

**Harm Avoidance and Novelty Seeking:  
Do These Components Moderate the Relationship between Disordered Eating and  
Substance Abuse?**

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**A Doctoral Project Submitted in Partial Fulfillment of  
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## ABSTRACT

The present study aims to expand on the existing literature by examining the relationship between the temperament components of novelty seeking and harm avoidance and the maladaptive behaviors of disordered eating and substance abuse. A sample of 202 female undergraduates completed self-report questionnaires measuring each of the variables of interest. Alike prior research, a significant correlation was found between disordered eating and substance abuse. Moreover, regression analysis revealed that disordered eating positively and significantly predicted substance use in college-aged women. It was also hypothesized that novelty seeking and harm avoidance would moderate this relationship between disordered eating and substance use. Although novelty seeking was significantly correlated with both disordered eating and substance abuse, it was not found to moderate the relationship between the two disorders. Moreover, harm avoidance was found to be significantly correlated only to disordered eating and not to substance abuse. Although these components were not found to moderate the relationship between disordered eating and substance abuse, the positive correlation between novelty seeking with these disorders suggests a relationship to be further investigated. In addition, the predictive value of disordered eating for the development of substance abuse within a college age, nonclinical sample is asserted. Implications of these findings can be utilized by mental health professionals as well as school and university administrators.

## CHAPTER I

### INTRODUCTION

#### *Overview*

The period between late adolescence and early adulthood is characterized by a variety of developmental tasks such as identity formation and the development of more mature interpersonal relationships. Adolescents who transition from high school to college face an additional set of challenges. For example, college students separate from family and friends, forge new relationships, and face heightened academic demands. Moreover, college students face these tasks with less parental support, guidance, and monitoring and increased independence. The escalation in stress coupled with increasing autonomy may lead to a sense of frustration. In turn, this frustration may cause students to adopt unhealthy behaviors. Two maladaptive behaviors that are increasingly found among the college-aged population include disordered eating and substance abuse.

Eating disorders have been estimated to affect 10% of women aged 15-30 years old (Dunn et al., 2002). The onset of these disorders typically occurs between the ages of 18-20 and often arises subsequent to a stressful life event, such as going away to college. Therefore, college students are placed at significant risk for developing an eating disorder. Body dissatisfaction, weight preoccupation, and eating disorders continue to be salient problems on college campuses. For example, in a study by Klemchuk, Hutchinson, and Frank (1990), a significant incidence of the

subclinical problems was found within a college sample, which included extreme weight control mechanisms, severe body dissatisfaction, and binge eating. Substance abuse is yet another common maladaptive behavior that is particularly prevalent among college students (Mohler-Kuo et al., 2003, Martens et al., 2006). Moreover, a relationship between substance abuse and disordered eating has been well-documented among college-aged females (Lundholm, 1989, Krahn et al., 1992).

Researchers have sought to understand the link between disordered eating and substance abuse. One theory that has been implicated in the relationship is Cloninger's psychobiological theory of personality. Specifically, he affirms that four temperament components interact to create a personality profile, which dictates how an individual responds to her environment (Battaglia et al., 1996). It is the distinct combination of temperamental variables that can predispose an individual to pathology.

Harm avoidance (an individual's ability to cope with life stressors) and novelty seeking (excitement over novel stimuli) are two temperamental variables that have been repeatedly measured in individuals with eating disorders and substance abuse. Specifically, anorexics and bulimics both display high levels of harm avoidance; that is, inhibition in the face of environmental stressors (Raevuori, 2002). Novelty seeking differs among the disorders, where anorexics display low novelty seeking and bulimic display high novelty seeking.

In substance abuse studies, a less clear picture emerges. Cloninger proposed that two distinct temperamental profiles manifest among the two types of alcoholism. Type I (or late onset) alcoholism is characterized by the combination of low novelty seeking and high harm avoidance (Bulik et al., 1994). Type II (or early onset) alcoholism is marked by high novelty seeking and low harm avoidance. However, the existing research has often failed to support this theory. Moreover, research suggests that a different temperamental profile may emerge with comorbid eating disorder and substance abuse (Bulik et al., 1994).

Although research has demonstrated the comorbidity of disordered eating and substance abuse in college samples, scant information is known about whether temperament underlies this comorbidity. Thus, the present study will examine the temperament variables of harm avoidance and novelty seeking in college students. Akin to prior studies, we hope to find that those individuals who report disordered eating are also more likely to report increased substance use. However, in the present study, we aim to predict substance abuse within individuals with disordered eating. Additionally, we aim to extend the research by suggesting that temperament moderates the severity of substance use among eating-disordered individuals.

## CHAPTER II

### *Literature Review*

#### *Anorexia Nervosa*

Anorexia nervosa (AN) is characterized by restrictive eating, the unremitting drive for thinness, obsessive fears of becoming fat, and a disturbance in the perception of one's body size and weight. The disorder typically has its onset during early to middle adolescence, and symptomatology results in acute weight loss and sizeable psychological morbidity (Ferguson et al., 1999). The prevalence rate varies amongst the research, but anorexia generally affects 0.10% to 2% young women and 1% of males in the American population (Le Grange & Lock, 2005).

According to the Diagnostic and Statistical Manual of Mental Disorders (4<sup>th</sup> ed. [DSM-IV]; APA, 2000), Anorexia Nervosa is characterized by a refusal to maintain a normal body weight. Additionally, anorexics perceive themselves as overweight, even when presented with conflicting evidence. Once the diagnosis of anorexia nervosa has been made, the patient is classified into one of two subtypes, the restricting type or the binge-eating/purging type. The binge-eating/purging anorexic engages in binge eating and/or self-induced vomiting, laxative, or diuretic misuse. The restricting anorexic does not regularly binge eat or purge (Peterson & Mitchell, 1999).

### *Bulimia Nervosa*

In bulimia nervosa (BN), individuals engage in recurrent episodes of binge eating and recurrent inappropriate compensatory behaviors to prevent weight gain (Walsh & Garner, 1997). Compensatory behaviors refer to the specific action the individual takes to eliminate food and/or prevent weight gain. Purging behaviors include vomiting as well as the use of diuretics or laxatives (Reba et al., 2005). Nonpurging compensatory activities can include excessive exercise and fasting.

Binge eating and compensatory behaviors must co-occur at least twice a week for three months and are accompanied by a self-evaluation that is unduly influenced by body shape and weight. The last criterion maintains that the disturbance does not occur exclusively during episodes of anorexia (Walsh & Garner, 1997).

The prevalence rate of bulimia is estimated between 3% and 5% in college-aged women (Krahn et al., 1992). The prevalence for purging behaviors, such as self-induced vomiting and laxative abuse, among adolescents has been estimated at 13% (Ross & Ivis, 1999). Bulimic pathology, which includes both threshold and subthreshold bulimia nervosa, is one of the more common psychiatric disturbances to afflict adolescent girls and young women (Stice et al., 2005).

### *Eating Disorders Not Otherwise Specified (ED-NOS)*

Bulimic behaviors and subthreshold levels of eating disorders are far more prevalent than anorexia and bulimia, particularly among college-aged women. Individuals with clinically significant disturbances in eating behavior who do not

meet the criteria for anorexia nervosa or bulimia nervosa fall under the classification of Eating Disorders Not Otherwise Specified (ED-NOS). The ED-NOS classification is a broad diagnostic category comprised of six different presentations of eating disorders (Chavez & Insel, 2007). Research suggests that the majority of individuals seeking treatment for eating disorders fall under the ED-NOS classification. Additionally, a diagnosis of ED-NOS is especially common when treating adolescents, who often do not report one or more of the clinical features of bulimia or anorexia (Wilson et al., 2007)

Typically, the NOS category is employed when the diagnostic features associated with anorexia (i.e., fear of weight gain, restrictive eating) are present, but the person maintains an acceptable body weight or normal menstruation (Schwitzer, 1998). In addition, when an individual presents with bulimic symptomatology, such as compensatory behaviors at subthreshold levels, the diagnosis of ED-NOS is warranted.

Within the broad, heterogeneous category of ED-NOS lies the diagnosis of Binge Eating Disorder or BED. Binge eating disorder is loosely defined by significant binge eating and associated distress in the absence of the inappropriate compensatory behaviors seen in bulimia (Wonderlich et al., 2007). Binge eating is often accompanied by the individual's sense of a loss of control. Several behavior indicators have been identified to help guide clinicians towards determining the loss of control seen in BED. In addition to overeating objectively large amounts of food,

the diagnostic criteria requires that the binge eating be associated with emotional distress, occur regularly (at least 2 days a week), and be persistent (at least 6 months) (Wilson et al., 2007). As compared to overweight individuals without BED, those with BED have been found to have increased levels of overvaluation of shape and/or weight near levels found in individuals with bulimia. The prevalence of BED is estimated to be approximately 3% of adults (Wilson et al., 2007). Although individuals who seek treatment for BED are typically older than patients with anorexia or bulimia, recent research suggests that the onset of binge eating frequently dates back to adolescence.

Excessive dieting, unhealthy weight loss practices, and disordered eating behaviors occur frequently among college women. While only a small percentage of college women (1%–3%) have diagnosable eating disorders, many (estimated at 10%–30%) appear to be at risk for developing an eating disorder over the course of their college years (Franko et al., 2005). Using a sample of freshmen women, Mintz et al. (1997) found that 4% had eating disorders and 19% had some risk factors (e.g., chronic dieting, use of appetite control pills) for the development of diagnosable eating disorders. In another study of freshmen women, 15% of those classified as at risk (10% of the sample) in the fall semester were re-classified in the probable bulimia category by the spring semester (Drewnowski et al, 1994). Clearly, the prevalence of eating disordered behaviors among college females is widespread and



accounts for significant pathology that has the potential to interfere with students' overall psychological well-being.

Schwitzer et al. (2001) documented the presentation of disordered eating specific to the college-aged population. The central component to the model was the presentation of subthreshold anorexic and bulimic symptoms that were severe enough to impair daily functioning or cause significant cognitive-emotional distress. Moreover, these individuals also displayed the following features: preoccupation with eating; heightened knowledge about calories, nutrition, and fat; frequent weighing; excessive exercise; moderate depression; and low self-esteem. Furthermore, these individuals exhibited similar internal conflicts in their approach to eating as to other aspects of college life. Specifically, college-aged women classified under the ED-NOS diagnosis presented with perfectionism, a fragile sense of self, self-doubt expressed as sexual intimacy questions, and a sense of powerlessness both in intimate relationships and globally.

#### *Substance Abuse (SA)*

The Diagnostic and Statistical Manual of Mental Disorders (4<sup>th</sup> ed. [DSM-IV]; APA, 2000) classifies problematic substance use into one of two categories: substance dependence and substance abuse. According to the DSM-IV, substance dependence is characterized by a maladaptive pattern of substance abuse leading to clinically significant impairment or distress, as manifested by three of the following symptoms occurring within a 12-month period. These symptoms include tolerance;

withdrawal; increased frequency or amount of substance used; persistent desire or unsuccessful efforts to reduce substance use; great time spent in obtaining, using, or recovering from the substance; reduction in social, occupational, or recreational activities due to use; and continued use despite persistent or recurrent physical or psychological problem resulting from substance use. The diagnosis of substance abuse requires maladaptive substance use leading to significant impairment or distress as manifested in one of the following four symptoms in a 12-month period: recurrent substance use resulting in failure to fulfill major role obligations at work, school, or home; recurrent substance use in situations in which it is physically hazardous (i.e., drunk driving); recurrent substance-related legal problems (i.e., arrests); and continued substance use despite having persistent or recurrent social or interpersonal problems caused or exacerbated by the effects of the substance.

Among college students, alcohol is undeniably the substance most used and frequently abused. Several studies have reported that up to 90% of college students use alcohol and that 20%–25% of these college drinkers can be classified as problem drinkers (Jones et al. 2001, Kim et al., 1997). Furthermore, excessive alcohol use in this population has been associated with an array of physical problems, including nausea, headaches, alcohol poisoning, as well as social problems, including school failure, relationship difficulties, vandalism, aggression, and acquaintance rape.

Gaining recent attention is the problematic drinking behavior identified as “binge drinking.” Among females, binge drinking is defined as consuming four

alcoholic beverages in one sitting (five beverages for males) (Young et al., 2005). Binge drinking has severe negative consequences including blackouts, sexual assault, personal injury, and impaired driving. College students are at higher risk for binge drinking than their same-aged peers who do not attend college (Jones et al., 2001). Traditionally, male students have been more likely than females to engage in binge drinking and frequent binge drinking, defined as binge drinking three or more times in one week (Young et. al., 2005). However, recent assessments have found an increased frequency of binge drinking among females. Research has found that females have similar motives to their male counterparts for binge drinking. Specifically, females have reported their desire to “drink to get drunk” as well as to reduce negative affect.

Although the amount of alcohol use has remained relatively unchanged in recent years, the intensity of drinking has dramatically changed. According to a recent study by the National Center on Addiction and Substance Abuse at Columbia University (Dunham, 2007), 49% of full-time college students ages 18-22 binge drink. In 2005, 23% of students met the diagnostic criteria for substance abuse or dependence. Regarding consumption rates, the proportion of students who engaged in frequent binge drinking rose by 16% since 1993. Drinking 10 or more times per month rose 25%, and drinking three or more times per month rose 26%.

Although drug use among college students is largely underrepresented in the research, researchers have sought to identify current prevalence rates. According to