hopelessness do not mediate the relationship between purging pathology and changes in suicidal ideation. It may be that a different aspect of ED

psychopathology influences the development of suicidal ideation by way of perceived burdensomeness, thwarted belongingness, and hopelessness. For example, a recent study by Forrest et al. (2016) found that current body dissatisfaction, and current and lifetime fasting predicted suicidal ideation through perceived burdensomeness and thwarted belongingness in a cross-sectional sample. Interestingly, Forrest et al. found lifetime self-induced vomiting, but not current self-induced vomiting, predicted suicidal ideation directly. Although results from Forrest et al. are limited due to the cross-sectional nature of the data, it is possible that the aspects of ED psychopathology they identified carry greater influence for suicidal ideation. However, body dissatisfaction is often experienced by individuals with different ED diagnoses; and thus, would not explain the differential levels of suicide risk between ED diagnoses identified in the literature. Regardless, results from Forrest et al. suggest ED symptoms other than purging may explain the relationship between a diagnosis of ED and suicidal ideation, and thus, the non-significant results produced in the current study may be a true reflection of the nature of the relationship between purging pathology and suicidal ideation over time.

Limitations

The present study was limited in a number of ways; firstly, taking into consideration that simulation studies suggest 377 participants as the ideal sample size for detecting small to small-medium effects within cross-sectional data (Fritz & MacKinnon, 2007), the small sample size ($N=171$) of the present study may have precluded detection of significant indirect effects. Additionally, the lack of variability within the model variables at Time 1 and throughout the course of the study (i.e., perceived

burdensomeness, thwarted belongingness, hopelessness, suicidal ideation) may have limited the mediation analyses, which were explicitly testing predictions of change over time in the study variables. Furthermore, the use of a primarily female and ethnically White undergraduate sample restricts the generalizability of results, excluding males, individuals with other ethnic identities, and non-undergraduate student populations.

Future Directions

Considering the low prevalence of purging in the current sample, and its potentially limiting effect on analyses, future studies might investigate the association between purging pathology and suicidal ideation in populations with greater prevalence of purging pathology; for example, populations with greater severity in ED symptoms. Additionally, the role of purging pathology as it relates to the development of an acquired capability for suicide may be an alternative pathway to investigate and further examine the association between purging and suicidality. As detailed in Selby et al. (2010) and Smith et al. (2013), purging can be considered a painful and provocative behavior that, over time and with repetitive engagement, may contribute to an acquired capability for suicide (i.e., higher pain tolerance, low fearlessness of death). Mixed findings from these cross-sectional studies did not clearly identify the specific role that purging might serve in increasing an individual's risk for suicide; thus, a possible future study might seek to delineate the relationship between purging and suicidality. Future studies may also consider various other longitudinal assessment methods; for example, using EMA methods to assess for momentary change among IPTS variables. Most importantly, longitudinal methodology is essential for rigorous testing of the causal IPTS predictions.

CHAPTER V

CONCLUSION

Suicide, though rare, is a devastating event that affects not only the life of the individual, but also the lives of his or her family, friends, and acquaintances. A clear understanding of why suicide occurs is essential for comprehensive and effective prevention efforts. Seeing as individuals with ED's, and especially those with purging symptoms and subtypes, are at high risk for suicide (Harris & Barraclough, 1997; Protzky et al., 2014), it is also imperative to understand the specific mechanisms by which this association occurs. The present study sought to examine the association between purging and suicidality using the framework and predictions of IPTS (Joiner 2005; Joiner et al., 2012). The lack of significant findings calls into question methodological imperfections, which, if remedied might lead to different outcomes. Alternatively, it may be that the association between purging pathology and suicidality may not operate through the variables examined in the present study, namely, perceived burdensomeness, thwarted belongingness, hopelessness, and suicidal ideation. Thus, future studies might examine the association between purging and suicidality in populations with greater ED pathology, or by testing other IPTS predictions; for example, the acquired capability for suicide.

Appendix A
Consent Form

**THE UNIVERSITY OF NORTH DAKOTA
CONSENT TO PARTICIPATE IN RESEARCH**

TITLE: *Suicidality, Eating Behaviors, and Drug Use
Among College Students*

PROJECT DIRECTOR: Danielle Beyer and Alexandra Thiel

PHONE # (612) 470-7792

DEPARTMENT: Psychology

STATEMENT OF RESEARCH

In order to participate in a research study, a person must give his or her informed consent first. This consent requires that the person considering participation understands the nature and risks of the research study before agreeing to participate. This document will present information about the research study so that you can make an informed decision about whether you want to participate. Please read the document carefully and take your time in making your decision. If you have any questions, please contact the researchers by email: psychresearch.und@gmail.com.

WHAT IS THE PURPOSE OF THIS STUDY?

You are invited participate in this research study because you are currently enrolled in a four-year U.S. college or university, and are between the ages of 18 and 24.

The purpose of this research study is to understand what puts college students at risk of misusing prescription stimulants, and to better understand the relationship between disordered eating and thoughts about suicide. The information gathered from this study will help to inform prevention efforts and will provide knowledge for future research projects.

HOW MANY PEOPLE WILL PARTICIPATE?

Approximately 555 people locally, as well as nationwide, will take part in this study.

HOW LONG WILL I BE IN THIS STUDY?

You will be asked to complete surveys a total of three (3) times during this study. The first survey will take about one (1) hour, and the two follow-up surveys will take less than 30 minutes each. These surveys will be completed over the course of ten weeks.

WHAT WILL HAPPEN DURING THIS STUDY?

If you decide to participate in this study, you will immediately begin the first survey. This survey contains questionnaires about prescription stimulant use, eating behaviors, and past and current thoughts about suicide. We will also ask you to provide some demographic information (e.g., age, gender, and ethnicity). Approximately 5 and 10 weeks after you complete the baseline survey, we will email and text message you links for the two follow-up surveys. To help ensure prompt data collection, we will send reminders to you via email, text message, and phone. For example, if you have not completed the follow-up within 2 days, we will contact you again via email and text message. If, after 2 more days, the survey has not been completed, we will remind you again by emailing, text messaging, and calling you. Please expect text messages and phone calls from (612) 470-7792. When you have completed all the surveys, you will be debriefed.

In order to contact you for the two follow-up surveys, we will need you to provide your preferred name, email address, and phone number. This information will be used for the purpose of this study only: to contact you for the follow-up surveys, and to provide contact information for mental health resources if you so request. If during the course of the study, you withdraw your consent to participate, and notify the research team by email or phone, we will not continue to contact you. The personal information you provide to us will be kept in password-protected files and only individuals involved in the research project will be able to access the document. To maintain confidentiality, your personal information and your responses to the surveys will only be linked in a separate secure file and only kept as long as you are enrolled in the study. Following your completion of the study, all contact information will be destroyed.

WHAT ARE THE RISKS OF THE STUDY?

There may be some risk from being in this study. Some of the survey questions deal with sensitive topics, and you may become upset as a result. However, these risks are not considered greater than “minimal risk”.

If you do become upset by some of the questions, you will be able to decline to answer the questions or stop the survey. If you are in crisis, we urge you to call 9-1-1 for immediate medical and/or psychological aid. If you would like to talk to someone about

your feelings or intentions, you are encouraged to contact any of the following helplines and organizations:

University of North Dakota Counseling Center: (701) 777-2127

University of North Dakota Psychological Services Center: (701) 777-3691

National Suicide Prevention Lifeline: 1-800-272-8255

<http://www.suicidepreventionlifeline.org/>

Suicide.org helpline: 1-800-784-2433 or text 1-800-799-4889

<http://www.suicide.org/suicide-hotlines.html>

National Alliance on Mental Illness: 1-800-950-6264, M-F 10am-6pm EST

<http://www.nami.org/>

National Eating Disorders Association: 1-800-931-2237, M-Th 9am-9pm, Fri

9am-5pm EST or email at info@nationaleatingdisorders.org

<https://www.nationaleatingdisorders.org/>

WHAT ARE THE BENEFITS OF THIS STUDY?

You may not benefit personally from being in this study. However, we hope that, in the future, other people might benefit from this study. The knowledge we gain from the results will help our understanding of why college students are at risk for prescription stimulant misuse and how disordered eating is related to suicidal thoughts and actions. By bettering our understanding of these psychological phenomena, prevention programs aimed at reducing mental illness can be improved.

ALTERNATIVES TO PARTICIPATING IN THIS STUDY

For University of North Dakota students enrolled in a Psychology course, you can earn extra credit for your course in other ways. Please contact your instructor for more information on alternatives. For all other students, declining participation for this study will not affect your current or future relationship with the University of North Dakota and/or their researchers.

WILL IT COST ME ANYTHING TO BE IN THIS STUDY?

There are no costs for being in this research study.

WILL I BE PAID FOR PARTICIPATING?

For University of North Dakota Psychology students seeking course credit:

For your participation, you will receive one (1) credit for the first survey and a half credit (.5) for each of the two follow-up surveys. Thus, you can receive a maximum of 2 SONA credits. *Each time you complete a survey, you can choose whether you would like SONA credit or be entered into the raffle. For example, if your Psychology course ends before your study participation, you can be entered into the raffle instead of receiving SONA credit.*

For all other college students:

For each survey you complete, you will receive one entry into a raffle to receive an Amazon gift card. In the first raffle, eight (8) participants will receive an Amazon gift card worth \$10. In the second raffle, seven (7) participants will receive an Amazon gift card worth \$15. Finally, in the third raffle, 11 participants will receive an Amazon gift card worth \$20. Raffle winners will be emailed a code to retrieve their gift card online through the Amazon website. It is possible to win more than one raffle drawing.

Please note that if you answer less than 80% of the questions for any one survey, you will not be eligible to receive SONA credit or be entered into the raffle.

WHO IS FUNDING THE STUDY?

The University of North Dakota and the research team are receiving no payments from other agencies, organizations, or companies to conduct this research study.

CONFIDENTIALITY

The records of this study will be kept private to the extent permitted by law. In any report about this study that might be published, you will not be identified. Your study record may be reviewed by Government agencies, the UND Research Development and Compliance office, and the University of North Dakota Institutional Review Board.

Any information that is obtained in this study and that can be identified with you will remain confidential and will be disclosed only with your permission or as required by law. Your confidentiality will be maintained by means of password-protected data files and online data-collection accounts. Access to these accounts and documents will be restricted to only the researchers and their assistants. The personal information you provide (e.g., name, email, etc.) will be kept in a separate file from the responses you give to survey questions.

If we write a report or article about this study, we will describe the study results in a summarized manner so that you cannot be identified.

Additionally, we encourage participants to complete the surveys on a personal computer or cell phone, in a private space. However, if you choose to complete surveys on a public computer or non-personal cell phone, please be sure to close all browsers when you have finished to ensure confidentiality.

IS THIS STUDY VOLUNTARY?

Your participation is voluntary. You may choose to decline answering questions that you find too uncomfortable. You may choose not to participate or you may discontinue your participation at any time without penalty or loss of benefits to which you are otherwise entitled. Your decision whether or not to participate will not affect your current or future relations with the University of North Dakota.

If you decide to leave the study early, we ask that you notify the researchers via email (psychresearch.und@gmail.com). By notifying us of your choice to discontinue, we will stop contacting you for the follow-up surveys.

CONTACTS AND QUESTIONS?

The researchers conducting this study are Danielle Beyer and Alexandra Thiel. If you have questions, concerns, or complaints about the research, now or later, please contact us via email at psychresearch.und@gmail.com, or contact Danielle at danielle.beyer@my.und.edu, or contact Alexandra at alexandra.thiel@my.und.edu. You may also contact our advisors, Kyle De Young, Ph.D. at (701) 777-5671, or Alison Looby, Ph.D. at (701) 777-3803.

If you have questions regarding your rights as a research subject, you may contact The University of North Dakota Institutional Review Board at (701) 777-4279 or Michelle Bowles at michelle.bowles@research.und.edu.

- You may also call this number about any problems, complaints, or concerns you have about this research study.
- You may also call this number if you cannot reach research staff, or you wish to talk with someone who is independent of the research team.
- General information about being a research subject can be found by clicking “Information for Research Participants” on the web site:
<http://und.edu/research/resources/human-subjects/research-participants.cfm>

By selecting the, "I consent to participate" box, you indicate that this research study has been explained to you, that your questions have been answered, and that you agree to take part in this study.

If you select the, "I decline to consent" box, you indicate that you will not participate in the study. If this is the case, be assured that your current or future relationship with the University of North Dakota will not be affected.

You are encouraged to print or save a copy of this consent form for your personal records.

Appendix B
Demographic Questionnaire

1. Please enter your age.
 (enter)

2. Which gender to you identify with?
 Male
 Female
 Transgender
 Other (please enter)

3. What is your ethnicity?
 White
 African American or Black
 Asian
 Other Pacific Islander
 Hispanic or Latino
 American Indian or Alaska Native
 Other (please enter)

4. Where in the United States are you currently living?
 West (WA, ID, OR, CA, NV, UT, WY, CO, MT, AK, HI)
 Southwest (AZ, NM, TX, OK)
 Midwest (ND, SD, NE, KS, MN, IA, MO, WI, IL, IN, MI, OH)
 Southeast (AR, LA, MS, AL, GA, FL, TN, KY, WV, VA, SC, NC)
 Northeast (MD, DE, NJ, CT, RI, MA, NH, ME, VT, NY, PA)

5. What is your current year in school?
 Freshman
 Sophomore
 Junior
 Senior

6. Are you a member of a Greek organization (e.g., Fraternity or Sorority)?
 Yes
 No

7. Please select your current living arrangement.
 Single-sex residence hall
 Co-ed residence hall
 Greek housing
 Other university housing

- Off-campus house/apartment
 - Off-campus house/apartment with relatives
8. Please enter your cumulative undergraduate GPA.
 (enter)
9. Please enter your cumulative high school GPA.
 (enter)
11. Please estimate your primary parent/caregiver's annual income.
- < \$25,000
 - \$25,001–\$50,000
 - \$50,001–\$75,000
 - \$75,001–\$100,000
 - \$100,001 +

Appendix C
Purgative Behavior Subscale of the Multifactorial Assessment of Eating Disorders
Symptoms

Using the scale below, please rate the following items on a scale from 1 to 7. Please answer as truthfully as possible.

	Never	Very rarely	Rarely	Sometimes	Often	Very often	Always
1. I can easily make myself vomit.	1	2	3	4	5	6	7
2. It's okay to binge and purge once in a while	1	2	3	4	5	6	7
3. I vomit to control my weight.	1	2	3	4	5	6	7
4. Laxatives help keep you slim.	1	2	3	4	5	6	7
5. When I feel bloated, I must do something to rid myself of that feeling.	1	2	3	4	5	6	7
6. I use laxatives to control my weight.	1	2	3	4	5	6	7
7. Purging is a good way to lose weight.	1	2	3	4	5	6	7

Appendix D
Interpersonal Needs Questionnaire

The following questions ask you to think about yourself and other people. Please respond to each question by using your own current beliefs and experiences, NOT what you think is true in general, or what might be true for other people. Please base your responses on how you've been feeling recently. Use the rating scale to find the choice that best matches how you feel and select that choice. There are no right or wrong answers: we are interested in what *you* think and feel.

	Not at all true for me	Not true for me	Mostly untrue for me	Somewhat true for me	Mostly true for me	True for me	Very true for me
1. These days, the people in my life would be better off if I were gone.	1	2	3	4	5	6	7
2. These days, the people in my life would be happier without me.	1	2	3	4	5	6	7
3. These days, I think I am a burden on society.	1	2	3	4	5	6	7
4. These days, I think my death would be a relief to the people in my life.	1	2	3	4	5	6	7
5. These days, I think the people in my life wish they could be rid of me.	1	2	3	4	5	6	7
6. These days, I think I make things worse for the people in my life.	1	2	3	4	5	6	7
7. These days, other people care about me.	1	2	3	4	5	6	7
8. These days, I feel like I belong.	1	2	3	4	5	6	7

	Not at all true for me	Not true for me	Mostly untrue for me	Somewhat true for me	Mostly true for me	True for me	Very true for me
9. These days, I rarely interact with people who care about me.	1	2	3	4	5	6	7
10. These days, I am fortunate to have many caring and supportive friends.	1	2	3	4	5	6	7
11. These days, I feel disconnected from other people.	1	2	3	4	5	6	7
12. These days, I often feel like an outsider in social gatherings.	1	2	3	4	5	6	7
13. These days, I feel that there are people I can turn to in times of need.	1	2	3	4	5	6	7
14. These days, I am close to other people.	1	2	3	4	5	6	7
15. These days, I have at least one satisfying interaction every day.	1	2	3	4	5	6	7

Appendix E
 Hopelessness Subscale of the Helplessness-Hopelessness-Haplessness Scale

For each of the following items, indicate your agreement or disagreement by choosing the appropriate response. Don't spend too much time on each item. We are interested in your first impressions. Please answer every item.

	Strongly agree	Agree	Moderately agree	Moderately disagree	Disagree	Strongly disagree
1. I am confident that I will complete college.	1	2	3	4	5	6
2. I look forward to the future with hope and enthusiasm.	1	2	3	4	5	6
3. I don't expect to get what I really want.	1	2	3	4	5	6
4. I have enough time to accomplish the things I most want to do.	1	2	3	4	5	6
5. In the future I expect to succeed in what concerns me most.	1	2	3	4	5	6
6. All I can see ahead of me is unpleasantness rather than pleasantness.	1	2	3	4	5	6
7. When I look ahead to the future I expect I will be happier than I am now.	1	2	3	4	5	6

	Strongly agree	Agree	Moderately agree	Moderately disagree	Disagree	Strongly disagree
8. It is very unlikely that I will get any real satisfaction in the future.	1	2	3	4	5	6
9. I can look forward to more good times than bad times.	1	2	3	4	5	6
10. I never get what I want, so it's foolish to want anything.	1	2	3	4	5	6

Appendix F
Suicidality Subscale of the Depressive Symptom Inventory

On this questionnaire are groups of statements. Please read all of the statements in a given group. Pick out the one statement in each group that describes you best for the past *two weeks*. If several statements in a group seem to apply to you, pick the one with the higher number. *Be sure to read all of the statements in each group before making your choice.*

Item 1	0 I do not have thoughts of killing myself.	1 Sometimes I have thoughts of killing myself.	2 Most of the time I have thoughts of killing myself.	3 I always have thoughts of killing myself.
Item 2	0 I am not having thoughts about suicide.	1 I am having thoughts about suicide but have not formulated any plans.	2 I am having thoughts about suicide and am considering possible ways of doing it.	3 I am having thoughts about suicide and have formulated a definite plan.
Item 3	0 I am not having thoughts about suicide.	1 I am having thoughts about suicide but have these thoughts completely under my control.	2 I am having thoughts about suicide but have these thoughts somewhat under my control.	3 I am having thoughts about suicide and have little or no control over these thoughts.
Item 4	0 I am not having impulses to kill myself.	1 In some situations I have impulses to kill myself.	2 In most situations I have impulses to kill myself.	3 In all situations I have impulses to kill myself.

Appendix G
Eating Disorder Examination Questionnaire

The following questions are concerned with the past four weeks (28 days) only. Please read each question carefully. Please answer all the questions. Thank you.

Questions 1 to 12: *Please select the appropriate number on the right. Remember that the questions only refer to the past four weeks (28 days) only.*

On how many of the past 28 days...

	No days	1-5 days	6-12 days	13-15 days	16-22 days	23-27 days	Every day
1. Have you been deliberately trying to limit the amount of food you eat to influence your shape or weight (whether or not you have succeeded)?	0	1	2	3	4	5	6
2. Have you gone for long periods of time (8 waking hours or more) without eating anything at all in order to influence your shape or weight?	0	1	2	3	4	5	6
3. Have you tried to exclude from your diet any foods that you like in order to influence your shape or weight (whether or not you have succeeded)?	0	1	2	3	4	5	6
4. Have you tried to follow definite rules regarding your eating (for example, a calorie limit) in order to influence your shape or weight (whether or not you have succeeded)?	0	1	2	3	4	5	6
5. Have you had a definite desire to have an empty stomach with the aim of influencing your shape or weight?	0	1	2	3	4	5	6

6. Have you had a definite desire to have a totally flat stomach?	0	1	2	3	4	5	6
7. Has thinking about food, eating or calories made it very difficult to concentrate on things you are interested in (for example, working, following a conversation, or reading)?	0	1	2	3	4	5	6
8. Has thinking about shape or weight made it very difficult to concentrate on things you are interested in (for example, working, following a conversation, or reading)?	0	1	2	3	4	5	6
9. Have you had a definite fear of losing control over eating?	0	1	2	3	4	5	6
10. Have you had a definite fear that you might gain weight?	0	1	2	3		5	
11. Have you felt fat?	0	1	2	3	4	5	6
12. Have you had a strong desire to lose weight?	0	1	2	3	4	5	6

Questions 13-18: *Please fill in the appropriate number in the boxes on the right. Remember that the questions only refer to the past four weeks (28 days).*

Over the past four weeks (28 days)...

13. Over the past 28 days, how many **times** have you eaten what other people would regard as an **unusually large amount of food** (given the circumstances)?
14. On how many of these times did you have a sense of having lost control over your eating (at the time you were eating)?
15. Over the past 28 days, on how many **DAYS** have such episodes of overeating occurred (i.e., you have eaten an unusually large amount of food **and** have had a sense of loss of control at the time)?
16. Over the past 28 days, how many **times** have you made yourself sick (vomit) as a means of controlling your shape or weight?
17. Over the past 28 days, how many **times** have you taken laxatives as a means of controlling your shape or weight?

18. Over the past 28 days, how many **times** have you exercised in a “driven” or “compulsive” way as a means of controlling your weight, shape or amount of fat, or to burn off calories?

Questions 19 to 21: *Please select the appropriate choice. Please note that for these questions the term “binge eating” means eating what others would regard as an unusually large amount of food for the circumstances, accompanied by a sense of having lost control over eating.*

	No days	1-5 days	6-12 days	13-15 days	16-22 days	23-27 days	Every day
19. Over the past 28 days, on how many days have you eaten in secret (i.e., furtively)? ... Do not count episodes of binge eating.	0	1	2	3	4	5	6

	None of the times	A few of the times	Less than half	Half of the times	More than Half	Most of the time	Every time
20. On what proportion of the times that you have eaten have you felt guilty (felt that you’ve done wrong) because of its effect on your shape or weight? ... Do not count episodes of binge eating.	0	1	2	3	4	5	6

	Not at all	Slightly	Moderately	Markedly			
21. Over the past 28 days, how concerned have you been about other people seeing you eat? ... Do not count episodes of binge eating.	0	1	2	3	4	5	6

Questions 22 to 28: *Please select the appropriate number on the right. Remember that the questions only refer to the past four weeks (28 days).*

Item	Not at all markedly			Slightly			Moderately		
22. Has your weight influenced how you think about (judge) yourself as a person?	0	1	2	3	4	5	6		
23. Has your shape influenced how you think about (judge) yourself as a person?	0	1	2	3	4	5	6		
24. How much would it have upset you if you had been asked to weigh yourself once a week (no more, or less, often) for the next four weeks?	0	1	2	3	4	5	6		
25. How dissatisfied have you been with your weight ?	0	1	2	3	4	5	6		
26. How dissatisfied have you been with your shape ?	0	1	2	3	4	5	6		
27. How uncomfortable have you felt seeing your body (for example, seeing your shape in the mirror, in a shop window reflection, while undressing or taking a bath or shower)?	0	1	2	3	4	5	6		
28. How uncomfortable have you felt about others seeing your shape or figure (for example, in communal changing rooms, when swimming, or wearing tight clothes)?	0	1	2	3	4	5	6		
29. What is your weight at present? (Please give your best estimate)									
30. What is your height? (Please give your best estimate in inches)									
31. <i>If female</i> : over the past three to four months have you missed any menstrual periods?						Yes		No	
31a. If so, how many?									
31b. Have you been taking the “pill”?						Yes		No	

Appendix H
Past Suicidality Questions

1. How many suicide attempts have you made in your life?

2. Have you ever experienced thoughts of killing yourself?

No, I have never had thoughts of killing myself. 1

Yes, I have rarely had thoughts of killing myself. 2

Yes, I have sometimes had thoughts of killing myself. 3

Yes, I have often had thoughts of killing myself. 4

Appendix I
Patient Health Questionnaire

Over the last 2 *weeks*, how often have you been bothered by any of the following problems?

	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things.	0	1	2	3
2. Feeling down, depressed, or hopeless.	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much.	0	1	2	3
4. Feeling tired or having little energy.	0	1	2	3
5. Poor appetite or overeating.	0	1	2	3
6. Feeling bad about yourself—or that you are a failure or have let yourself or your family down.	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television.	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed. Or the opposite—being so fidgety or restless that you have been moving around a lot more than usual.	0	1	2	3
9. Thoughts that you would be better off dead, or of hurting yourself.	0	1	2	3

Appendix J
 Negative Urgency Subscale of the Urgency-Premeditation-Perseverance-Sensation
 Seeking-Positive Impulsive Behavior Scale

Below are a number of statements that describe ways in which people act and think. For each statement, please indicate how much you agree or disagree with the statement.

	Agree strongly	Agree some	Disagree some	Disagree strongly
1. I have trouble controlling my impulses.	1	2	3	4
2. I have trouble resisting my cravings (for food, cigarettes, etc.).	1	2	3	4
3. I often get involved in things I later wish I could get out of.	1	2	3	4
4. When I feel bad, I will often do things I later regret in order to make myself feel better now.	1	2	3	4
5. Sometimes when I feel bad, I can't seem to stop what I am doing even though it is making me feel worse.	1	2	3	4
6. When I am upset I often act without thinking.	1	2	3	4
7. When I feel rejected, I will often say things that I later regret.	1	2	3	4
8. It is hard for me to resist acting on my feelings.	1	2	3	4
9. I often make matters worse because I act without thinking when I am upset.	1	2	3	4
10. In the heat of an argument, I will often say things that I later regret.	1	2	3	4
11. I always keep my feelings under control.	1	2	3	4
12. Sometimes I do impulsive things that I later regret.	1	2	3	4

Appendix K Debriefing Form

Dear Student,

Thank you again for your participation and time. We appreciate that you took time over the past 12 weeks to participate in this research! Again, all of your survey responses are anonymous and will only be used for research purposes.

There are two purposes to this study. The first is to understand how eating behaviors, especially purging, are related to thoughts and feelings about suicide (e.g., loneliness, feeling like a burden, hopelessness). Previous research has suggested that individuals who engage in purgative behaviors are at higher risk for experiencing suicidal ideation, so the purpose of this study is to understand why this relationship exists.

The second purpose of this study is to better understand non-medical prescription stimulant use. Past research has identified GPA, Greek involvement, and academic self-efficacy as risk factors for non-medical prescription stimulant use. This study is trying to test whether these risk factor influence non-medical prescription stimulant use through academic procrastination.

If you have any questions about this study, please don't hesitate to email us. You can reach Alexandra at alexandra.thiel@my.und.edu and Danielle at danielle.beyer@my.und.edu

If your participation in this study has caused a great deal of stress or discomfort, we urge you to contact any of the following psychological resources. If you are in crisis, please seek emergency medical help by calling 9-1-1.

National Suicide Prevention Lifeline: 1-800-272-8255

<http://www.suicidepreventionlifeline.org/>

Suicide.org helpline: 1-800-784-2433 or text 1-800-799-4889

<http://www.suicide.org/suicide-hotlines.html>

National Alliance on Mental Illness: 1-800-950-6264, M-F 10am-6pm EST

<http://www.nami.org/>

National Eating Disorders Association: 1-800-931-2237, M-Th 9am-9pm, Fri 9am-5pm EST or email at info@nationaleatingdisorders.org

Again, your participation in our study has helped us tremendously in our programs of research. Thank you for your time!

Sincerely, Alexandra Thiel & Danielle Beyer

REFERENCES

- Adrian, M., Bryant Miller, A., McCauley, E., & Vander Stoep, A. (2016). Suicidal ideation in early to middle adolescence: Sex-specific trajectories and predictors. *Journal of Child Psychology and Psychiatry*, *57*(5), 645-653.
doi:10.1111/jcpp.12484
- Alpaslan, A. H., Soylu, N., AVCI, K., Coskun, K. S., Kocak, U., & Tas, H. U. (2015). Disordered eating attitudes, alexithymia and suicide probability among Turkish high school girls. *Psychiatry Research*, *226*, 224-229. doi: 10.1016/j.psychres.2014.12.052
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.). Arlington, VA: Author.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: Author.
- Anderson, D. A., Williamson, D. A., Duchmann, E. G., Gleaves, D. H., & Barbin, J. M. (1999). Development and validation of a multifactorial treatment outcome measure for eating disorders. *Assessment*, *6*(1), 7-20.
doi: 10.1177/107319119900600102

- Anestis, M. D., & Joiner, T. E. (2011). Examining the role of emotion in suicidality: Negative urgency as an amplifier of the relationship between components of the interpersonal-psychological theory of suicidal behavior and lifetime number of suicide attempts. *Journal of Affective Disorders, 129*, 261-269. doi:10.1016/j.jad.2010.08.006
- Anestis, M. D., Selby, E. A., & Joiner, T. E. (2007). The role of urgency in maladaptive behaviors. *Behaviour Research and Therapy, 45*, 3018-3029. doi: 10.1016/j.brat.2007.08.012
- Bender, T. W., Anestis, M. D., Anestis, J. C., Gordon, K. H., & Joiner, T. E. (2012). Affective and behavioral paths toward the acquired capability for suicide. *Journal of Social and Clinical Psychology, 31*(1), 81-100. doi: 10.1521/jscp.2012.31.1.81
- Bender, T. W., Gordon, K. H., Bresin, K., & Joiner, T. E. (2011). Impulsivity and suicidality: The mediating role of painful and provocative experiences. *Journal of Affective Disorders, 129*, 301-307. doi: 10.1016/j.jad.2010.07.023
- Berghold, K. M., & Lock, J. (2002). Assessing guilt in adolescents with anorexia nervosa. *American Journal of Psychotherapy, 56*(3), 378-390.
- Birgegard, A., Bjorck, C., Norring, C., Sohlberg, S., & Clinton, D. (2009). Anorexic self-control and bulimic self-hate: Differential outcome prediction from initial self-image. *International Journal of Eating Disorders, 42*, 522-530. doi: 10.1002/eat.20642

- Bjorck, C., Clinton, D., Sohlberg, S., & Norring, C. (2007). Negative self-image and outcome in eating disorders: Results at 3-year follow-up. *Eating Behaviors*, 8, 398-406. doi: 10.1016/j.eatbeh.2006.12.002
- Bjorck, C., Clinton, D., Sohlberg, S., Hallstrom, T., & Norring, C. (2003). Interpersonal profiles in eating disorders: Ratings of SASB self-image. *Psychology and Psychotherapy: Theory, Research, and Practice*, 76, 337-349. doi: 10.1348/147608303770584719
- Bodell, L. P., Joiner, T. E., & Keel, P. K. (2013). Comorbidity-independent risk for suicidality increases with bulimia nervosa but not with anorexia nervosa. *Journal of Psychiatric Research*, 47, 617-621. doi: 10.1016/j.jpsychires.2013.01.005
- Brausch, A. M., & Gutierrez, P. M. (2009). The role of body image and disordered eating as risk factors for depression and suicidal ideation in adolescents. *Suicide and Life-Threatening Behavior*, 39(1), 58-71. doi: 10.1521/suli.2009.39.1.58
- Brown, G. K., Beck, A. T., Steer, R. A., & Grisham, J. R. (2000). Risk factors for suicide in psychiatric outpatients: A 20-year prospective study. *Journal of Counseling and Clinical Psychology*, 68(3), 371-377. doi: 10.1037//0022-006X.68.3.371
- Bryan, C. J., Ray-Sannerud, B., Morrow, C. E., & Etienne, N. (2013). Guilt is more strongly associated with suicidal ideation among military personnel with direct combat exposure. *Journal of Affective Disorders*, 148(1), 37-41. doi: 10.1016/j.jad.2012.11.044

- Carter, J. C., Kelly, A. C., & Norwood, S. J. (2012). Interpersonal problems in anorexia nervosa: Social inhibition as defining and detrimental. *Personality and Individual Differences, 53*, 169-174. doi: 10.1016/j.paid.2012.02.020
- Cavanagh, J. T. O., Carson, A. J., Sharpe, M., & Lawrie, S. M. (2003). Psychological autopsy studies of suicide: A systematic review. *Psychological Medicine, 33*, 395-405. doi: 10.1017/S0033291702006943
- Cero, I., Zuromski, K. L., Witte, T. K., Ribeiro, J. D., & Joiner, T. E. (2015). Perceived burdensomeness, thwarted belongingness, and suicide ideation: Re-examination of the interpersonal-psychological theory in two samples. *Psychiatry Research, 228*, 544-550. doi: 10.1016/j.psychres.2015.05.055
- Christensen, H., Batterham, P. J., Mackinnon, A. J., Donker, T., & Soubelet, A. (2014). Predictors of the risk factors for suicide identified by the interpersonal–psychological theory of suicidal behaviour. *Psychiatry Research, 219*(2), 290–297. doi: 10.1016/j.psychres.2014.05.029
- Christensen, H., Batterham, P. J., Soubelet, A., & Mackinnon, A. J. (2013). A test of the interpersonal theory of suicide in a large community-based cohort. *Journal of Affective Disorders, 144*, 225-234. doi: 10.1016/j.jad.2012.07.002
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Hillsdale, NJ: Erlbaum.

- Collins, K. R. L., Best, I., Stritzke, W. G. K., & Page, A. C. (2016). Mindfulness and zest for life buffer the negative effects of experimentally-induced perceived burdensomeness and thwarted belongingness: Implications for theories of suicide. *Journal of Abnormal Psychology*, advance online publication. doi: 10.1037/abn0000167
- Conner, K. R., & Goldston, D. B. (2007). Rates of suicide among males increase steadily from age 11 to 21: Developmental framework and outline for prevention. *Aggression and Violent Behavior*, 12, 193-207. doi: 10.1016/j.avb.2006.07.002
- Conner, K. R., Britton, P. C., Sworts, L. M., & Joiner, T. E. (2007). Suicide attempts among individuals with opiate dependence: The critical role of belonging. *Addictive Behaviors*, 32, 1395-1404. doi: 10.1016/j.addbeh.2006.09.012
- Corcus, M., Taieb, O., Benoit-Lamy, S., Paterniti, S., Jeammet, P., & Flament, M. F. (2002). Suicide attempts in women with bulimia nervosa: Frequency and characteristics. *Acta Psychiatrica Scandinavica*, 106, 381-386. doi: 10.1034/j.1600-0447.2002.02318.x
- Crow, S. J., Swanson, S. A., Le Grange, D., Feig, E. H., & Merikangas, K. R. (2014). Suicidal behavior in adolescents and adults with bulimia nervosa. *Comprehensive Psychiatry*, 55, 1534-1539. doi: 10.1016/j.comppsy.2014.05.021
- Czyz, E. K., Berona, J., & King, C. A. (2015). A prospective examination of the interpersonal-psychological theory of suicidal behavior among psychiatric adolescent inpatients. *Suicide and Life-Threatening Behavior*, 45(2), 243-259. doi: 10.1111/sltb.12125

- DeShong, H. L., Tucker, R. P., O'Keefe, V. M., Mullins-Sweatt, S. N., & Wingate, L. R. (2015). Five factor model traits as a predictor of suicide ideation and interpersonal suicide risk in a college sample. *Psychiatry Research, 226*, 217-223. doi: 10.1016/j.psychres.2015.01.002
- Dimitropoulos, G., Freeman, V. E., Bellai, K., & Olmsted, M. (2013). Inpatients with severe anorexia nervosa and their siblings: Non-shared experiences and family functioning. *European Eating Disorders Review, 21*, 284-293. doi: 10.1002/erv.2230
- Dodd, D., Smith, A., & Bodell, L. (2014). Restraint feeds stress: The relationship between eating disorder symptoms, stress generation, and the interpersonal theory of suicide. *Eating Behaviors, 15*, 567-573. doi: 10.1016/j.eatbeh.2014.08.004
- Edler, C., Haedt, A. A., & Keel, P. K. (2007). The use of multiple purging methods as an indicator of eating disorder severity. *International Journal of Eating Disorders, 40*, 515-520. doi: 10.1002/eat.20416
- Fairburn, C. G., & Beglin, S. J. (1994). Assessment of eating disorders: Interview or self-report questionnaire? *International Journal of Eating Disorders, 16*(4), 363-370.
- Favaro, A., & Santonastaso, P. (1997). Suicidality in eating disorders: Clinical and psychological correlates. *Acta Psychiatrica Scandinavica, 95*, 508-514. doi: 10.1111/j.1600-0447.1997.tb10139.x

- Fedorowicz, V. J., Falissard, B., Foulon, C., Dardennes, R., Divac, S. M., Guelfi, J. D., & Rouillon, F. (2007). Factors associated with suicidal behaviors in a large French sample of inpatients with eating disorders. *International Journal of Eating Disorders, 40*, 589-595. doi: 10.1002/eat
- Forcano, L., Alvarez, E., Santamaria, J. J., Jimenez-Murcia, S., Granero, R., Penelo, E., Alonso, P., ... & Fernandez-Aranda, F. (2011). Suicide attempts in anorexia nervosa subtypes. *Comprehensive Psychiatry, 52*, 352-358.
doi:10.1016/j.comppsy.2010.09.003
- Forrest, L. N., Bodell, L. P., Witte, T. K., Goodwin, N., Bartlett, M. L., Seigfried, N., Eddy, K. T., ... & Smith, A. R. (2016). Associations between eating disorder symptoms and suicidal ideation through thwarted belongingness and perceived burdensomeness among eating disorder patients. *Journal of Affective Disorders, 195*, 127-135. doi: 10.1016/j.jad.2016.02.017
- Franklin, J. C., Hessel, E. T., & Prinstein, M. J. (2011). Clarifying the role of pain tolerance in suicidal capability. *Psychiatry Research, 189*, 362-367. doi: 10.1016/j.psychres.2011.08.001
- Franko, D. L., & Keel, P. K. (2006). Suicidality in eating disorders: Occurrence, correlates, and clinical implications. *Clinical Psychology Review, 26*, 769-782.
doi: 10.1016/j.cpr.2006.04.001

- Franko, D. L., Keel, P. K., Dorer, D. J., Blais, M. A., Delinsky, S. S., Eddy, K. T., Charat, V., Renn, R., & Herzog, D. B. (2004). What predicts suicide attempts in women with eating disorders? *Psychological Medicine*, *5*, 843-853. doi: 10.1017/S0033291703001545
- Fritz, M. S., & MacKinnon, D. P. (2007). Required sample size to detect the mediated effect. *Psychological Science*, *18*(3), 233-239. doi: 10.1111/j.1467-9280.2007.01882.x
- Gencoz, F., Vatan, S., Walker, R., & Lester, D. (2008). A brief research note: Helplessness, hopelessness, and haplessness as predictors of suicidal ideation: A cross-cultural study. *Omega*, *57*(3), 315-318. doi: 10.2190/OM.57.3.f
- Gilbody, S., Richards, D., Brealey, S., & Hewitt, C. (2007). Screening for depression in medical settings with the Patient Health Questionnaire (PHQ): A diagnostic meta-analysis. *Journal of General Internal Medicine*, *22*(11), 1596-1602. doi: 10.1007/s11606-007-0333-y
- Goldston, D. B., Sergent-Daniel, S., Erkanli, A., Reboussin, B. A., Mayfield, A., Franzier, P. H., & Treadway, S. L. (2009). Psychiatric diagnoses as contemporaneous risk factors for suicide attempts among adolescents and young adults: Developmental changes. *Journal of Consulting and Clinical Psychology*, *77*(2), 281-290. doi: 10.1037/a0014732
- Guillaume, S., Jausent, I., Olie, E., Genty, C., Bringer, J., Courtet, P., & Schmidt, U. (2011). Characteristics of suicide attempts in anorexia and bulimia nervosa: A case-control study. *PLoS ONE*, *6*(8), e23578. doi: 10.1371/journal.pone.0023578

- Harney, M. B., Fitzsimmons-Craft, E. E., Maldonado, C. R., & Bardone-Cone, A. M. (2014). Negative affective experiences in relation to stages of eating disorder recovery. *Eating Behaviors, 15*, 24-30. doi: 10.1016/j.eatbeh.2013.10.016
- Harris, E. C., & Barraclough, B. (1997). Suicide as an outcome for mental disorders. *British Journal of Psychiatry, 170*, 205-228. doi: 10.1192/bjp.170.3.205
- Hawkins, K. A., Hames, J. L., Ribeiro, J. D., Silva, C., Joiner, T. E., & Coughle, J. R. (2014). An examination of the relationship between anger and suicide risk through the lens of the interpersonal theory of suicide. *Journal of Psychiatric Research, 50*, 59-65. doi: 10.1016/j.jpsychires.2013.12.005
- Hayes, A. (2013). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach*. New York: Guilford Press.
- Hernandez, J. (1995). The concurrence of eating disorders with histories of child abuse among adolescents. *Journal of Child Sexual Abuse, 4*(3), 73-85. doi: 10.1300/J070v04n03_05
- Hill, R. M., & Pettit, J. W. (2014). Perceived burdensomeness and suicide-related behaviors in clinical samples: Current evidence and future directions. *Journal of Clinical Psychology, 70*(7), 631-643. doi: 10.1002/jclp.22071
- Holm-Denoma, J. M., Witte, T. K., Gordon, K. H., Herzog, D. B., Franko, D. L., Fichter, M., Quadflieg, N., & Joiner, T. E. (2008). Deaths by suicide among individuals with anorexia as arbiters between competing explanations of the anorexia-suicide link. *Journal of Affective Disorders, 107*, 231-236. doi: 10.1016/j.jad.2007.07.029

- Horton, S. E., Hughes, J. L., King, J. D., Kennard, B. D., Westers, N. J., Mayes, T. L., & Stewart, S. M. (2015). Preliminary examination of the interpersonal psychological theory of suicide in an adolescent clinical sample. *Journal of Abnormal Child Psychology*, 1-12. doi: 10.1007/s10802-015-0109-5
- Husky, M., Olie, E., Guillaume, S., Genty, C., Swendsen, J., & Courtet, P. (2014). Feasibility and validity of ecological momentary assessment in the investigation of suicide risk. *Psychiatry Research*, 220, 564-570. doi: 10.1016/j.psychres.2014.08.019
- Huth-Bocks, A. C., Kerr, D. C. R., Ivey, A. Z., Kramer, A. C., & King, C. A. (2007). Assessment of psychiatrically hospitalized suicidal adolescents: Self-report instruments as predictors of suicidal thoughts and behaviors. *Journal of the American Academy of Child and Adolescent Psychiatry*, 46(3), 387-395. doi: 10.1097/chi.0b013e31802b9535
- Jacobson, N. S., & Truax, P. (1991). Clinical significance: A statistical approach to determining meaningful change in psychotherapy research. *Journal of Consulting and Clinical Psychology*, 59(1), 12-19. doi: 10.1037/0022-006X.59.1.12
- Joiner, T. E. (2005). *Why people die by suicide*. Cambridge, MA: Harvard University Press.

- Joiner, T. E., Conwell, Y., Fitzpatrick, K. K., Witte, T. K., Schmidt, N. B., Berlim, M. T., Fleck, M. P. A., & Rudd, M. D. (2005). Four studies on how past and current suicidality related even when “everything but the kitchen sink” is covaried. *Journal of Abnormal Psychology, 114*(2), 291-303. doi: 10.1037/0021-843X.114.2.291
- Joiner, T. E., Pfaff, J. J., & Acres, J. G. (2002). A brief screening tool for suicidal symptoms in adolescents and young adults in general health settings: Reliability and validity data from the Australian national general practice youth suicide prevention project. *Behaviour Research and Therapy, 40*, 471-481. doi: 10.1016/S0005-7967(01)00017-1
- Joiner, T. E., Ribeiro, J. D., & Silva, C. (2012). Nonsuicidal self-injury, suicidal behavior, and their co-occurrence as viewed through the lens of the interpersonal theory of suicide. *Current Directions in Psychological Science, 21*(5), 342-347. doi: 10.1177/0963721412454873
- Joiner, T. E., Van Orden, K. A., Witte, T. K., Selby, E. A., Ribeiro, J. D., Lewis, R., & Rudd, M. D. (2009). Main predictions of the interpersonal-psychological theory of behavior: Empirical tests in two samples of young adults. *Journal of Abnormal Psychology, 118*(3), 634-646. doi: 10.1037/a0016500
- Kanzler, K. E., Bryan, C. J., McGeary, D. D., & Morrow, C. E. (2012). Suicidal ideation and perceived burdensomeness in patients with chronic pain. *Pain Practice, 12*(8), 602-609. doi: 10.1111/j.1533-2500.2012.00542.x

- Kleiman, E. M., Law, K. C., & Anestis, M. D. (2014). Do theories of suicide play well together? Integrating components of the hopelessness and interpersonal psychological theories of suicide. *Comprehensive Psychiatry*, *55*, 431-438. doi: 10.1016/j.comppsy.2013.10.015
- Klonsky, E. D., & May, A. (2010). Rethinking impulsivity in suicide. *Suicide and Life-Threatening Behavior*, *40*(6), 612-619. doi: 10.1521/suli.2010.40.6.612
- Kocalevent, R., Hinz, A., & Braehler, E. (2013). Standardization of the depression screener Patient Health Questionnaire (PHQ-9) in the general population. *General Hospital Psychiatry*, *35*, 551-555. doi: 10.1016/j.genhosppsych.2013.04.006
- Kroenke, K., Spitzer, R. L., Williams, J. B. W. (2001). The PHQ-9: Validity of a brief depression severity measure. *Journal of General Internal Medicine*, *16*, 606-613.
- Kuo, W., Gallow, J. J., & Eaton, W. W. (2004). Hopelessness, depression, substance disorder, and suicidality: A 13-year community-based study. *Social Psychiatry and Psychiatric Epidemiology*, *39*, 497-501. doi: 10.1007/s00127-004-0775-z
- Lasgaard, M., Goossens, L., Holm-Bramsen, R., Trillingsgaard, T., & Elklit, A. (2011). Different sources of loneliness are associated with different forms of psychopathology in adolescence. *Journal of Research in Personality*, *45*, 233-237. doi: 10.1016/j.jrp.2010.12.005
- Lester, D. (1998). Helplessness, hopelessness, and haplessness and suicidality. *Psychological Reports*, *82*, 946. doi: 10.2466/PR0.82.3.946-946
- Lester, D. (2001). An inventory to measure helplessness, hopelessness, and haplessness. *Psychological Reports*, *89*, 495-498. doi: 10.2466/pr0.2001.89.3.495

- Lester, D., & Gunn, J. F. (2012). Perceived burdensomeness and thwarted belonging: An investigation of the interpersonal theory of suicide. *Clinical Neuropsychiatry*, 9(6), 221-224. doi: 10.1027/0227-5910/a000123
- Lester, D., & Walker, R. L. (2007). Hopelessness, helplessness, and haplessness as predictors of suicidal ideation. *Omega*, 55(4), 321-324. doi: 10.2190/OM.55.4.f
- Lewinsohn, P. M., Rohde, P., & Seeley, J. R. (1994). Psychosocial risk factors for future adolescent suicide attempts. *Journal of Consulting and Clinical Psychology*, 62(2), 297-305. doi: 10.1037/0022-006X.62.2.297
- Luce, K. H., Crowther, J. H., & Pole, M. (2008). Eating disorder examination questionnaire (EDE-Q): Norms for undergraduate women. *International Journal of Eating Disorders*, 41, 273-276. doi: 10.1002/eat.20504
- Lynam, D. R., Miller, J. D., Miller, D. J., Bornovalova, M. A., & Lejuez, C. W. (2011). Testing the relations between impulsivity-related traits, suicidality, and nonsuicidal self-injury: A test of the incremental validity of the UPPS model. *Personality Disorders: Theory, Research, and Treatment*, 2(2), 151-160. doi: 10.1037/a0019978
- Lynam, D., Smith, G. T., Cyders, M. A., Fischer, S., & Whiteside, S. A. (2007). *The UPPS-P: A multidimensional measure of risk for impulsive behavior*. Unpublished manuscript, Department of Psychological Sciences, Purdue University, West Lafayette, IN.

- MacKinnon, D. P., Lockwood, C. M., & Williams, J. (2004). Confidence limits for the indirect effect: Distribution of the product and resampling methods. *Multivariate Behavioral Research, 39*(1), 99-128. doi: 10.1207/s15327906mbr3901_4
- Martin, C. K., Williamson, D. A., & Thaw, J. M. (2000). Criterion validity of the multiaxial assessment of eating disorders symptoms. *International Journal of Eating Disorders, 28*(3), 303-310. doi: 10.1002/1098-108X(200011)28:3<303::AID-EAT7>3.0.CO;2-I
- Mermelstein, L. C., & Garske, J. P. (2015). A brief mindfulness intervention for college student binge drinkers: A pilot study. *Psychology of Addictive Behaviors, 29*(2), 259-269. doi: 10.1037/adb0000040
- Metalsky, G. I., & Joiner, T. E. (1997). The hopelessness depression symptom questionnaire. *Cognitive Therapy and Research, 21*(3), 359-384. doi: 10.1023/A:1021882717784
- Milos, G., Spindler, A., Hepp, U., & Schnyder, U. (2004). Suicide attempts and suicidal ideation: Links with psychiatric comorbidity in eating disorder subjects. *General Hospital Psychiatry, 26*, 129-135. doi: 10.1016/j.genhosppsych.2003.10.005
- Miotto, P., de Coppi, M., Frezza, M., & Preti, A. (2003). Eating disorders and suicide risk factors in adolescents: An Italian community-based study. *The Journal of Nervous and Mental Disease, 191*(7), 437-443. doi: 10.1097/01.NMD.0000081590.91326.8B

- Mond, J. M., Hay, P. J., Rodgers, B., Owen, C., & Beumont, P. J. V. (2004). Validity of the eating disorder examination questionnaire (EDE-Q) in screening for eating disorders in community samples. *Behaviour Research and Therapy*, *42*, 551-567. doi: 10.1016/S0005-7967(03)00161-X
- Monteith, L. L., Menefee, D. S., Pettit, J. W., Leopoulos, W. L., & Vincent, J. P. (2013). Examining the interpersonal-psychological theory of suicide in an inpatient veteran sample. *Suicide and Life-Threatening Behavior*, *43*(4), 418-428. doi: 10.1111/sltb.12027
- Moscicki, E. K. (1997). Identification of suicide risk factors using epidemiologic studies. *Psychiatric Clinics of North America*, *20*(3), 499-517. doi:10.1016/S0193-953X(05)70327-0
- Nickel, M. K., Simek, M., Lojewski, N., Muehlbacher, M., Fartacek, R., Kettler, C., ...Nickel, C. (2006). Familial and sociopsychopathological risk factors for suicide attempt in bulimic and in depressed women: Prospective study. *International Journal of Eating Disorders*, *39*, 410-417. doi: 10.1002/eat.20288
- Nock, M. K., Prinstein, M. J., & Sterba, S. K. (2009). Revealing the form and function of self-injurious thoughts and behaviors: A real-time ecological assessment study among adolescents and young adults. *Journal of Abnormal Psychology*, *118*(4), 816-827. doi: 10.1037/a0016948

- Noel, F., Moniruzzaman, A., Somers, J., Frankish, J., Strehlau, V., Schutz, C., & Krausz, M. (2016). A longitudinal study of suicidal ideation among homeless, mentally ill individuals. *Social Psychiatry and Psychiatric Epidemiology, 51*, 107-114. doi: 10.1007/s00127-015-1142-y
- Oldershaw, A., Hambrook, D., Stahl, D., Tchanturia, K., Treasure, J., & Schmidt, U. (2011). The socio-emotional processing stream in anorexia nervosa. *Neuroscience and Biobehavioral Reviews, 35*, 970-988. doi: 10.1016/j.neubiorev.2010.11.001
- Peterson, C. M., & Fischer, S. (2012). A prospective study of the influence of the UPPS model of impulsivity on the co-occurrence of bulimic symptoms and non-suicidal self-injury. *Eating Behaviors, 13*, 335-341. doi: 10.1016/j.eatbeh.2012.05.007
- Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, & Computers, 36*(4), 717-731. doi: 10.3758/BF03206553
- Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods, 40*(3), 879-891. doi: 10.3758/BRM.40.3.879
- Preti, A., Rocchi, M. B. L., Sisti, D., Camboni, M. V., & Miotto, P. (2011). A comprehensive meta-analysis of the risk of suicide in eating disorders. *Acta Psychiatrica Scandinavica, 124*, 6-17. doi: 10.1111/j.1600-0447.2010.01641.x
- Pritchard, M. E., & Yalch, K. L. (2009). Relationships among loneliness, interpersonal dependency, and disordered eating in young adults. *Personality and Individual Differences, 46*, 341-346. doi: 10.1016/j.paid.2008.10.027

- Protzky, G., van Heeringen, K., & Vervaet, M. (2014). Attempted suicide in patients with eating disorders. *Crisis: The Journal of Crisis Intervention and Suicide Prevention*. doi: 10.1027/0227-5910/a000275
- Rasmussen, K. A., & Wingate, L. R. (2011). The role of optimism in the interpersonal-psychological theory of suicidal behavior. *Suicide and Life-Threatening Behavior*, *41*(2), 137-148. doi: 10.1111/j.1943-278X.2011.00022.x
- Rasmussen, K. A., Slis, M. L., Wingate, L. R., Davidson, C. L., & Grant, D. M. (2012). Can perceived burdensomeness explain the relationship between suicide and perfectionism? *Suicide and Life-Threatening Behaviors*, *42*(2), 121-128. doi: 10.1111/j.1943-278X.2011.00074.x
- Ribeiro, J. D., & Joiner, T. E. (2009). The interpersonal-psychological theory of suicidal behavior: Current status and future directions. *Journal of Clinical Psychology*, *65*(12), 1291-1299. doi: 10.1002/jclp.20621
- Rotenberg, K. J., & Flood, D. (1999). Loneliness, dysphoria, dietary restraint, and eating behavior. *International Journal of Eating Disorders*, *25*(1), 55-64. doi: 10.1002/(SICI)1098-108X(199901)25:1<55::AID-EAT7>3.0.CO;2-#
- Ruuska, J., Kaltiala-Heino, R., Rantanen, P., & Koivisto, A. M. (2005). Psychopathological distress predicts suicidal ideation and self-harm in adolescent eating disorder patients. *European Child Adolescent Psychiatry*, *14*, 276-281. doi: 10.1007/s00787-005-0473-8

- Selby, E. A., Smith, A. R., Bulik, C. M., Olmsted, M. P., Thornton, L., McFarlane, T. L., Berrettini, W. H., ... & Joiner, T. E. (2010). Habitual starvation and provocative behaviors: Two potential routes to extreme suicidal behavior in anorexia nervosa. *Behaviour Research and Therapy*, *48*, 634-645. doi: 10.1016/j.brat.2010.03.016
- Shelef, L., Fruchter, E., Mann, J. J., & Yacobi, A. (2014). Correlations between interpersonal and cognitive difficulties: Relationship to suicidal ideation in military suicide attempters. *European Psychiatry*, *29*(8), 498-502. doi: 10.1016/j.eurpsy.2014.01.006
- Smink, F. R. E., van Hoeken, D., Oldehinkel, A. J., & Hoek, H. W. (2014). Prevalence and severity of DSM-5 eating disorders in a community cohort of adolescents. *International Journal of Eating Disorders*, *47*, 610-619. doi: 10.1002/eat.22316
- Smith, A. R., Fink, E. L., Anestis, M. D., Ribeiro, J. D., Gordon, K. H., Davis, H., Keel, P. K., ... & Joiner, T. E. (2013). Exercise caution: Over-exercise is associated with suicidality among individuals with disordered eating. *Psychiatry Research*, *206*, 246-255. doi: 10.1016/j.psychres.2012.11.004
- Smith, A. R., Witte, T. K., Bodell, L., Goodwin, N., Siegfried, N., & Bartlett, M. (2014, October). *Empirical tests of the interpersonal theory of suicide in an eating disorder sample*. Manuscript in progress. Poster presented at the meeting of the Eating Disorders Research Society, San Diego.

- Smith, N. B., Mota, N., Tsai, J., Monteith, L., Harpaz-Rotem, I., Southwick, S. M., & Pietrzak, R. H. (2016). Nature and determinants of suicidal ideation among U.S. veterans: Results from the national health and resilience in veterans study. *Journal of Affective Disorders, 197*, 66-73. doi: 10.1016/j.jad.2016.02.069
- Solomon, R.L. (1980). The opponent-process theory of acquired motivation. *American Psychologist, 35*(8), 691-712. doi: 10.1037/0003-066X.35.8.691
- Spitzer, R. L., Kroenke, K., Williams, J. B. W., & Patient Health Questionnaire Primary Care Study Group. (1999). Validation and utility of a self-report version of PRIME-MD. *Journal of the American Medical Association, 282*(18), 1737-1744. doi: 10.1001/jama.282.18.1737
- Stein, D., Lilienfeld, L. R. R., Wildman, P. C., & Marcus, M. D. (2004). Attempted suicide and self-injury in patients diagnosed with eating disorders. *Comprehensive Psychiatry, 45*(6), 447-451. doi: 10.1016/j.comppsy.2004.07.011
- Stice, E., Marti, C. N., & Rohde, P. (2013). Prevalence, incidence, impairment, and course of the proposed DSM-5 eating disorder diagnoses in an 8-year prospective community study of young women. *Journal of Abnormal Psychology, 122*(2), 445-457. doi: 10.1037/a0030679
- Troop, N. A., & Bifulco, A. (2002). Childhood social arena and cognitive sets in eating disorders. *British Journal of Clinical Psychology, 41*, 205-211. doi: 10.1348/014466502163976

U.S. Department of Health and Human Services, National Center for Health Statistics.

(2014). *Mortality in the United States, 2012* (NCHS Data Brief No. 168).

Retrieved from <http://www.cdc.gov/nchs/data/databriefs/db168.htm>

Van Orden, K. A., Cukrowicz, K. C., Witte, T. K., & Joiner, T. E. (2012). Thwarted

belongingness and perceived burdensomeness: Construct validity and

psychometric properties of the interpersonal needs questionnaire. *Psychological*

Assessment, 24(1), 197-215. doi: 10.1037/a0025358

Van Orden, K. A., Lynam, M. E., Hollar, D., & Joiner, T. E. (2006). Perceived

burdensomeness as an indicator of suicidal symptoms. *Cognitive Therapy and*

Research, 30, 457-467. doi: 10.1007/s10608-006-9057-2

Van Orden, K. A., Witte, T. K., Cukrowicz, K. C. Braithwaite, S. R., Selby, E. A., &

Joiner, T. E. (2010). The interpersonal theory of suicide. *Psychological Review*,

117(2), 575-600. doi: 10.1037/a0018697

Van Orden, K. A., Witte, T. K., Gordon, K. H., Bender, T. W., & Joiner, T. E. (2008).

Suicidal desire and the capability of suicide: Tests of the interpersonal-

psychological theory of suicidal behavior among adults. *Journal of Counseling*

and Clinical Psychology, 76(1), 72-83. doi: 10.1037/0022-006X.76.1.72

Van Orden, K. A., Witte, T. K., James, L. M., Castro, Y., Gordon, K. H., Braithwait, S.

R., ..., & Joiner, T. E. (2008). Suicidal ideation in college students varies across

semesters: The mediating role of belongingness. *Suicide and Life-Threatening*

Behavior, 38(4), 427-435. doi: 10.1521/suli.2008.38.4.427

- Vatan, S., & Lester, D. (2008). The internal consistency and concurrent validity of the Hopelessness, Helplessness, and Haplessness Scale in a Turkish clinical sample. *Psychological Reports, 103*, 701-702. doi: 10.2466/PR0.103.3.701-702
- Ward, R. M., & Hay, M. C. (2015). Depression, coping, hassles, and body dissatisfaction: Factors associated with disordered eating. *Eating Behaviors, 17*, 14-18. doi: 10.1016/j.eatbeh.2014.12.002
- Watnick, S., Wang, P., Demadura, T., & Ganzini, L. (2005). Validation of 2 depression screening tools in dialysis patients. *American Journal of Kidney Diseases, 46*(5), 919-924. doi: 10.1053/j.ajkd.2005.08.006
- Whiteside, S. P., & Lynam, D. R. (2001). The five factor model and impulsivity: Using a structural model of personality to understand impulsivity. *Personality and Individual Differences, 30*, 669-689. doi: 10.1016/S0191-8869(00)00064-7
- Williams, J., & MacKinnon, D. P. (2008). Resampling and distribution of the product methods for testing indirect effects in complex models. *Structural Equation Modeling, 15*(1), 23-51. doi: 10.1080/10705510701758166
- World Health Organization. (2014). *Global health estimates 2014 summary tables: Deaths by cause, age and sex, by WHO region, 2000-2012*. Retrieved from World Health Organization website:
http://www.who.int/healthinfo/global_burden_disease/estimates/en/index1.html

- Youssef, G., Plancherel, B., Laget, J., Corcos, M., Flament, M. F., & Halfon, O. (2004). Personality trait risk factors for attempted suicide among young women with eating disorders. *European Psychiatry, 19*, 131-139. doi: 10.1016/j.eurpsy.2003.11.005
- Zaitsoff, S. L., & Grilo, C. M. (2010). Eating disorder psychopathology as a marker of psychosocial distress and suicide risk in female and male adolescent psychiatric inpatients. *Comprehensive Psychiatry, 51*, 142-150. doi: 10.1016/j.comppsy.2009.03.005
- Zuromski, K. L., & Witte, T. K. (2015). Fasting and acquired capability for suicide: A test of the interpersonal-psychological theory of suicide in an undergraduate sample. *Psychiatry Research, 226*, 61-67. doi: 10.1016/j.psychres.2014.11.059