Who Does Not Return for Community Eating Disorders Treatment? An Examination of

Personality, Eating Disorder and Situational Variables Measured at Initial Evaluation

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Aimee Jo Arikian, M.A.

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Abstract

Attrition from the treatment care pathway is common in clients with eating disorder diagnoses. The purpose of this study was to test which variables are predictive of individuals who attended intake evaluation and return for treatment and those who do not start treatment. Participants were 462 clients from a community based eating disorders specialty treatment clinic whose archived records were used for analyses. Both client characteristics and situational variables were studied. Logistic regression and probability modeling statistics demonstrated that 10 independent variables increased the probability of non-treatment start. Four factors in particular: higher difference between current and ideal weight, lower body mass index, shorter distance form clinic, and absence of psychosocial and environmental problems demonstrated noteworthy contributions to the probability of non-treatment start. Findings were discussed within the context of the tertiary prevention of chronic eating disorders. Future suggestions were geared toward providing more appropriate services for clients who typically would not start treatment following initial evaluation. It was also suggested that the probability model used in analyses be transferred into everyday use within the clinic setting.

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Chapter 1.

Introduction

Eating disorders cause serious mental health distress, incur substantial health care and social costs (Simon, Schmidt, & Pilling, 2005), are characterized by chronicity (Steinhausen & Weber, 2009) and are correlated with high mortality rates (Crow et al., 2009). Treatment attendance is a considerable concern in the area of eating disorders. Research has shown serious problems of attrition are common in eating disorders care pathways. Only approximately half of individuals with identifiable eating disorder diagnoses engage in community based treatment (Fairburn, Cooper, Doll, Norman, & O'Connor, 2000; Waller et al., 2009). Also, much of eating disorders research is conducted in association with treatment participation (Campbell, 2009; Fairburn, Welch, Norman, O'Connor, & Doll, 1996). Therefore it is unclear whether clinical findings of eating disorders and their associated characteristics, which inform current treatment approaches, accurately reflect the needs of clients who do not attend treatment.

Statement of the Problem

The current study aimed to investigate whether certain individual and situational characteristics are predcitive of clients who present for eating disorder treatment but do not begin treatment services as compared to those who start treatment. The study sample was comprised of 462 people who presented for evaluation between 2008-2010 at a specialized community clinic for treating eating disorders in the Twin Cities of Minnesota. Both individuals' clinical characteristics as well as outside situational variables were analyzed in this study in order to examine possible predictors of treatment

start or non-treatment start. Archived intake data used for analyses were client

characteristics including Minnesota Multiphasic Personality Inventory (MMPI-2;

Butcher, Dahlstrom, Graham, Tellegen, & Kaemmer, 1989) and Eating Disorders

Inventory (EDI-3; Garner, 2004) assessment scores and eating disorder diagnoses. The

situational variables included data such as distance between clients' home address and the

clinic and length of wait time between initial evaluation appointments.

Significance of the Problem

The importance of this study is anchored in the general need to better understand

clients who do not engage in eating disorders treatment, which has potential to inform

outreach and therapy retention efforts down the road. In the field of psychotherapy

treatment, the broad components of treatment engagement are considered to be universal

(Drieschner & Boomsma, 2008; Tetley, Jinks, Huband, & Howells, 2011). Tetley et al.

defined treatment engagement as "the extent to which the client actively participates in

the treatment on offer (p. 927)." As described by (Zivin et al., 2009), involvement in a

mental health care pathway necessitates that clients, "recognize a need for treatment,

make the initial contact, attend the first visit, and adhere to a recommended course of

action before they can benefit from treatment (p. 105)." In order to provide an in depth

study, the current dissertation focused on only one of the components of treatment

engagement; treatment start. This focus was determined upon the assumption that the

point at which treatment is offered, during initial evaluation procedures, is a crucial stage

when clients face the decision to accept therapeutic services or not.

Following a client's decision to enter treatment, various other factors increase the complexity of clients' engagement, such as the completion of between-session tasks like homework and in-session contributions, for example self-disclosure (Tetley et al., 2011). In particular, interpersonal factors such as therapeutic alliance have the potential for great impact on clients remaining in treatment or not (Costin, 2007). Previous studies have mistakenly grouped clients who never start treatment with those who drop-out once started as well as have omitted such important variables related to therapy adherence such as therapeutic alliance.

The current study alternatively provides an in-depth focus on the client and situational variables that increase the probability of not starting treatment. As this study was archival in nature, variables measuring motivation for change and interpersonal factors were inaccessible. Additionally, the clinical interview, albeit a distinctly important interaction in clients' care pathways, typically involves more structure and routine than subsequent treatment sessions within community mental health settings. Therefore, the current research attempts to zero in on the initial evaluation procedures as a point at which standard practice may have a greater likelihood to incorporate change. Another important reason for this narrow focus is the fact that a substantial number of individuals were reported to have undergone initial evaluation procedures at The clinic and then failed to return to start treatment.

Clients who present for treatment of eating disorders yet do not begin therapy services represent a sub-population of clients who may be at risk for prolonged symptoms and likely chronic eating disorders. In reference to the characteristics and correlates of

eating disorders within populations of clients who seek eating disorders treatment, the current study aimed to better understand which variables might increase the probability that a client did not start treatment. The current research focus is important because it may lead to an increased ability to retain clients in specialized eating disorders treatment through developing recruitment strategies upon initial evaluation that cater to clients' specific presentations. This goal lies within the framework of tertiary prevention, defined as "involve[ing] the prompt identification of individuals with the disorder with the view of swift implementation of appropriate treatment" (Piran, Levine, & Steiner-Adair, 1999, p. 256).

Since research shows at least half of people with diagnosable eating disorders do not engage in treatment (Waller et al., 2009), considerable cost is also associated with clients who do not start treatment (Campbell, 2009; Striegel-Moore et al., 2008). Such costs include prolonged and sustained eating disorder symptoms and associated problems for those clients who do not return for therapy. Administrative and clinical resources are spent, such as time and effort put forth by service providers. Costs also impact the broader client population of all individuals with eating disorders through increasing wait time for treatment services.

Furthermore, research shows that the chronicity (Fairburn & Brownell, 2002), mortality (Crow et al., 2009) and the self-limiting nature associated with eating disorders (Simon et al., 2005), including diagnoses of EDNOS, warrant clinical services. Therefore, treatment engagement should be one of the main goals of eating disorders research. Studying which variables are associated with non-treatment start is a first step

in leading to informed efforts aimed at the retention of individuals within the eating disorders care pathway. Therefore the current research goals hold implications for the tertiary prevention (Caplan, 1964) of eating disorders. Discussion of findings are framed within the context of methods which clinicians might employ to prevent the chronicity associated with untreated and uninterrupted eating disorder symptoms.

To date, only a few published studies focused on the particular characteristics predictive of non-treatment start for people with eating disorders. Very few studies have focused attention on individual variables as well as programmatic characteristics associated with clients who do not begin therapy services for eating disorders. Therefore it is unclear whether non-treatment starting clients experience similar levels of eating disorder, other mental health or situational concerns. This study improves upon previous research by clearly defining comparison groups. In the current analyses, *non-treatment starters* are defined as persons who attended one or both of the following: psychological testing and intake interviews. Individuals are defined as *treatment starters* if they attended both psychological testing appointments and intake interviews plus one or more clinical visit for subsequent treatment services. For the purposes of the current dissertation, terms such as "starting treatment" and "beginning treatment" refer to client participation in any treatment sessions beyond initial psychological testing and intake interview, i.e. "initial evaluation."

Overview of Chapters

The present study is comprised of five chapters. Chapter 2 is a review of literature encompassing the need for treatment for people struggling with eating disorders and

general information on the presentation of eating disorders. Research on the comorbid psychological diagnoses, personality traits, medical complications, and environmental correlates associated with eating disorders are presented. Findings are reviewed from previous research that investigated differences between treatment starting and non-treatment starting individuals. Chapter 3 describes the study population, clinic characteristics, measures, variables and statistical tools used in analyses. Chapter 4 presents the results from statistical analyses and predictive modeling of attendance after initial evaluation. Chapter 5 synthesizes the current studies' results and previous findings within a framework of recommendations for future steps in eating disorders treatment engagement.

Chapter 2.

Review of Literature

Eating disorders were first commonly recognized in the late 1970's (Russell, 1979). As a relatively young area of mental health, eating disorders diagnoses are established, yet efforts toward implementing a more comprehensive classification system continue (Wolfe, Baker, Smith, & Kelly-Weeder, 2009). Eating disorders as defined by the current edition of the Diagnostic and Statistical Manual for Mental Disorders, 4th edition, text revision (DSM-IV-TR; APA, 2000) include anorexia nervosa (AN), bulimia nervosa (BN), and eating disorder not otherwise specified (EDNOS). The DSM-IV-TR eating disorders diagnoses are determined by the presence of or absence of certain biological, behavioral and cognitive criterion (e.g. body mass index, purging frequency, and undue influence of shape and weight on self-esteem, respectively). See Appendix A for an abbreviated list of eating disorders diagnostic criteria based on DSM-IV guidelines (APA, 2000). EDNOS currently encompasses diagnoses of binge eating disorder (BED), and sub-threshold eating disorders, which indicate less than threshold diagnostic symptoms that nonetheless cause significant distress (APA, 2000). Of particular importance related to treatment and therapy services, EDNOS is the diagnosis given to more than half of the clients presenting for treatment of eating disorders in the community (Fairburn & Harrison, 2003; Garvin & Streigel-Moore, 2001). Regarding the full spectrum of diagnoses including EDNOS, Levine and Smolak (2006) estimate that four to five million Americans between 15-30 years old are affected by eating disorders.

In addition, growing evidence shows a high prevalence of eating disorders in both youth and beyond young adulthood.

The severe nature of eating disorders as a mental health diagnosis indicates the need for treatment. Yet it is important to explore research findings which support this assumption. Therefore, the initial portion of this chapter reviews research supporting treatment intervention for eating disorders. The research is then followed by findings that show significant psychological, personality, medical and psychosocial concerns are associated with eating disorders.

Eating Disorders Course: An Argument for "Getting People in the Door"

Of all treatment sought for eating disorders in the US, the most common is in the medical sector (Hudson, Hiripi, Pope, & Kessler, 2007), with less than 50% of those who seek treatment engaging in counseling and psychological services specifically. Yet due to the complicated nature of eating disorders, and the fact that they are classified as psychological disorders, specialized treatment including a holistic approach to treatment is recommended (Fairburn, 2008; Yager & Powers, 2007). For eating disorders, specialized psychological counseling has been shown to produce effective results, and medication management is recommended for eating disorders only when accompanied by psychotherapy (Fairburn & Harrison, 2003). Therefore efforts aimed at starting clients in specialized treatment beyond simply the medical sector are warranted.

Clients with eating disorders, in particular AN, are notoriously resistant to treatment (Vitousek, Watson, & Wilson, 1998) and overall, treatment seeking tendencies in eating disorders populations are delayed by approximately one decade (Currin &

Schmidt, 2005; Garvin & Streigel-Moore, 2001; Mond, 2009). By the time adult clients with eating disorders seek specialized eating disorder treatment their disordered behaviors are often routine and may be described by clients as feeling out of control. Relatedly, clients who present with eating disorders are likely to have accumulated a history of medical visits and treatment for other mental health concerns. Use of health care services including primary care, emergency room/urgent care, and in-patient hospitalizations is significantly increased for women with eating disorders when compared to women without eating disorder diagnoses (Striegel-Moore et al., 2008). It is clear that many individuals struggling with eating disorders may not seek the appropriate treatment. Possibly, they or their loved ones are not aware of the availability of specialized support such as the holistic services provided by community based clinics like the one in the current study.

Starting clients in treatment is also recommended based in the evidence that recovery becomes less likely with increasing length of illness, (le Grange & Loeb, 2007; Ratnasuriya, Eisler, Szmukler, & Russell, 1991). Research on the course of eating disorders shows that a significant percentage of people with eating disorders remain sick over time (Fairburn et al., 2000; Ratnasuriya et al., 1991). Reviews of research on course and outcome suggests that between 30-50% of individuals with BN and between 18-33% of those with BED continue to have eating disorders after 8-20 years of follow-up (Fairburn et al., 2000; Grilo et al., 2007; Keel, Gravener, Joiner, & Haedt, 2010). Keel and Brown (2010) summarized that those individuals with AN have more chronic courses of illness, where individuals with BN and BED have similar rates of recovery and a

chronic course might be characterized by persistence of illness five years after initial presentation. In clients with BN in particular, comorbid psychopathology and higher symptom severity were also found to indicate poorer outcomes (Keel & Brown, 2010). In other words, many eating disorders are not self-limiting, particularly those associated with additional concerns. A limitation to the research on course of illness is the lack of control for treatment receipt. Many studies on the natural course of eating disorders (e.g. Keel et al., 2010) do not statistically control for duration of illness or receipt of treatment by clients within their samples. Inherently, any research on course and outcome in eating disorders is weakened by the limitation that it would be unethical to manipulate access to treatment, including time between onset of symptoms and presentation for treatment (Reas, Schoemaker, Zipfel, & Williamson, 2001).

In specific reference to the multiple complications associated with eating disorders diagnoses (i.e., medical, nutritional), optimal treatment is recommended (i.e., Yager & Powers, 2007) to include visits with professionals from multiple disciplines to ensure holistic care. Unfortunately it is clear that with increased length of illness, recovery is less likely (le Grange & Loeb, 2007; Ratnasuriya et al., 1991). Furthermore, early intervention for eating disorders is warranted on the basis that the chronic distress and impairment related to eating disorders has implications on both individual and community levels.

The associated costs of eating disorders, both personal and societal, signify need for successful identification and treatment (Simon et al., 2005; Treasure, Claudino, & Zucker, 2010). Individual costs of eating disorders include medical and psychosocial

disability, and increased risk for developing secondary mental disorders (le Grange & Loeb, 2007). On a familial level, caregivers as well as children of clients with eating disorders report significantly higher levels of distress and interpersonal difficulty (Jacobi, Hayward, de Zwaan, Kraemer, & Agras, 2004). Importantly, from a societal perspective, decreased occupational productivity and prolonged health care costs associated with eating disorders have the potential to broadly affect communities (le Grange & Loeb, 2007). Due to the significant costs that eating disorders incur, it is a reasonable goal to aim toward bolstering treatment start and therefore the wider provision of specialist care.

Who Does Not Engage in Treatment?

Many research articles have focused on the lack of treatment adherence within the broad field of mental health. The term drop-out is commonly used to refer to clients who do not complete a recommended dose of treatment. Yet differing definitions of drop-out are present throughout the literature causing limited generalizability across study findings (Barrett, Chua, Crits-Christoph, Gibbons, & Thompson, 2008; Fassino, Piero, Tomba, & Abbate-Daga, 2009; Lampropoulos, Schneider, & Spengler, 2009; O'Brien, Fahmy, & Singh, 2009; Richmond, 1992; Sheeran, Aubrey, & Kellett, 2007). Drop-out definitions range from indicating attendance at only initial intake to attendance of the majority but not completed duration of a structured therapy protocol. As researchers point out, client's reasons for dropping out after an initial appointment may be quite distinct from those who terminate after a varied number of therapy sessions but prior to the 'final' session (Davis & Addis, 1999; Morton, 1995; Pekarik, 1992; Steketee & Chambless, 1992). Another limitation to this body of research is the inconsistent use of terminology. Terms

such as attrition, drop-out and non engagement have all been used to encompass different definitions and lengths of therapy participation. Furthermore, attendance is often used as a proxy for treatment engagement (O'Brien et al., 2009), despite the notion that various factors are involved in the therapeutic process beyond actual attendance to therapy visits, such as client's participation in treatment, outside factors and therapeutic alliance.

Variables that reflect the dynamic nature of a therapeutic relationship such as therapeutic alliance and clients' contribution to therapy (i.e. self-disclosure within session and completion of between-session homework) are necessary to consider beyond simply measuring treatment attendance when assessing treatment engagement. In fact, therapeutic alliance has been found to have a profound impact on client change, and is known as one of the four common factors across all therapeutic work that are important in fostering client change (Bachelor & Horvath, 1999). The therapeutic relationship has also been found to play a key influence in drop-out from therapy for clients with eating disorders (Clinton, 1996).

In light of the outlined limitations and unclear definitions found in previous literature examining client attrition from therapy, as well as recommendations that the lack of engagement in each pathway stage of treatment should be studied separately (Self, Oates, Pinnock-Hamilton, & Leach, 2005), the current study aimed to focus on only a small portion of the broad problem of treatment attrition. The focus of this dissertation was primarily on initial engagement in specialized eating disorder therapy services. Adult clients seeking eating disorders treatment who attended initial intake procedures only were compared to those who continued to engage in therapy services beyond intake. In

order to eliminate confusing terminology, participants in the current research were labeled in one of two ways: treatment starting (TS), which indicates starting evaluation and any further therapy services, and non-treatment starting (NTS), including those client who attended intake visits and subsequently did not engage in services. Although there is a lack of research that has studied this idea, it seems that clients who seek treatment and engage in evaluation interviews but do not return for further services represent a distinct category from those who chose not to come back at a later point in the course of therapy. As some research has indicated, the initial evaluation process plays an important role in clients' decisions to return for further therapy services or not (Anderson, Hogg, & Magoon, 1987; Smith et al., 2010; Tracy, 1977). The importance of the intake evaluation, specifically related to future study of both the clinic's procedures and the clients' experience of these visits, was further reviewed and discussed in the final chapter.

Eating Disorders and Associated Concerns

The following section reviewed what is understood about eating disorders, which is largely based in research samples of clients who attend treatment. Importantly, people who seek mental health treatment for eating disorders often present with multiple concerns related to their medical and nutritional health, interpersonal relationships, insufficient coping resources and other mental health diagnoses. Impairment related to eating disorder diagnoses is often exacerbated by additional and comorbid mental health concerns. This review therefore is mapped according to a multiaxial assessment approach, and outlines the psychological, personality, medical, behavioral and

psychosocial variables typically correlated in clients who seek treatment for eating disorders.

Psychiatric Comorbidity

To provide more details regarding our understanding of eating disorders, the following two studies examined rates of lifetime prevalence and psychiatric co-morbidity in individuals with eating disorders. Of note, these studies used community samples. Hudson, Hiripi, Pope and Kessler (2007) published rates of eating disorders and their correlates from a national comorbidity survey. They studied 9,282 adults regardless of treatment seeking status for life-time prevalence rates of eating and other DSM-IV-TR disorders. Eating disorders in this sample included AN, BN, BED, and subthreshold BED, therefore excluding a full spectrum of EDNOS diagnoses. Results confirmed that higher incidences of eating disorders are found in women compared to men. The life-time prevalence rates of women with AN, BN, and BED are respectively: 0.9%, 1.5%, and 3.5% compared to 0.3%, 0.5%, and 2.0% for men (Hudson et al., 2007). Researchers found that eating disorders were associated with mood, anxiety, impulse-control and substance use disorders at relatively similar rates, with no class of disorder consistently showing higher comorbidity with eating disorders. Lifetime comorbid rates of any anxiety disorder ranged from 48-81%, for any mood disorder, between 42-71%, any impulse-control disorder, from 31-64%, and any substance use disorder, between 23-37%.

Gadalla (2008) studied one-year and lifetime rates of mood, anxiety, substance dependence, psychological distress and eating disorder risk factors in a nationally

representative sample of 36,984 males and females above 15 years old. The Eating

Attitude Test (EAT-26; Garner, Olmsted, Bohr, & Garfinkel, 1982) was used to assess

symptoms and concerns but not diagnostic criteria for eating disorders. In this sample,

2.8% of women and 0.5% of men scored in the clinical range on the EAT-26, indicating

eating disorder risk, and their data was used as the dependent variable in logistic

regression analyses. Findings showed that eating disorder risk was associated with

different sets of comorbid diagnoses between men and women. Both men and women at

risk for eating disorder had significantly higher rates of lifetime major depression, panic

disorder, social phobia and greater psychological distress, but women at risk also had

higher odds of substance dependence, agoraphobia and manic episodes. Overall, clients at

risk for eating disorder had lifetime rates of any anxiety disorder (females 34.8%, males

33.3%) and major depressive episodes or manic episodes (females 35.7%, males 29.5%)

and previous-year substance dependence (females 4.6%; for males, numbers were too

small to report). These rates seem lower than those found by Hudson et al. (2007), which

is likely due to the fact that the latter researcher captured risk for eating disorder versus

eating disorder diagnoses and in turn analyzed a broader clinical sub-sample. Despite

limitations regarding diagnostic criteria, Gadalla's (2008) study adds to the literature by

highlighting the need to study gender differences in related comorbid diagnoses with

eating disorder risk, which may extend to eating disorder diagnoses. Strengths of this

research include the broad community sample that allowed comparison of comorbidity

rates between control and clinical samples. The above two studies' outstanding strengths

are their large sample sizes, leading to good generalizability of findings. Both studies also

provided information on the associated psychiatric co-morbidity in the general population, although not all individuals with eating pathology present for eating disorders treatment.

In a narrower look at prevalence and correlates of eating disorders in individuals who engage in treatment, compared to the nationally representative samples outlined above, Blinder, Cumella, and Sanathara (2006) studied women with diagnoses of either full or partial anorexia or bulimia engaged in intensive treatment at a residential facility. Participants in this study were 2,436 female, predominantly Caucasian, treatment seeking clients with severe forms eating disorders between 1995 and 2000. Age of eating disorder onset (mean = 15.5) did not differ by eating disorder diagnoses nor did likelihood of having any comorbid depression or anxiety disorder for this sample.

High rates of comorbid mental health diagnoses were found for clients entering this residential program (Blinder et al., 2006). Analyses found that 97% of this entire client sample had one or more comorbid DSM-IV-TR Axis I disorders, the most common of which was a unipolar mood disorder diagnosis (92%). Anxiety disorders were present in 56% of the sample, and substance use diagnoses were found in 22%. Comorbid diagnoses that significantly differed based on eating disorder diagnoses were substance use disorders, obsessive-compulsive disorder (OCD), post-traumatic stress disorder (PTSD), and schizophrenia or other psychotic disorders (PSY). Alcohol and polysubstance abuse/dependence were respectively twice and thrice as likely in clients with BN. Obsessive-compulsive disorder was twice as likely in clients with both restricting and binge type AN, PTSD was twice as likely in clients with binge type AN,

and PSY disorders were three times as likely in restricting AN clients and twice as likely in binge type AN clients as compared to the other eating disorder diagnoses (Blinder et al., 2006). Strengths of this study were the large sample size and the consistent assessment of a wide range of comorbid diagnoses. Limitations include the external validity of the results, as this sample represented a subset of clients seeking intensive treatment for severe forms of eating disorders, which is likely a more homogeneous sample than one of community treatment starters. The sample also did not include clients with BED and excluded gender from analyses. Additionally personality and outside variables were not included in these analyses.

In sum, understanding of clients with eating disorders encompasses the fact that these individuals typically struggle with additional mental health diagnoses such as anxiety, depression and substance use. By comparing co-morbidity rates between community based samples such as those studied by Hudson et al. (2007) versus clients currently in intensive treatment as studied by (Blinder et al., 2006), comorbidity may vary across eating disorder diagnoses, such as substance abuse being more likely in people with diagnoses of BN and PTSD in those with diagnoses of AN, although replication of findings is needed to confirm this. Beyond the complex relationships between eating disorders and other co-morbid mental health diagnoses, a comprehensive picture of functioning for clients who seek eating disorder treatment also reference personality, medical and psychosocial concerns.

Personality Traits

At this time, additional psychological features such as personality characteristics are not included in the DSM-IV-TR criteria for eating disorders (APA, 2000). Yet certain personality traits are commonly associated with eating disorder diagnoses. So much so that some researchers even recommend outlining personality styles within eating disorder diagnoses (Fairburn & Brownell, 2002) in order to inform classification and treatment purposes. But as the diagnostic classification for eating disorders is currently being revised, changes in personality disorder diagnoses are also suggested (APA, 2010). Suggestions for revised personality classification favor a dimensional perspective of personality traits in contrast to the current categorical classification of personality diagnoses. The most recent DSM-5 proposal outlines a "hybrid dimensional-categorical model for personality" classification system (APA, 2000). Therefore the following review of personality pathology in relation to eating disorder presentations does not focus on the co-occurrences of personality disorders defined by the DSM-IV-TR but rather on more broad indications of disturbance in personality traits.

Personality traits indicate an individual's characteristic patterns of behavior, perceptions, thoughts and feelings. These indicators are viewed as problematic when they contribute to significant distress or impairment for the client and/or fall within a range that is specified as abnormal. Research shows that problematic personality traits are commonly associated with eating disorder diagnoses in treatment seeking populations (Cassin & von Ranson, 2005; Lilenfeld, 2006; Perkins, Klump, Iacono, & McGue, 2005; Tasca et al., 2009; Vervaet, 2004; Wonderlich, Lilenfeld, Riso, Engel, & Mitchell, 2005).

Specifically, in terms of dimensional personality traits, negative emotionality (neuroticism), impulsivity, perfectionism and interpersonal dysfunction are commonly found in women with eating disorder diagnoses compared to control women (Brewerton, 2004; Ghaderi, 2010). Furthermore, studies typically find commonalities in personality traits regardless of eating disorder diagnoses (Cassin & von Ranson, 2005; Claes et al., 2006). Therefore, examining personality trait differences between clients who do and do not start treatment would be recommended, as they are thought to be a very important piece of the holistic presentation of clients with eating disorders.

Particularly related to the area of eating disorders, personality assessment becomes complicated with methodological issues. Due to confounding variables such as familial development and childhood abuse, it is unclear whether problematic personality traits cause eating disorders, vice versa, or even a third variable influences the development of both (Fairburn, 2003; Lilenfeld, 2006). Yet the common association of personality disturbances with eating pathology remains an important factor in understanding the complex presentation of eating disorders.

Negative emotionality or neuroticism indicates a tendency toward anxiety, worry, moodiness, depression, oversensitivity and emotionality. This is the personality dimension most frequently found in research to be associated with both the etiology of eating disorders (Stice, 2001) and their presentation (Cassin & von Ranson, 2005). A clinical presentation of a client with eating disorder diagnosis and negative emotionality might be exemplified by extreme concern over shape and weight appearance, ruminative

negative self-referent thinking and experience of powerful emotions that may feel beyond control.

Impulsivity reflects urges toward and performance of a behavior, without using judgment or without reference to long term consequences. Impulsivity is more typically found associated with binge type eating disorders such as bulimia and anorexia nervosa, binge purge type, at increased levels compared to controls (Brewerton, 2004; Ghaderi, 2010). People diagnosed with restrictive type eating disorders alternatively are found to display significantly less impulsive and sensation seeking personality traits than controls or those with binge type eating disorders (Waxman, 2009). People with eating disorders and high impulsivity might be exemplified by those that engage in urge driven behavior including bingeing and purging and potentially related self-injurious behaviors and substance abuse. Plus, these clients likely have difficulty connecting long-term consequences with strong emotional urges to engage in immediate behaviors and, similar to those with negative affectivity, may experience decreased ability to utilize coping skills.

Perfectionism is characterized by a tendency to hold oneself to unrealistic and high standards. Theorists point to two dimensions of perfectionism, adaptive and maladaptive, respectively referring to beneficial high personal standards and detrimental over-concern with mistakes (Cassin & von Ranson, 2005). Upon a review of available research findings of eating disorder and perfectionism, Bardone-Cone et al. (2007) summarize that levels of both types of perfectionism are common among DSM-IV-TR eating disorder diagnoses regardless of diagnosis. A clinical presentation of

perfectionistic tendencies related to eating disorders is exemplified by holding ones' self to unobtainable standards of beauty and thinness, holding one's self to strict rules regarding eating and approaching treatment with rigid standards of behavior and performance.

Growing evidence suggests that eating disorder presentations are correlated with personality disturbances, after controlling for eating disorder diagnosis. Yet, some eating disorder behaviors, shared across diagnoses, are more commonly associated with personality traits. This in turn indicates that a spectrum of personality disturbance may be more appropriate in classifying behaviors and traits associated with eating disorders, particularly with clinical utility in mind. Often, yet not exclusively, eating disorders typified by binge and purge behaviors are correlated with impulsive personalities while restrictive eating disorders are associated with perfectionism (Brewerton, 2004; Ghaderi, 2010).

Some research suggests that people with eating disorders tend to present with three distinctive types of big five personality presentations (Claes et al., 2006; Steiger et al., 2010; Thompson-Brenner & Western, 2005; Westen, 2001; Wonderlich et al., 2005). One of these subgroups is exemplified by no clinical elevations in personality dimensions, the second is typified by high scores in neuroticism and low scores in conscientiousness and agreeableness, and the third group shows high scores in neuroticism and conscientiousness and low scores on openness to experience. A clinical depiction of someone in the first sub-group might be a client with unremarkable interpersonal relationships. With the second personality presentation, labeled "under-

controlled," (Claes et al., 2006) a person might be more likely to exhibit worry and be told they are too emotional or irritable, exhibit careless behaviors such as binge eating and purging behavior, and have interpersonal difficulties. The third sub-group or, "over-controlled" personality presentation is likely typified by concern and worry, emotional sensitivity, perseverance, planfulness, uncreativeness and lack of imagination. These three personality clusters have been found not to match directly with eating disorder diagnosis, indicating that assessing personality dimensions on a continuum as they relate to eating disorder diagnoses is recommended for clearly distinguishing between meaningful differences in treatment presentations.

Importantly, some personality disturbances concurrent with treatment presentation have been associated with poorer treatment outcome in people with eating disorder diagnoses (Anderluh, Tchanturia, Rabe-Hesketh, Collier, & Treasure, 2009; Bloks, Hoek, Callewaert, & van Furth, 2004; Brewerton, 2004; Ghaderi, 2010; H. Thompson-Brenner et al., 2008). For example, Thompson-Brenner et al. studied 213 clients with AN and BN and reported on follow-up data from five years after baseline assessment. They found that certain personality presentations predicted outcome. Clients with avoidant-insecure personality styles demonstrated poorest treatment outcome. When treatment outcome was controlled for depression and substance abuse, behavioral dysregulation in clients did not show strong associations with outcome. Alternative to other research, Thompson-Brenner et al. found that emotional dysregulation was not associated with negative outcome. Lastly, their results showed that clients with high-functioning personality types showed the best treatment outcome.

Limitations to the research studying personality and eating disorder associations include few longitudinal studies and many cross-sectional designs. Therefore, distinguishing between potential causal and correlational relationships between eating disorders and personality dimensions remains difficult. Additionally, the exclusion of men in much of the research on eating disorders and personality variables precludes the ability to generalize the above noted associations beyond adult female samples. These findings may be explained in various ways. For one, eating disorder diagnoses are given without inclusion of related personality disturbances. As follows, personality pathology is not always addressed within eating disorders treatment planning and course. In fact, some evidenced based treatments (Fairburn, 2008) endorse the unimportance of addressing personality pathology during the treatment of eating disorders. Related to the aims of the current study, it would be important to question whether personality disturbance may differ between non-treatment and treatment starters as this may lead to further evidence supporting the inclusion of dimensional assessment of personality in the diagnosis of eating disorders. It might be assumed that variables such as impulsivity could be related to non-treatment start. For example, clients with high impulsivity likely lack the ability to associate their immediate behavior (i.e. starting treatment) with potential long-term benefits of therapy. Building upon a multiaxial examination of characteristics associated with eating disorders, behavioral, general medical and environmental characteristics are discussed next.

Behavioral Correlates

Self-injurious behaviors can be conceptualized as either psychological or personality factors. Beyond the self-injurious behaviors that are, by definition, related to eating disorders, (i.e. repeated use of inappropriate weight control mechanisms such as vomiting and laxatives, excessive use of exercise, and self-starvation) other dangerous behaviors are associated with eating disorders. Suicide attempts and self-injurious behavior found in clients in treatment with eating disorders are somewhat common and comparable to rates correlated with depression. In one study of outpatient eating disorder clients, inclusive of AN, BN, BED, and EDNOS diagnoses, 21% had attempted suicide at least once and 11% had a history of self-injury without suicide attempts (Stein et al. 2004). In this outpatient study, a significantly higher percentage of clients who demonstrated self-injurious behavior, than those who did not, had eating disorders with binge eating and purging symptoms. From a review of studies (Franko & Keel, 2006) other researchers also found that clients with BN had higher rates of suicide attempts (25-35%) versus rates of attempts among clients with diagnoses of AN (3-20%). Some research shows that eating disorder diagnoses, AN in particular, are associated with higher suicide mortality (Franko & Keel, 2006; Harris & Barraclough, 1997) when compared to other psychiatric illnesses. Although recent and more sophisticated research demonstrated little difference in risk for death related to suicide across eating disorder diagnosis (Crow et al., 2009). Overall, the association of potentially lethal behaviors in some individuals may suggest a distinction between severities of eating disorders. In other words, eating disorders for particular individuals involve significantly more

dangerous behaviors, the presence of which may also reflect co-morbid personality characteristics such as impulsivity. An aim of the current research study is to examine whether such behavior correlates may play a role in predicting treatment start versus non-treatment start.

Medical Complications

Considerable medical complications are related to eating disorders (Grilo & Mitchell, 2010). Associated with one of the current criterion for diagnosis of anorexia nervosa, refusal to maintain body weight, malnutrition plays a role in the psychological and physical effects of the disorder. There is a 10-fold increased mortality risk with AN, with the principle causes of death being suicide and the physical effects of starvation (Hoek, 2006). Common medical signs in clients with AN include emaciation, hypothermia, low heart rate, low blood pressure, constipation, dry skin, and brittle hair. In people with BN, low blood pressure, dry skin, Parotid gland swelling, dental damage and increased heart rate is the most common (Grilo & Mitchell, 2010). Additional sources cite electrolyte imbalances, particularly related to vomiting and/or misuse of diuretics, laxatives or caffeinated and carbonated drinks (Treasure et al., 2010). Many of these associated medical symptoms are reversible, yet eating disorders affects on bone density (Crow, 2005), reproductive health, dental health, and growth retardation can be irreversible in some cases (Treasure et al., 2010). There is some evidence that clients with BED also have increased risk, including medical complications associated with obesity such as hypertension, physical pain, and impairment due to medical problems with physical health (Grilo & Mitchell, 2010). Overall, coordinated medical monitoring is

often appropriately combined with specialized eating disorders therapy. Therefore presence of medical complications in association with the availability of such services may or may not relate to treatment start. Additional psychosocial stressors and histories of environmental stressors are often associated with eating disorders and are also important to consider from a holistic approach to understanding clients with eating disorder diagnoses.

Environmental and Psychosocial Characteristics

Additional factors correlated with eating disorder presentations are situational and relational variables such as history of trauma and family conflict. Research confirms that sexual abuse in particular and other forms of childhood abuse are often associated with eating disorders (Brewerton, 2007; Jacobi et al., 2004). As Brewerton outlined, individuals with bulimic type eating disorders more commonly have histories of trauma, and higher comorbidity of psychological disorders is also associated with trauma histories in this population. Importantly though, there is also evidence that suggests rates of adverse life events in childhood are correlated just as strongly with other psychiatric diagnoses beyond eating disorders.

From a review of literature, Jacobi et al. (2004) summarized that clients with eating disorders report more problems with family functioning than controls. Specifically, clients with eating disorders are more likely to report increased conflict, problems with communication and insecure and anxious attachment problems than control women. Although, from the few longitudinal studies of family conflict and eating disorders, insufficient evidence suggests that family conflict predates onset of eating disorders and

therefore the etiological significance is still unclear (Jacobi et al., 2004). In other words, and similar to the relationship between personality traits and eating disorders, the question remains whether the presence of abuse history and family conflict are causal or independent of the existence of eating pathology. In reference to the current study's aims, it might be assumed that clients with history or concordant problems in familial and interpersonal relationships, in particular sustained abuse, might have difficulty starting treatment which might be related to a damaged sense of trust in relationships.

Without question, eating disorder presentations are complex and multi-factorial. Consideration of the associated outside variables, other psychological disorders, medical complications and personality traits in clients who present for eating disorders treatment is therefore inherent to the specialized treatment of eating disorders. Along with increased incidence of associated concerns (i.e. accumulated co-morbid diagnoses, personality problems, medical concerns and functional impairment) eating disorders are likely to become more disruptive to the lives of affected individuals. Again, it might be reasoned that such complex presentations call for mental health care and in particular specialized eating disorders therapy. In order to promote the receipt of specialized treatment for eating disorders, increased understanding of the characteristics associated with individuals who do not enter treatment is imperative. The following section includes a review of previous research studying characteristics of clients who do not return for treatment after initial evaluation. Lastly, a main hypothesis for the study, based in the literature review is presented.

Who Does Not Start Treatment for Eating Disorders and other Diagnoses?

Some community-based research shows that women with eating disorders who do and those who do not initiate treatment services differ significantly. Yet this body of research is not yet large enough for clear patterns in findings to emerge. The following is a review of three studies that specifically focused on comparing treatment starters and non-treatment starters with eating disorder diagnoses.

Waller (1997) investigated 50 women with bulimic symptoms; eight with a diagnosis of AN, binge/purge type, and 42 with a diagnosis of BN who presented at a community based eating disorder clinic. Clients with diagnoses of restricting type AN and EDNOS were not included in analyses. Seven women (14%) who did not return for treatment after completing initial assessment were compared to fifteen women who dropped out of specialized cognitive behavioral therapy offered by the authors (CBT; Waller, 1997) and to twenty-eight women who did finish CBT treatment. Participants completed a number of measures used to assess eating pathology, other psychological functioning and family functioning. Extent of bulimic eating pathology was measured using The Bulimic Investigatory Test (Henderson & Freeman, 1987), self-esteem was rated based on a section of the Setting Conditions for Anorexia Nervosa Scale (Slade & Dewey, 1986), perceived personal control was measured using a locus of control scale, and dissociative tendencies were assessed with the Dissociative Experiences Scale (Carlson & Putnam, 1993). The Borderline Syndrome Index (Conte, Plutchik, Karasu, & Jerrett, 1980)

was used to gather information on one type of personality disorder and perceived family functioning was assessed using the Family Assessment Device (Epstein, Baldwin, & Bishop, 1983).

Results showed the only measure that women in the non-treatment start and treatment drop-out groups differed on was their perceived level of family affective involvement. Specifically, those who perceived relatively healthy emotional concern among their family members were more likely to be in the non-treatment start group. A strength of this research was the use of standardized assessment measures, while its limitations include the elimination of varying diagnostic groups from statistical analyses and the small sample size, in which males were not represented. Also, it appears that with such a small sample size, the power to detect possible effects of multiple independent variables was diminished.

Burket and Hodgin (1993) studied 72 clients, the majority of whom were self-referred to an eating disorders specialty clinic. The sample consisted of 70 females and two males and included participants with any eating disorders diagnosis. Approximately 15 to 20 minute phone calls were conducted with clients referred within a six month period. Questions asked over the phone were taken from validated measures of body image and eating attitudes and DSM-III (APA, 1980) diagnostic criteria for eating disorders. Variables used for analyses were demographic variable such as height, weight, and age. Eating disorder specific information was duration of eating problem, binging and purging behaviors, previous therapy, physical consequences, depressive symptoms, body image concerns, fear of weight gain, and loss of control over eating. Results of chi-squared analyses showed many similar characteristics between the sub-samples of clients who did or did not

show (28%) to the clinic for treatment. Significant differences between the groups showed the non-treatment start group had increased use of laxatives and less frequently reported their current weight was at or below their ideal weight, which can be used to signify higher body dissatisfaction. These authors interpreted these findings to mean that clients with more severe pathology may be more reluctant to seek treatment (Burket & Hodgin, 1993).

The assessment procedures for this study were not as sophisticated as those used by Waller (1997), likely in part due to the short nature of phone contact with participants. One improvement from the previously reviewed research though was the inclusion of multiple eating disorder diagnoses and males in the sample. Yet due to the sample size it was not possible to compare diagnostic and gender groups in analyses. Also, like Waller, a full multi-axial presentation was not considered, despite the complex nature of eating disorder presentations. Additionally, both studies reviewed so far have focused on client only variables such as personality and eating disorder specific behaviors and symptoms. It is also likely that program or other variables external to clients may influence non-treatment start versus treatment start.

Bell and Newns (2004) measured factors that influence non-treatment start with a larger sample of 125 participants. Participants were diagnosed with either BN or BED and included both males (n = 4) and females (n = 121). The researchers compared participants that engaged in assessment yet did not commence treatment (32%) to those who attended treatment. Independent variables included age, diagnosis, gender, and a situational variable of waiting time. Findings from a univariate comparison show that the only significant factor associated with non-treatment start was on average a longer waiting time for clinic appointments. A logistic regression model further demonstrated

that odds of attendance in therapy fell by 15% per week of waiting time. These authors concluded that clients should begin treatment within four weeks of their initial evaluation and suggested implementing cost-effective abbreviated interventions during clients' waiting time. Bell and Newns' research strengths are the inclusion of programmatic variables in analyses, plus inclusion of male participants. Yet not all diagnoses were included in this study, similarly to Waller's (1997) research, psychometric properties of assessment measures were not presented and again a multiaxial view of eating disorder presentation was not incorporated in analyses.

In sum, the above findings indicate potentially more severe client characteristics, such as higher dissatisfaction with weight and more frequent laxative use are associated with non-treatment start. Non-client specific variables such as more perceived family involvement and wait time also emerged as significantly related to non-treatment start. In terms of methodological limitations, the body of research described above includes inconsistency in the variables studied and related differences in assessments used to measure them. The small sample sizes, especially of the first two studies reviewed, led to potentially less powerful analyses and limited ability to measure the effects of varying gender, demographic and multiaxial diagnostic characteristics within groups. Future replication of findings is needed in this area of limited research in order for reliable patterns to emerge. To broaden the conceptualization of differences between treatment starting (TS) and non-treatment starting (NTS) clients, findings from different mental health fields are reviewed. This is done in hopes of leading to a synthesis of findings and sound hypotheses for the current research study.

Studies that looked at rates of NTS in general community and college counseling centers found that typical rates of attrition average around 16% (Anderson et al., 1987; Lampropoulos et al., 2009; Longo, Lent, & Brown, 1992; Richmond, 1992). Factors that predicted attrition after intake evaluation visits were contradictory in these samples, with some finding that the presenting concern did not differ between NTS and treatment start (TS) populations (Anderson et al., 1987; Longo et al., 1992) while others did (Richmond, 1992). In a sample of 139 university students, Longo, Lent and Brown found that client gender and problem severity were insignificant in predicting dropout after initial evaluation. Richmond found that NTS clients (15%) out of a sample of 624, had greater functional impairment, more suicidal intent and were more likely to have "external" problems such as substance use or domestic violence as their primary complaint compared to those who attended treatment after intake. A limitation of the above research is the lack of overlap in constructs studied when comparing NTS and TS groups. For example only one set of analyses (Richmond, 1992) included ethnicity, and therefore were able to corroborate findings from the broader base of literature on drop-out (Barrett et al., 2008) that show minority status and cultural values also increase likelihood of attrition.

Some eating disorders theorists suggest that eating disorders are similar to substance use disorders due to the overlap in addictive, behavioral and psychological similarities (Giordano, 2005). Therefore a review of NTS findings within the substance use literature follows. Research on clients with substance abuse addiction show rates of NTS averaging around 27% (Coulson, Ng, Geertsema, Dodd, & Berk, 2009; Jackson,

Booth, McGuire, & Salmon, 2006; Ross, Cutler, & Sklar, 1997; Weisner, Mertens, Tam, & Moore, 2001) and conflicting results regarding variables that predict NTS. Ross, Cutler and Sklar (1997) compared intake assessment information in a sample of 414 clients, 106 of which were female, entering treatment for substance abuse. Variables used for analyses included unspecified sociodemographic and substance use information and level of psychiatric symptom (e.g. somatization, obsessive compulsive, depression, anxiety, and hostility) severity, measured by the SCL-90-R. Through comparisons of NTS clients and TS client characteristics, findings showed male NTS clients were significantly more likely to report higher somatization and anxiety at time of intake. No significant differences were found in female clients. The authors concluded that highest general psychological distress "tended to be reported" by NTS clients. Therefore it might be extrapolated that male clients who self-report and therefore perceive greater physical and anxiety concerns are more likely not to follow through with treatment.

Weisner, Mertens, Tam and Moore (2001) studied 1,204 clients admitted to substance abuse treatment. They found 24% of clients did not return for treatment after structured intake interviews and analyzed differences between NTS and TS clients. Variables used for statistical analyses included demographic characteristics, severity of illness, measured with the Addiction Severity Index, substance dependence as assessed by the Diagnostic Interview Schedule for Psychoactive Substance Dependence, and clients ratings of "how important" treatment was to them, if care givers had suggested they enter treatment, and what their goals for treatment were.

Weisner, Mertens, Tam and Moore (2001) found NTS clients were more likely to be younger than 30 years old, male, low income earners or unemployed. NTS clients were also those who had drug dependence (versus alcohol dependence) or lesser severity of alcohol dependence, who reported less previous treatment and were assigned to outpatient versus day programming. In contrast to the findings of Ross et al. (1997), these results suggest that less severe presentations (which might be assumed, based on less severity of alcohol dependence and lower level of recommendation) are associated with NTS. In terms of limitations to this study, outside characteristics were missing from these analyses, which may be confounding. For example, lack of health care coverage for treatment could correlate with lower income or unemployment status, and influence NTS.

At a specialist alcohol clinic, researchers (Jackson et al., 2006) found an NTS rate of 34% out of 419 clients who entered their program. NTS clients were compared to "starters," who completed intake plus one session and "retainers" who attended intake and two or more sessions. At intake, information was collected on demographic variables such as age, employment status, previous receipt of mental health services, history of suicide attempts, choice of treatment made by client, and specific substance use behaviors. Situational variables used for analyses were and support network (rated by the intake assessor), distance between clients' homes and the clinic, referral source, and time between assessment and treatment start.

Similar to those of Weisner et al. (2001), findings from the Jackson et al., (2006) study showed NTS clients were more likely younger and dependent on additional substances beyond alcohol. In contrast and in addition to other research findings, NTS

clients were also more likely to have drunk more units of alcohol daily, waited a longer time between assessment and treatment, lived further from the clinic and lived alone. Strengths of this study are the impressive sample size and examination of both client characteristics and situational variables such as wait time. These authors conclude that NTS clients were "more complex" in comparison to those who started treatment, which is in line with the above findings (Ross et al., 1997) of greater psychological distress associated with NTS.

Coulson et al. (2009) compared clients who missed their first or both their first and second treatment visits with those who returned for at least two visits at a drug and alcohol treatment center. Those who completed intake procedures but did not return for treatment were 32% of the sample of 163 clients. Analyses were run using variables of demographic information, substance use, treatment, psychiatric comorbidity and answers to a questionnaire designed for this study, inclusive of factors such as therapeutic alliance, service satisfaction, confidence in recovery, perceived impact of substance abuse and previous treatment experience.

Findings corroborated previous research findings by showing that NTS clients were more likely to be male, polysubstance users and report less previous treatment. Clients who started treatment (TS) were more likely to have comorbid diagnoses and have received previous mental health treatment. In addition this study found NTS clients were also more likely to live with their parents and have less comorbid diagnoses. The slight yet clinically significant difference in sample inclusion must be noted here. It is likely that including some clients who attended the first treatment visit in the NTS group

for this study caused differences in findings. Importantly, this study contributed to the NTS literature via their collection of clients' reasons for pre-treatment attrition via phone conversations with 80% of their NTS group. The most commonly given response for non-treatment attendance beyond the initial evaluation and/or first visit was extraneous variables (i.e. work commitments, illness, social and logistical issues).

Overall, these results from Coulson et al. (2009) might be considered contradictory to other findings, which suggested NTS clients live alone and have more severe baseline presentations. Yet, their phone interview findings, such that extraneous variables were related to clients return for treatment lends strong support for including a measure of extra-client factors in future NTS analysis. Limitations to their particular study include the lack of validated and structured assessment measures and the mixing of clients who did and did not attend treatment visits.

Strengths from the above reviewed literature include larger sample sizes than those included in NTS studies in eating disorder specific samples. Yet limitations make it difficult to compare the literature on NTS in samples of substance using clients with eating disorders clients. The majority of above reviewed studies did not include rates of other co-morbid mental health diagnoses, personality characteristics or psycho-social problems. Therefore findings are potentially confounded by the omission of variables. For example, the extent to which clients are struggling with additional problems beyond and/or related to their presenting concern, or to which they have insurance coverage for treatment, which likely influence treatment start. In light of these limitations, findings

from substance abuse NTS research suggest that younger age, male gender, and less previous treatment potentially predict non-treatment start.

Since anxiety disorders are often co-morbid with eating disorders, the rates of NTS in two studies of clients with anxiety are also explored. In an anxiety disorder specific treatment center, Issakidis and Andrews (2004) studied 659 clients, 30% of which were NTS after initial assessment interviews. Client and situational factors, collected via unstructured clinical interviews and completion of questionnaires, included primary, co-morbid, and personality disorder diagnoses made according to DSM-IV-TR (APA, 2000) criteria, symptom severity rated on the Depression, Anxiety and Stress Scale, level of phobic avoidance measured with the Fear Questionnaire, demographic variables such as age and presence of dependent children, and a measure of disability/health status assessed using the Medical Outcomes Study Short Form 12 (Ware, Kosinski, & Keller, 1996). Outside characteristics were also included in analyses such as clinicians' profession and experience levels, referral source, waiting time for treatment, proximity to treatment, and referral to group or individual cognitive behavioral therapy for anxiety disorders.

Analyses compared NTS clients with clients who completed structured treatment. Findings showed that diagnosis was a significant predictor of NTS. Primary diagnoses of depression or other disorder instead of panic disorder as well as more severe comorbid depressive symptoms were significantly associated with NTS. Also, clients with at least one child were also more likely to be NTS. Clients who were offered group treatment and those referred by their general practitioners as opposed to mental health professionals

were more likely to fail to commence treatment (Issakidis & Andrews, 2004). This study's strengths lie in the large sample size, the and inclusion of comorbid diagnoses, health status and situational variables beyond client specific factors.

Coles, Turk, Jindra and Heimberg (2004) studied 137 clients seeking treatment specifically for social anxiety. They compared NTS clients (52%) with those who returned for treatment after initial assessment and found no significant differences in symptom severity, comorbid, quality of life or demographic variables. In comparison to Issakidis and Andrews (2004) study, this research involved a much more specific presentation of clients and a smaller sample size. Findings did not confirm evidence from other studies that comorbid diagnoses such as depression and increased symptom severity were significantly associated with NTS.

Overall, it seems that NTS rates average around 30% of presenting clients from studies using samples of clients in college counseling, substance abuse and anxiety disorder treatment clinics. Conflicting findings regarding predictor variables of NTS are likely due to the fact that different variables and assessment measures varied across studies. With consideration of these limitations, some consistent findings seemed to emerge throughout samples of clients with eating disorder specific, general college counseling, substance use and anxiety concerns. Findings that seem to have been replicated were that younger age, increased wait time and less previous treatment predicted NTS. Inconsistent findings were that severity of presenting concern and presence of comorbid diagnoses were related to NTS.

The studies reviewed that make clear distinctions between NTS and TS sub-samples are few in comparison to the broader drop-out literature, calling for further replication of findings. Therefore continued investigation of differences between NTS and TS is important in terms of promoting better use of community resources and the hopeful decrease in chronicity of distressing mental health problems. The following study aims to contribute to the greater understanding of variables associated with treatment start in a manner that is consistent with eating disorder presentations by including client specific diagnostic, personality, medical and psychosocial concerns as well as situational variables in order to assess how treatment providers can better suit the needs of clients who are likely not to return after intake to begin treatment.

Aims and Main Hypothesis

The current research aims to improve upon previous research by including relevant variables, i.e. client characteristics plus situational variables, studied with reliable and valid measures. The current sample size was larger than those available previously, allowing for inclusion of gender variation. Lastly, discussion of the proposed research findings are presented within the framework of tertiary prevention. Further understanding of variables related to treatment engagement is important for the prevention of more serious and chronic forms of eating disorders.

The null hypothesis of this study states that membership in treatment start and non-treatment start groups would not be differentially predicted by client specific or situational variables. Non-treatment start literature reviewed above indicates that characteristics such as younger age, the absence of previous treatment and longer wait

time may predict NTS membership in the current sample. Although not yet included in the reviewed research on NTS, it is the author's assumption, based on eating disorders literature showing that personality disturbances can complicate eating disorders treatment, that particular personality traits such as impulsivity or perfectionism may predict membership in the NTS group. Based on the descriptive characteristics of this study's sample, an additional question, to whom the results of our study can be generalized, is included in the discussion section.

Chapter 3.

Methodology

Participants

Adult female and male clients who entered the clinic treatment pathway within

the years 2008 to 2010, and for whom stored intake records were available, served as

research participants for this study. Every effort was made to obtain consecutive records

for clients entering the clinic between these two years. Copies of intake information were

gathered from archival storage. Also, for those clients who remained in treatment at the

time of data entry, records were requested and obtained from therapists' offices. These

individuals spanned in age from 18 to 78 years old at time of intake and were

predominantly female and Caucasian, consistent with national prevalence rates for eating

disorders (Hudson et al., 2007).

Data Collection

The research database used for analyses included 470 clients' de-identified

records. This total sample size represents approximately 40% of the intake interviews

completed within this three year span. Barriers to using the entire sample for data

analyses included the availability of charts from which data entries were made and the

finding of incomplete psychological testing for approximately 12% of client's records.

Also, files excluded from the analyses were those of clients, who were under the age of

18 at initial intake, which made up on average 8% of intakes per year between 2008 and

2010. Minors were not included in the sample because different intake information and

psychological testing was gathered for younger clients and their families. The resulting

sample used for the current analyses is thought to be representative of all clients entering

the clinic for the following reasons: records were archived in no particular fashion, and

the distribution of client files' entries appears to have been spread in an even fashion

between the three years, as evidenced by the fact that entries were made for assessments

over consecutive month within the three years. Clients who only attended initial

assessment visits were labeled as non-treatment starters (NTS) and those who continued

therapy services after intake as treatment starters (TS).

Initial Evaluation Procedures

Upon initiating therapeutic services at the clinic during the specified years (2008-

2010) clients completed diagnostic testing and structured intake interviews before

entering treatment. Records from this initial assessment phase of treatment were archived

in a secure and confidential manner. These archived records belonging to the clinic were

accessed only by researchers trained in human subject's protection and HIPAA practices.

The database excluded all identifying data and therefore clients from the clinic remained

anonymous. This research was approved by the University of Minnesota's Institutional

Review Board.

General Information about the Specialized Eating Disorders Clinic

The specialized eating disorders clinic in reference is a community-based mental

health clinic that serves clients with eating disorder diagnoses and their loved ones. The

mission of the clinic is to provide individualized and holistic care to each client based in the

philosophy that a personalized approach is the most helpful. Clients entering the clinic are

female, male and transgendered, from pre-adolescence to old age. Routine counseling and

nutrition therapy visits are supplemented with medical, psychiatric, group, family and

intensive programming. Intensive programs involve three to seven hours per day of group treatment including meals, snacks and specialized approaches such as skill-building, psychoeducation for support people, art, yoga and music therapies. Residential care offers 24-hour care and structured support for clients. Currently, over 300 employees work at multiple clinic locations within and outside the Twin Cities region. The different levels of care available at the clinic are labeled: outpatient, intensive outpatient program (IOP), intensive day program (IDP), and residential programming.

During the time period between 2008 and 2010, the intake evaluation procedures at the clinic were completed by doctoral level counseling psychologists or graduate students in counseling psychology. The clinic's initial evaluation interviews consistently lasted for two hours. Typically, the interview hours were separated by one week. Interviewers collected information regarding eating disorder and other mental health concerns as well as assessed developmental, social, and medical information relevant to each client's presentation. At the conclusion of the second interview hour, clients and intake therapists consistently reviewed recommendations and goals based in a synthesis of results of psychological testing, the clinician's judgment and the client's individual requests and needs.

Appendix B displays the template, used by intake therapists when gathering information during initial evaluations. Intake interviews during this time were typically preceded by the completion of psychological testing measures, including the MMPI-2 and EDI-3, although a small percentage of clients' insurance coverage providers' request that testing be completed between the first and second hour appointments. Therefore, it is assumed that clients' experience of the initial evaluation visits is relatively similar from one

person to the next, based on the content that is covered as well as the fact that intake

therapists during these years met regularly to prevent assessor drift.

Outpatient programming includes meetings with any or all of the following, visits

with an individual therapist, registered dietitian, medical doctor, psychiatrist, and/or group

therapist per week. Clients in outpatient services ideally are able to manage and reduce

symptom use through self control or family intervention, are motivated for recovery, do not

display risk factors such as intent to self-harm, show only some impairment to their outside

functioning, and co-occurring conditions can be managed. IOP programming typically

consists of three hours of group programming on three or four days per week. IOP includes

one meal per day, group therapy and supportive services such as skill building and alternative

therapies.

Clients typically involved in IOP need some external structure to help prevent

symptom use, may still lack understanding of illness and confidence in recovery, have

potential history of risk behaviors or medical complications but none at current, and progress

has not been made at just an outpatient level of care. IDP typically includes 7 hours of

programming on five days per week. Clients interact in group settings during meals, snacks,

alternative therapies, and therapeutic process groups during this day program. Clients

appropriate for IDP level of care need a significant degree of external structure to prevent

eating disorder symptoms, have only minimal motivation for change, may be under current

risk, e.g. of self-harm yet they deny plan and intent, may need assistance with moderate

weight restoration or monitoring of other physical complications, co-occurring symptoms

would significantly impact functioning if not at this level of care, and they have limited

outside support available. Lastly, residential programming is 24-7 care encompassing meals

and snacks and individual as well as group therapies, structured coping tool building, life-skills, cooking classes, alternative therapies, development of interpersonal skills within the residential community and constant monitoring depending on need.

Residential programming at the clinic is provided for clients who need around the clock supervision and care in order to limit symptom use. Clients in residential also likely have limited understanding of their eating disorder nor accept responsibility for engaging in recovery, may exhibit self-harm intent yet would not have means, may need substantial weight restoration, their co-occurring illnesses significantly impair recovery, and minimal to no outside support is available to them. All of the above programs also include involvement of outside supports such as family and other care givers in order to reach and strive for broader systemic changes in clients' environments.

Therapists at the clinic range in competencies and therapeutic orientation as they stem from various training modalities. Other staff includes a team of medical doctors, psychiatrists, nurses, dietitians and administrative staff. As is applicable to the current research, intake interviews are performed by a subset of staff therapists. Both licensed doctoral level therapists as well as supervised pre-doctoral and post-doctoral level trainees completed the intake interviewed from which data was pulled for the current study. Intake procedures place particular importance on gathering accurate and current eating disorder diagnosis and co-morbid diagnoses. To this end, two hour evaluation procedures include a thorough verbal history and interpretation of psychological testing results which culminate in treatment goal planning and review of appropriate and recommended levels of care. Lifetime diagnoses were not systematically assessed.

Study Design

The archival method of research was employed in this study. Participants' psychological testing results and demographic information were previously collected and stored by the clinic upon initiation of therapeutic services for eating disorders. Records review was completed for the current study and data entry into a central and secure database ensued. Data gathered from test instruments, self-report forms, intake interviews, and client charts comprise the database.

MMPI-2

The second edition of the Minnesota Multiphasic Personality Inventory (MMPI-2; Butcher & Williams, 2000; Butcher et al., 1989) is a 567 item self-report inventory. It is an objective personality assessment used to measure social, behavioral and emotional functioning and aid in clinical diagnosis and practice. The original MMPI (Hathaway & McKinley, 1940) was developed using empirical item-analysis procedures designed to maximize discrimination between different psychiatric groups. The MMPI-2 revision followed concerns about the original standardization sample, and the length of the first version, as well as some language that was outdated. Multiple reports have shown that the MMPI-2 has sound psychometric properties. Overall, The MMPI-2 is the most widely used test by clinical psychologists (Graham, 2006).

Individual MMPI-2 items are used to generate validity indices and 10 basic clinical scales. The MMPI-2 also produces 27 additional content and supplementary scales, which indicate various features of personality and psychopathology. The validity indices include the assessment of random response style (VRIN) and responses that are

consistently the same or "fixed," i.e. either all-true or all-false, (TRIN). Both VRIN and

TRIN are used to measure content-nonresponsiveness. The validity of responses to test

content include assessment of deliberate presentation of positive characteristics (L), a

deviant and possibility invalidating test taking approach (F), and a defensive approach to

test taking (K).

Raw scores on all of the validity and scale scores are converted to T scores.

Recommended cut off scores for valid interpretations are as follows. For the VRIN and

TRIN scales a T score of 80 or more indicates an invalid profile due to random or fixed

responding, respectively. For the L scale, sometimes referred to as the "Lie" scale, scores

of 80 or greater indicate dishonesty in answering items. A person with a high L score is

likely trying to appear more virtuous and well-adjusted than others and therefore the

profile is deemed invalid. Scores between 65-79 show the client likely denied minor

shortcomings often acknowledged by others and may also reflect a tendency toward non-

acquiescence and therefore the MMPI-2 report should be interpreted cautiously. L scores

between 50-59 are considered valid and interpretable and those below 50 indicate

possible over-reporting of symptoms. Scores of 90 or above on the F scale, sometimes

referred to as the "Infrequency" scale, demonstrate likely invalidity due to possible

attempts to fake bad or malinger, between 79-89 show possible exaggerated problems,

sometimes considered as a "cry for help." Scores lower than 54 indicate potential under-

reporting of psychological problems. Lastly, an elevated K scale, thought of as a measure

of "Defensiveness," scores 70 or above demonstrate a defensive approach to the test,

suggesting an invalid profile. K scale scores of 65-69 show that a client likely minimized

psychological and behavioral difficulties; therefore profile elevations should be interpreted as underestimates. Scores under 40 may demonstrate a plea for help with exaggeration of problems or attempt to present oneself in an unfavorable light (Graham, 2006).

Ten basic clinical scales include Hypochondriasis, Depression, Hysteria, Psychopathic Deviate, Masculinity-Femininity, Paranoia, Psychasthenia, Schizophrenia, Hypomania, and Social Introversion. T scores for the clinical scales of 65 or greater are considered interpretable and significant. Importantly, an MMPI-2 profile is often interpreted in a holistic manner, with consideration of the overall pattern of scores and how significant scale elevations (and depressions) relate to each other (Graham, 2006).

Revisions to the MMPI-2 included the addition of Personality Psychopathology-Five (PSY-5) scales. These were developed as a dimensional indicator representing both normal and abnormal personality (Graham, 2006). The PSY-5 constructs are Aggressiveness, Psychoticism, Disconstraint, Negative Emotionality/Neuroticism, and Introversion/Low Positive Emotionality. These scales reflect personality dimensions that are similar only partially to those of the Five Factor Model (FFM). Authors assert that there is overlap in the two models' measures of Negative Emotionality/Neuroticism and Introversion /Low Positive Emotionality and distinction between the PSY-5 Aggressiveness and FFM Agreeableness constructs, PSY-5 Disconstraint and FFM Conscientiousness constructs, and that the PSY-5 Psychoticism construct is not represented in the FFM (de Raad & Perugini, 2002). The psychometric properties of the PSY-5 scales have been established (Graham, 2006). Overall, they are suggested for use

in measuring underlying personality characteristics. To the author's knowledge, PSY-5 scales have not yet been studied within a population of clients with eating disorders. T scores for the PSY-5 scales are considered interpretable when greater than 65 (Graham, 2006).

Elevated PSY-5 Aggressiveness scores indicate a person who enjoys the dominating others and using aggression to accomplish goals. Elevations might also suggest antisocial behavior associated with history of arrests. High PSY-5 Psychoticism scale scores suggest experiences such as perceptual distortions, low functioning and interpersonal distrust and other problems. Elevated PSY-5 Disconstraint scale scores indicate a respondent who engages in risky behavior such as drug and alcohol use and impulsivity. Low Disconstraint (T scores less than 40) scores represent greater self-control and reduced tendency toward risk taking. People who score high on the PSY-5 Negative Emotionality/Neuroticism scale tend to view their surroundings as threatening, often experience worry, tension and a propensity toward guilt. Low Aggressiveness, Psychoticism, and Negative Emotionality/Neuroticism scores should not be interpreted. Lastly, high PSY-5 Introversion/Low Positive Emotionality scores are obtained by people who are more comfortable engaging in solitary activities, lower achievement orientation and limited ability to experience positive emotions. Low scorers would have a greater capacity for positive emotions and comfort in social situations (de Raad & Perugini, 2002).

EDI-3

The Eating Disorders Inventory (EDI) was first developed to assess the causal and maintenance factors related to eating disorders (Garner, Olmstead, & Polivy, 1983). The EDI is a self-report tool, used to demonstrate which psychological domains and eating disorder dimensions are associated with a given client's presentation. The original version of the EDI has 64 items that are scored into eight subscales of both eating disorder specific and underlying psychological constructs. The EDI-2 revision (Garner, 1991) retains the original eight subscales and added 27 more items and three new subscales. Most recently, the EDI-3 revision (Garner, 2004) retains all of the previous version's 91 items, answered on 6-point rating forced-choice scales and takes approximately 20 minutes to complete. Both USA and international clinical and non-clinical comparison samples were used for scale norming and percentile rank scores, which indicate comparison to typical responses of clinical eating disorders populations.

The EDI-3 generates three validity scales and 12 non-overlapping scale scores. Three of the scale scores address specific eating disorder related constructs (drive for thinness, DT; tendency toward binge eating, B; and body dissatisfaction, BD). The composite eating disorder risk (EDR) score reflects a global measure of eating and weight concerns. The remaining nine psychological scales include low self-esteem (LSE; negative self-evaluation), personal alienation (PA; emotional emptiness and lack of self identity), interpersonal insecurity (II; apprehension in social situations and tendency to withdraw) and interpersonal alienation (IA; lack of trust in and isolation from relationships). Interoceptive deficits (ID) signify confusion recognizing and responding to

emotional states, emotional dysregulation (ED; mood instability, self-destructiveness and possible treatment resistance), perfectionism (P; highest possible standards of self-expectation), asceticism (A; seeking virtue or spiritual ideals through self-discipline or self-restraint), and maturity fears (MF; desire to retreat to the security of childhood). All of these subscales are particularly useful for differentiating levels of severity and measuring treatment outcome in clients with eating disorders (Garner, 2004).

The EDI has been widely used and it's subscales have generally sound psychometric properties (Kashubeck-West, Mintz, & Saunders, 2001). More research has established the reliability and validity of the EDI-2 version (Túry, Güleç, & Kohls, 2010) yet only one study provides evidence for the clinical utility of the EDI-3 revision, beyond evidence provided in the publication manual. Clausen, Rosenvinge, Friborg, and Rokkedal (2011) aimed to establish national Dutch norms for the EDI-3 and re-examine the test's psychometric properties. Participants were 561 identified eating disorder female adult patients with AN, BN or partial AN or BN syndromes and 2000 female adult non clinical controls. Group comparisons revealed that the EDI-3 subscales discriminated significantly and strongly between clinical and non clinical samples, showing discriminative validity. They also found some subscales displayed excellent sensitivity and specificity, with the B (tendency toward binge eating) subscale serving as an excellent predictor of a diagnosis of BN. Limitations to this study include the omission of male clients and those with BED and a broader range of EDNOS diagnoses. With a more comprehensive diagnostic sample, it is possible that their sensitivity findings might be

muted. Overall, this study confirmed the use of the EDI-3 as an assessment tool to screen for eating problems and their underlying psychological factors.

The EDI-2 and EDI-3 are understood to share significant content similarities which allow for comparisons across versions. Studies of cross diagnostic comparisons using the EDI show conflicting findings, yet more recent research shows relatively minimal differences across eating disorder sub-groups when using the EDI-2 (Clausen, Rokkedal, & Rosenvinge, 2009). In contrast to being used as a diagnostic aid, the EDI-3 is best used as a measure of psychological constructs most likely involved in the etiology and maintenance of eating disorder symptoms. Similar to MMPI-2 output, from which preliminary findings seem to indicate that profile elevations tend to remain consistent regardless of diagnostic classification, EDI-3 profiles provide information in line with a more transdiagnostic view of eating disorders and the potential differences between clients. In other words, the underlying psychological constructs measured in both the MMPI-2 and EDI-3 used in the current research allow for a broader conceptualization of factors related to eating disorders beyond simply categorizing behavioral symptomatology.

In addition to MMPI-2 and EDI-3 scores, demographic, diagnostic and historical information from client's charts were included in analyses. These were gender, ethnicity, age, eating disorder and other co-morbid diagnoses, self-reported history of physical and/or sexual abuse, difference between current and ideal height and weight, presence of perceived support, history of suicide attempt, and when applicable, number of sessions attended.

Situational Variables

The other variables used in analyses were wait-time between psychological testing and intake interview, distance between clients' residence and the clinic, and the presence or absence of insurance coverage for services. For the current study, sufficient information was not available regarding wait time between initial evaluation and first treatment appointment for approximately 34% of the sample. Therefore, difference in time between psychological testing and initial interview, which are typically separated into different days, was used as a proxy variable of waiting time. It was assumed that if more therapists had full case loads and limited availability for client appointments, and, therefore, a waiting list existed for treatment start, then it would also be likely that intake appointments might be scheduled further out as well. Miles from clinic were calculated by mapping the distance between client reported home zip codes and the zip code of office in which they were seen. Lastly, amount of insurance coverage for services is intricately tied to the type of treatment (i.e. group versus individual appointments) and the multitude of varying insurance plans available. Additionally, accurate quantification of coverage was not possible based in the archival records available for this study. Therefore, insurance coverage was created into a dichotomous variable (present or absent) for this research.

Study Procedure

Study researchers retrieved from storage, compiled and entered demographic, self-report, treatment specific, testing, and situational data from clients' intake records.

The data entry process lasted approximately eight months. Data analyses were run in the summer of 2011.

Statistical Analyses

Basic descriptive statistics were displayed regarding participants' characteristics such as membership in TS and NTS groups, age, gender, current body mass indices (BMI) and mean psychological scale scores. BMI is a measure of body fat based on a person's height and weight. For analyses, the dependant variable was defined as membership in either the treatment start or non-treatment start groups. A logistic regression model was used to predict group membership based on the following variables, MMPI-2 validity and Psy-5 scales, EDI-3 scores, eating disorder and other multiaxial diagnoses, gender, age, self-reported history of emotional, physical and/or sexual abuse, difference between current and ideal weight, presence of perceived support, wait-time between psychological testing and intake interview, distance between clients' residence and the clinic, and basic insurance information. An overall logistic regression model was run. Upon further examination those variables not significantly predictive of group membership were removed and the subsequent block of predictors comprised the second round of logistic regression analyses. A subsequent regression model included all predictors with backwards elimination. Lastly, the probability of clients starting treatment, conditioned on the significant independent variables of client characteristics and situational variables was estimated using an interactive model.

Chapter 4.

Results

The following presentation of results begins with descriptive information for the

sample. The second section reports statistical analyses and outcomes. Lastly, probability

modeling results are presented and include examples from using the model.

Descriptive Statistics

Data for 462 adult clients consecutively assessed between 2008 and 2010 were

included in analyses. Females constituted 93.1% (n=432) of the sample and 6.9% (n=32)

identified as males. Mean age of participants was 33.5 years old, ranging from 18 to 78

years old. Half of the participants were 31 years old or younger. Relationship status was

provided by 456 of the 462 clients. Clients identified as single (46.5%), married (24.8%),

in a significant relationship (15.4%), divorced (8.1%), separated (3.9%), partnered

(0.4%), or widowed (0.9%). Self-reported occupation information was missing for 56

(12.0 %) of the total sample and therefore not included in this report.

The dependent variable used in this study was a dichotomous variable of

treatment category. Non-treatment starting (NTS; n = 113) clients were defined as those

who attended psychological testing and/or intake interview without any subsequent

treatment visits at the clinic. Treatment Starting (TS; n = 349) clients were individuals

who completed intake procedures and went on to attend anywhere from 1 to 372 visits

(visits shown in Figure A). Clients were considered to be in the TS category if they

attended any treatment from clinic providers, such as individual therapists, dietitians,

psychiatrists, medical personnel and/or intensive programming. A minimum of six

months separated client intake procedures and records review, to ensure that clients in the

NTS category were those who did not return for services within a reasonable amount of time. A graphical representation of number of treatment visits attended is shown in Figure A. Related to the specific focus of this thesis, Figure A displays the probability that a client failed to return for any treatment visits (i.e..00 visits) following initial evaluation (NTS) was .25 (113/462).

Figure A. Number of Treatment Visits Made by Percentages of Sample Participants
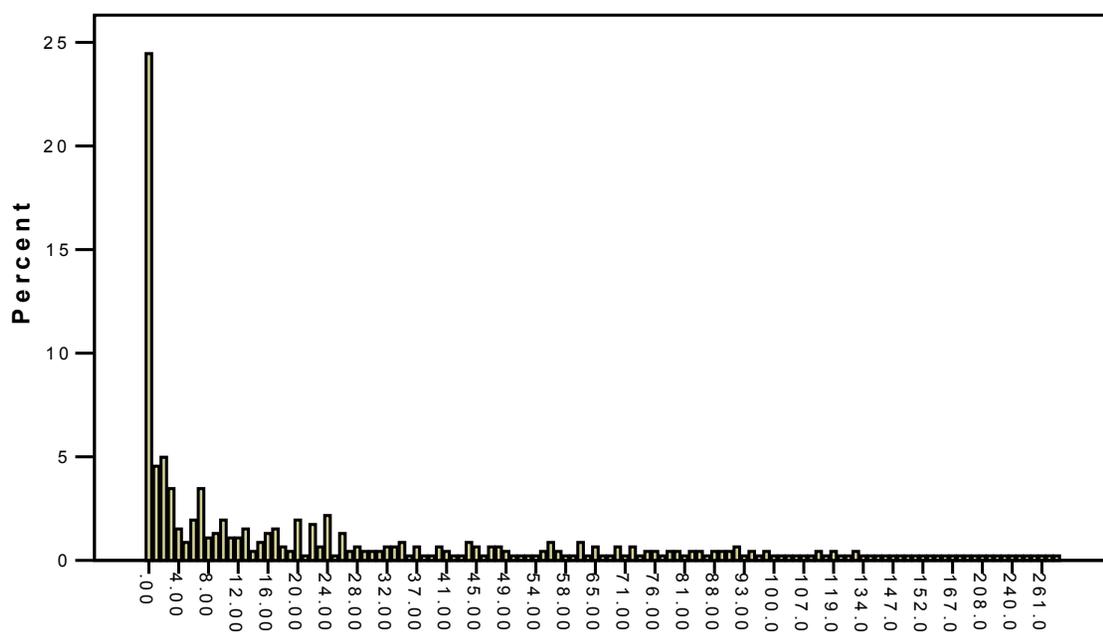

Table 1. displays diagnostic frequency information according to treatment group membership: NTS versus TS individuals. Clients diagnosed with AN did not start treatment at a rate of 12.5% and clients diagnosed with EDNOS and BN did not start treatment at rates of 25.3 and 21.7% respectively. Table 1. displays counts and percentages of total sample for intake diagnoses.

Mean body mass index (BMI) for the total sample was 30.5, ranging from 12.4 to 88.9. Mean BMI for the NTS group was 31 (SD=11.7) and mean BMI for the TS group was 30 (SD=12.5). Table 2 provides more specific information on BMI category according to primary diagnosis and treatment group membership. Percentages of the total sample are given per category. As indicated in Table 2, many clients diagnosed with EDNOS and some clients

Table 1. Descriptive information for Diagnostic Independent Variables
(Count and Total (Tot) Sample Percentages)

	NTS		TS		Total	
Intake Eating Disorder Diagnoses	n	% Tot*	n	% Tot*	n	% Tot*
Anorexia Nervosa (AN)	4	0.9	28	6.2	**32**	**7.0**
Eating Disorder Not Otherwise Specified (EDNOS)	78	17.1	230	50.6	**308**	**67.7**
Bulimia Nervosa (BN)	25	5.5	90	19.8	**115**	**25.3**
Other Intake Diagnoses						
Axis I Disorder (other than Eating Disorder)						
absent	47	10.7	106	24.0	**153**	**34.7**
present	45	10.2	243	55.1	**288**	**65.3**
Anxiety Disorder Diagnosis						
absent	70	15.9	222	50.3	**292**	**66.2**
present	22	5.0	127	28.8	**149**	**33.8**
Mood Disorder Diagnosis						
absent	69	15.6	177	40.1	**246**	**55.8**
present	23	5.2	172	39.0	**195**	**44.2**
Axis III (General Medical Condition)						
absent	49	11.1	171	38.8	**220**	**49.9**
present	43	9.8	178	40.4	**221**	**50.1**

* "% Tot" entries are based on the total sample size for table variables (which range between n=441 and n=455)

diagnosed with BN were classified as obese. Clients with AN diagnoses were classified

as underweight or normal weighted. Figure B. demonstrates the percentages of clients

within treatment groups (NTS vs. TS) that fall in differing BMI categories. Figure B

shows that slightly higher percentages of clients in the NTS group were classified as

having normal, obese Class I and Obese Class III BMIs and that the greatest discrepancy

between groups was present for the overweight category, with a higher percentage of TS

clients falling within this BMI range.

Table 2 - Diagnostic and BMI Category Information per Treatment Group and Total Sample Counts and Percentages for BMI Categories

		Non-Treatment Starters (NTS)					Treatment Starters (TS)				
		Primary Eating Disorder Diagnoses			NTS (n=106)		Primary Eating Disorder Diagnoses			TS (n=346)	
		AN	EDNOS	BN			AN	EDNOS	BN		
		n	n	n	n	% Tot*	n	n	n	n	% Tot*
BMI Category	Severely underweight < 16.0						5	3		**8**	**1.8**
	Underweight 16.0 to 18.5	3	2	4	**9**	**2.0**	22	7	1	**30**	**6.6**
	Normal 18.5 to 25	1	27	12	**40**	**8.8**	1	66	53	**120**	**26.5**
	Overweight 25 to 30		4	5	**9**	**2.0**		25	22	**47**	**10.4**
	Obese Class I 30 to 35		10	2	**12**	**2.7**		27	4	**31**	**6.9**
	Obese Class II 35 to 40		9		**9**	**2.0**		25	4	**29**	**6.4**
	Obese Class III > 40		25	2	**27**	**6.0**		77	4	**81**	**17.9**

* "% Tot" entries are based on the total sample size for table variables (n=452)

Figure B. Percentages within NTS/TS Groups of Clients' BMI Categories
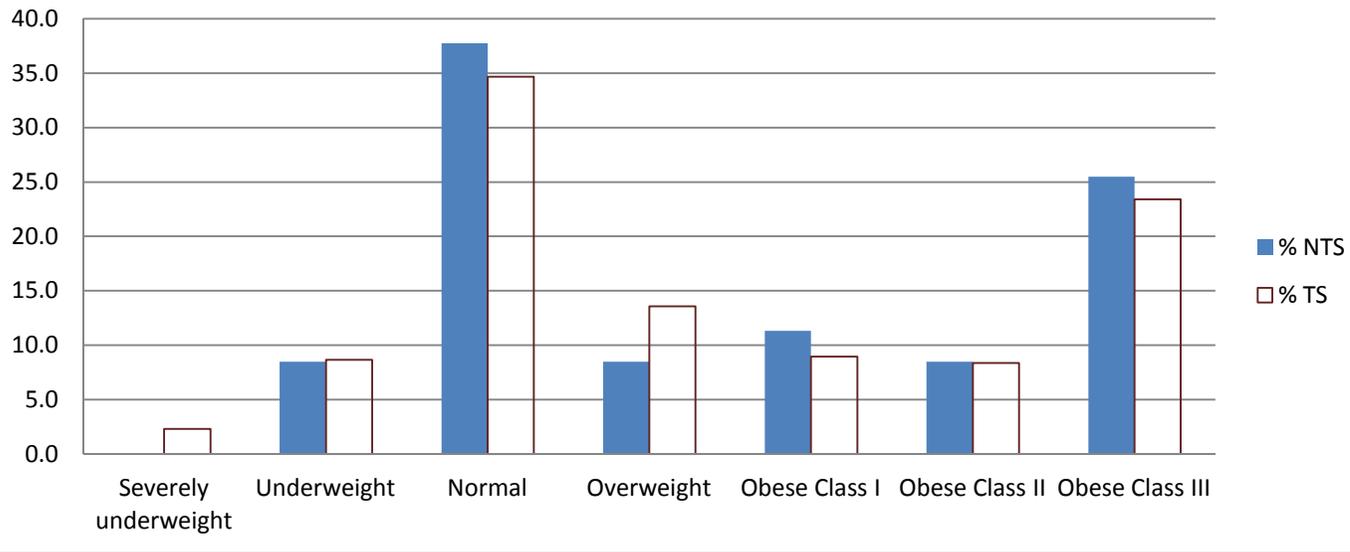
Additional descriptive information about the independent variables is provided in Tables 3 through 6. Table 3 displays the count and total sample percentages in each category of dichotomous independent variables and for age and also shows the means and standard deviations for other continuous variables including distance from clinic, wait time between testing and intake, and discrepancy between client's actual weight and their rated "ideal" weight. Tables 4, 5 and 6 show mean scores and standard deviations for EDI-3 testing subscales, MMPI-2 validity scales and MMPI-2 PSY-5 scales used in analyses, respectively. In theses tables, means, standard deviations, counts and overall percentages are given for the two treatment groups and the total sample.

Table 3. Descriptive Information for Independent Variables
(Count and Total (Tot) Sample Percentages)

Demographic Information	NTS		TS		Total	
	n	% Tot*	n	% Tot*	n	% Tot*
Age (categorical for display)						
18 to 24	32	6.9	103	22.3	135	29.3
25 to 34	33	7.2	114	24.7	147	31.9
35 to 50	37	8.0	85	18.4	122	26.5
51 to 60	11	2.4	36	7.8	47	10.2
61+			10	2.2	10	2.2
Gender						
male	10	2.2	22	4.8	32	6.9
female	103	22.3	327	70.8	430	93.1
Past Counseling						
no	18	3.9	50	10.8	68	14.7
yes	95	20.6	299	64.7	394	85.3
Perceived Support						
no	20	4.5	64	14.3	84	18.8
yes	86	19.2	278	62.1	364	81.3
History of Physical Abuse						
no	66	14.9	245	55.2	311	70.0
yes	44	9.9	89	20.0	133	30.0
History of Sexual Abuse						
no	68	15.5	226	51.6	294	67.1
yes	39	8.9	105	24.0	144	32.9
History of Suicide Attempt						
no	80	17.7	267	58.9	347	76.6
yes	31	6.8	75	16.6	106	23.4
Insurance Coverage						
Self-pay	4	0.9	10	2.2	14	3.0
Insurance	109	23.6	339	73.4	448	97.0

Other Descriptive Information	Mean	SD	Mean	SD	Mean	SD
Difference Between Current and Ideal Wt.	56.2	57.9	47.8	59.5	49.7	59.2
Miles Between Clinic and Home Address	16.5	19.1	74.0	249.9	61.2	221.6
Wait Time Between Psychological Testing and Initial Interview (in days)	16.9	17.9	14.5	21.1	15.1	20.4

* "% Tot" entries are based on the total sample size for table variables (which range between n=438 and n=462)

Table 4. Descriptive information for EDI-3 Psychological Testing Independent Variables

EDI-3 Subscales	NTS		TS		**Total Sample**	
	Mean	SD	Mean	SD	**Mean**	**SD**
Drive for Thinness *(score range: 12-62)*	44.2	11.2	46.3	10.5	**45.8**	**10.7**
Bulimia *(score range: 22-100)*	53.8	10.9	55.6	10.8	**55.2**	**10.8**
Body Dissatisfaction *(score range: 17-65)*	49.4	9.4	49.4	9.3	**49.4**	**9.3**
Eating Disorder Risk Composite *(score range: 7-82)*	48.3	11.3	50.0	10.4	**49.6**	**10.7**
Low Self-Esteem *(score range: 28-68)*	45.5	11.0	46.1	10.0	**46.1**	**10.2**
Personal Alienation *(score range: 28-73)*	45.1	10.7	45.7	10.0	**45.6**	**10.2**
Interpersonal Insecurity *(score range: 31-77)*	45.2	10.4	46.4	9.3	**46.1**	**9.6**
Interpersonal Alienation *(score range: 31-83)*	48.0	10.7	47.5	10.0	**47.6**	**10.2**
Interoceptive Deficits *(score range: 29-73)*	43.8	10.7	44.2	9.7	**44.1**	**10.0**
Emotional Dysregulation *(score range: 36-92)*	48.7	10.7	47.1	9.3	**47.5**	**9.6**
Perfectionism *(score range: 27-67)*	45.9	9.5	46.9	9.8	**46.7**	**9.7**
Asceticism *(score range: 28-77)*	43.0	9.6	44.6	9.0	**44.2**	**9.1**
Maturity Fears *(score range: 34-81)*	47.7	9.9	46.8	9.1	**47.0**	**9.3**

Table 5. Mean MMPI-2 Validity Scores and Standard Deviations by Treatment Group

	NTS		TS		Total	
	Mean	SD	Mean	SD	**Mean**	**SD**
VRIN (random response) *(score range: 30-120)*	53.1	11.1	54.0	11.1	**53.8**	**11.0**
TRIN (fixed response) *(score range: 50-120)*	57.9	7.5	58.1	8.5	**58.1**	**8.3**
F (Infrequency) *(score range: 36-120)*	70.0	21.3	65.6	18.5	**66.8**	**19.2**
L (Lie) *(score range: 33-105)*	52.4	11.0	49.7	9.9	**50.5**	**10.4**
K (Defensiveness) *(score range: 30-83)*	48.9	10.2	47.9	10.2	**48.1**	**10.1**

Table 6. Mean MMPI-2 PSY-5 Scores and Standard Deviations by Treatment Group

	NTS		TS		Total	
	Mean	SD	Mean	SD	**Mean**	**SD**
Aggressiveness *(score range: 30-101)*	48.4	10.4	46.0	9.2	**46.5**	**9.6**
Psychoticism *(score range: 35-120)*	55.5	12.6	54.0	12.0	**54.3**	**12.2**
Disconstraint *(score range: 30-109)*	52.7	11.4	49.9	9.6	**50.6**	**10.1**
Negative Emotionality/Neuroticism *(score range: 30-97)*	60.0	13.5	59.7	12.2	**59.7**	**12.5**
Introversion/Low Positive Emotionality *(score range: 30-109)*	60.1	16.1	60.2	14.1	**60.1**	**14.6**

Inferential Statistics

Some data entries had missing values. Out of the 43 independent variables used in analyses, six variables were missing more than 10 entries. The highest percentage of missing values per variable was 5% (for self-reported history of sexual abuse) although the average percentage of missing values was 1%. In total, 274 observations were missing, representing 1% of all of the data used for analyses. A preliminary logistic

regression led to the omission of 100 participants due to the listwise deletion of 100

entries containing some missing variables. This loss of 22% of all data resulted in non-

significant findings. This reduced sample size, due to the listwise deletion of a high

percentage of clients, as well as the possibility of ineffective variable contributors, led to

the probable conclusion that too little power was available to detect true differences. In

an effort not to lose such a large percentage of participants due to such a small

percentage of missing observations, an Expectation Maximization Algorithm (E-M;

(Dempster, Laird, & Rubin, 1977) method was applied to the original dataset. The E-M

Algorithm method is used to estimate missing data using available completed entries.

The E-M Algorithm method resulted in the imputation of all missing values and

subsequent analyses were run using the imputed values of 462 subjects.

A logistic regression was performed using the dichotomous treatment category

variable as the dependent variable. Appendix D displays a list of the dependent and

independent variables used for analyses. Self-reported independent variables were age,

gender, perceived support, history of sexual abuse, history of physical abuse, and history

of suicide attempts. For the current analyses, researchers calculated the following

independent variables; body mass index (BMI), the difference between the client's

current weight and reported "ideal" weight, miles between clients' reported residence

and treatment office, and wait time between intake, psychological testing and interview

visits. Insurance coverage for services (dichotomous, yes or no) was recorded from

client charts and used as one of the situational versus client specific independent

variables. Psychological test scores used as independent variables included all EDI-3

subscales (drive for thinness, bulimia, body dissatisfaction, low self-esteem, personal

alienation, interpersonal insecurity, interpersonal alienation, interoceptive deficits, emotional dysregulation, perfectionism, asceticism, maturity fears) and one EDI-3 composite score (eating disorder risk), which are shown in Table 4. The following MMPI-2 validity and PSY-5 scales were used as independent variables: VRIN (random response), TRIN (fixed response), F (Infrequency), L (Lie), K (Defensiveness), overall validity of client's profile, and PSY-5 scales: Aggressiveness, Psychoticism, Disconstraint, Negative Emotionality/Neuroticism, and Introversion/Low Positive Emotionality, displayed in Table 6. Lastly, diagnoses given by intake therapists at initial evaluation were transformed into dummy variables and included as independent variables. These included eating disorder diagnoses (AN, BN, EDNOS) and dichotomous entries for the following, presence of Axis I diagnosis(es) beyond eating disorder, presence of mood diagnosis, presence of anxiety diagnosis, presence of general medical condition(s) (Axis III), and presence of psychosocial and environmental (Axis IV) problem(s), as seen in Table 1. This analysis resulted in a significantly predicted difference between NTS and TS groups ($\chi^2 = 93.7$, p = 1.25E-5 with $df = 43$).

Variables were then entered using a backward likelihood ratio method, using a p-value of ≤ 0.05 criterion for both entry and removal. This resulted in retention of the same 10 selected predictor variables. In order to rule out the possibility that findings were a result of the E-M algorithm additions, the 10 selected variables were run using the original dataset with listwise deletions and the same 10 variables remained selected despite the fact that 22% of the sample was missing. Subsequent running of the E-M algorithm and backward entry logistic regression also produced the same 10 selected variables, which led to a reasonable conclusion that the original finding of non-

significance was due to problems of low power after the listwise deletion of participant

entries.

The overall omnibus logistic regression was significant for the 10 selected

variables (χ^2 = 73.9, p = 7.79E-12 with df = 10). The following variables representing

client characteristics were selected for the model: difference between current and ideal

weight (χ^2 = 3.95, p = 0.0468 df = 1), EDI-3 eating disorder risk (χ^2 = 6.06, p = 0.0138 df

= 1), EDI-3 emotional dysregulation (χ^2 = 5.92, p = 0.0150 with df = 1), MMPI-2 lie (χ^2

= 6.42, p = 0.0113 with df = 1), PSY-5 disconstraint (χ^2 = 5.15, p = 0.0232 df = 1), BMI

(χ^2 = 3.78, p = 0.0519 df = 1), Axis IV problems (χ^2 = 13.54, p = 0.0002 df = 1), mood

disorder (χ^2 = 7.80, p = 0.0052 df = 1), and anorexia nervosa diagnosis (χ^2 = 3.71, p =

0.0541 df = 1). One situational variable was selected, miles between clinic and home

address (χ^2 = 2.40, p = 0.1212, df = 1). Even though the weight in the model was not

statistically significant for miles away, investigation showed that the amount of variance

explained by the model was significantly reduced when the variable was removed.

Results from the final logistic regression analyses are presented in Table 7.

Table 7. Final Logistic Regression Model for predicting NTS/TS Group
Membership

	Weights (B)	χ^2	df	p-value
Weight Difference (current - ideal)	-0.01	3.95	1.00	0.0468
EDI-3 Eating Disorder Risk	0.03	6.06	1.00	0.0138
EDI-3 Emotional Dysregulation	-0.03	5.92	1.00	0.0150
MMPI-2 L (Lie)	-0.03	6.42	1.00	0.0113
PSY-5 Disconstraint	-0.03	5.15	1.00	0.0232
BMI	0.06	3.78	1.00	0.0519
Axis IV	1.18	13.54	1.00	0.0002
Miles away (clinic - home)	0.00	2.40	1.00	0.1212
Mood Disorder Diagnosis	0.77	7.80	1.00	0.0052
Anorexia Nervosa Diagnosis	1.14	3.71	1.00	0.0541

Given these selected 10 variables, subsequent analysis was conducted to determine which direction and what magnitudes of difference in NTS probability resulted from the manipulation of various levels of variables. To indicate range in values for the majority of the current sample, Table 8 presents the means and standard deviations for the selected quantitative variables. The modal responses of selected dichotomous (*Yes/No*) variables, which could only be changed between binary values, were also displayed in Table 8.

Table 8. Standard Deviation Spreads for Selected Quantitative Variables and Modal Responses for Selected Dichotomous Variables

	- 2SD	- 1SD	**Mean**	*SD*	+1SD	+2SD
Weight Difference (current - ideal)	-68	-9	**50**	*59*	109	167
EDI-3 ED Risk (lower threshold: ≤45, upper threshold: ≥57)	28	†39	**50**	*11*	*60	*71
EDI-3 Emotional Dysregulation (lower threshold: ≤41, upper threshold: ≥53)	28	†38	**48**	*10*	*57	*67
MMPI-2 L (Lie) (lower threshold: ≤50, upper threshold: ≥65)	30	40	**50**	*10*	61	*71
PSY-5, Disconstraint (lower threshold: ≤40, upper threshold: ≥65)	†30	41	**51**	*10*	61	*71
BMI	6	18	**31**	*12*	43	55
Miles Away from Clinic	-367	-155	**58**	*213*	271	483
			Modal Responses			
Axis IV Diagnosis			**yes**			
Mood Diagnosis			**no**			
AN Diagnosis			**no**			

Note: grayed values are outside of range
* values exceed *elevated* thresholds for interpretation per psychological test interpretation guidelines
† values exceed *lower* thresholds for interpretation per psychological test interpretation guidelines

Unconditional and Conditional Probabilities of NTS

The unconditional probability that clients from this sample would not return for treatment services following initial evaluation was 0.25. A range of conditional probabilities were computed using an interactive model. Confidence intervals for conditional probabilities were derived using the endpoint transformation method. For both the continuous (difference between current and ideal weight, EDI-3 Eating Disorder Risk, EDI-3 Emotional Dysregulation, MMPI-2 Lie, PSY-5 Disconstraint, BMI, and miles between clinic and home) and the categorical variables (presence of mood disorder, anorexia nervosa, and Axis IV diagnoses) the lowest and highest conditional probabilities for NTS were found while either a median or modal response for the remaining independent variables was kept (shown in Tables 9a and 9b). Values set to two and three standard deviations from the mean, when possible, created higher conditional NTS probabilities and are displayed.

As is demonstrated in Table 9a., differences existed in the spread of upper and lower probabilities between quantitative variables. For weight difference the discrepancy reached 0.61 spread between probabilities. For the remaining variables the difference was around 0.30. Similarly, as displayed in Table 9b., changes between presence and absence of Axis IV diagnoses produced a spread of 0.26 in NTS probability, while the other diagnoses higher and lower limits differed by approximately 0.10. Additionally, with the greater differences, higher NTS probabilities for these particular variables were present. It should be noted that confidence intervals were overlapping for some of the higher conditional probabilities and therefore caution in interpreting the significance of potentially small differences is warranted. In particular, overlap in confidence intervals

were present in most instances with all variable values set to three standard deviations

from the mean.

Table 9a. Lower and Higher Conditional Probabilities for Selected Independent Variables Predictive of NTS/TS Group Membership (with Median Responses Set for Remaining Variables)

	Median Scores	Value	Conditional Probabilities Lower	2 SD Value	Conditional Probabilities Higher	3 SD Value	Conditional Probabilities Higher
			Upper 95% CI Limit / Lower 95% CI Limit		Upper 95% CI Limit / Lower 95% CI Limit		Upper 95% CI Limit / Lower 95% CI Limit
Weight Difference (current - ideal)	24.0	0	0.26 **0.17** 0.10	167	0.91 **0.63** 0.22*	226	0.98 **0.78** 0.23*
EDI-3 Eating Disorder Risk	51.5	82	0.22 **0.11** 0.05	28	0.48 **0.35** 0.23	17	0.61 **0.42** .25*
EDI-3 Emotional Dysregulation	46.0	36	0.25 **0.16** 0.11	66	0.49 **0.34** 0.22	77	0.63 **0.42** .24*
MMPI-2 L (Lie)	47.0	33	0.24 **0.15** 0.09	71	0.51 **0.36** .24*	82	0.64 **0.45** .26*
PSY-5 Disconstraint	49.0	30	0.24 **0.14** 0.07	71	0.49 **0.34** 0.22	81	0.61 **0.41** 0.23*
BMI**	25.8	44	0.24 **0.08** 0.03	24	0.32 **0.24** 0.17	16	0.50 **0.33** 0.20
Miles Away	13.0	680	0.36 **0.01** 0.00	0	0.29 **0.22** 0.15	0	0.29 **0.22** 0.16

* Confidence Intervals overlapped, indicating caution when interpreting significance of differences
** Values for BMI were not moved two and three SD away from the mean due to the fact that his produced extreme values for BMI (e.g. 11) which were included as parameters in the probability model, but not reflective of BMI of clients from the sample.

The conditional probability of NTS, when quantitative variables were uniformly set to their median values and dichotomous variables were set to their modal response, was 0.21 (95% confidence interval: $0.15 < p < 0.29$). Referencing Tables 9a. and 9b., the higher NTS probabilities such as 0.47 for absence of Axis IV Diagnosis and in particular 0.78 for weight difference (discrepancy between current and ideal weight) demonstrate noteworthy differences from the 0.21 conditional probability of NTS for what might be considered the typical client undergoing initial evaluation.

Table 9b. Lower and Higher Conditional Probabilities for Selected Independent Variables Predictive of NTS/TS Group Membership (with Modal Responses Set for Remaining Variables)

	Modal Responses	Value	Conditional Probabilities	Value	Conditional Probabilities
			Upper 95% CI Limit		Upper 95% CI Limit
			Lower Lower 95% CI Limit		**Higher** Lower 95% CI Limit
Axis IV Problems	yes	yes	0.29 **0.21** 0.15	no	0.61 **0.47** .33*
Mood Disorder Diagnosis	no	yes	0.17 **0.11** 0.07	no	0.29 **0.21** 0.15
Anorexia Nervosa Diagnosis	no	yes	0.23 **0.08** 0.03	no	0.29 **0.21** 0.15

* Confidence Intervals overlapped, indicating caution when interpreting significance of differences

An exponential number of further combinations of variable levels were possible. According to the stated aims of the current study, an exploration of variations in the 10

selected variables was geared toward finding higher probability of NTS. Overall, high probability of NTS resulted from moving some client and situational variable values higher, some lower and according to different binary choices. These were: higher weight difference (discrepancy between clients' current and ideal weights), lower EDI-3 eating disorder risk, higher EDI-3 emotional dysregulation, higher MMPI-3 L validity, higher PSY-5 disconstraint, lower BMI, and fewer miles between clients' home address and the clinic caused NTS probabilities to become larger. For the dichotomous diagnostic variables, absence of Axis IV problems, absence of mood disorder diagnosis and absence of AN diagnosis led to greater NTS probability.

For the following report, the higher conditional NTS probabilities were found by modifying values of the 10 selected independent variables according to changes in standard deviations and between dichotomous choices. For reference, values for the selected quantitative variables were also modified one and two standard deviations toward lower probability of NTS. These resulted in 1.20E-3 (95% confidence interval: $0.00 < p \leq 0.02$) and 5.49E-5 (95% confidence interval: $0.00 < p \leq 0.004$) probabilities of NTS, respectively. In contrast, when values for the quantitative independent variables were modified one standard deviation from their means and dichotomous variables were set in the indicated direction, *No*, probability of NTS was .95 (95% confidence interval: $0.78 \leq p \leq 0.99$). Quantitative values raised and lowered by two standard deviations and again the dichotomous variables set to *No* resulted in 0.996 probability of NTS (95% confidence interval: $0.92 \leq p < 1.00$). These uniform combinations of raised and lowered standard deviations as well as switching of binary choices showed great distinction

between high and low probability of NTS but did not show differences in probabilities that were greater than .05.

Greater distinction between probabilities of NTS were found by setting all variables to one and two standard deviations from the mean while keeping dichotomous choices set to *No* and then modifying individual variable values further when possible. For example, from a baseline of variables set to one standard deviation and *No* for dichotomous variables (0.95), individual variables were then moved one and two standard deviations in the direction of lower NTS, which resulted in comparable differences between probabilities. Some differences created greater changes in NTS probability than others. These probabilities are shown in Table 10. From these computations, the largest spreads in NTS probability were displayed for the following variables: weight difference (2 SD $\Delta = 0.11$ difference), BMI (1 SD $\Delta = 0.14$ difference), Axis IV diagnosis (Binary $\Delta = 0.09$ difference) and miles away from clinic (1 SD $\Delta = 0.09$ difference). An even larger discrepancy for miles away from clinic (2 SD $\Delta = 0.40$ difference) was produced, but was accompanied by overlapping confidence intervals.

Table 10. Conditional Probabilities for Selected Independent Variables Predictive of NTS
(With Responses Set at change in 1 SD for Remaining Variables: **0.95)****

1 SD toward Higher NTS	95% CI Limit / **Conditional Probabilities** / 95% CI Limit	1 SD Δ Value	1 SD Δ Upper / **Cond Prob** / Lower	2 SD Δ Value	2 SD Δ Upper / **Cond Prob** / Lower	1 SD Δ Value	1 SD Δ Upper / **Cond Prob** / Lower	2 SD Δ Value	2 SD Δ Upper / **Cond Prob** / Lower	1 SD Δ Value	1 SD Δ Upper / **Cond Prob** / Lower	2 SD Δ Value	2 SD Δ Upper / **Cond Prob** / Lower
109	Weight Difference (current - ideal)	50	0.97 / **0.91** / 0.75	-9	0.92 / **0.82** / 0.69								
39	EDI-3 Eating Disorder Risk					50	0.99 / **0.94** / 0.73	60	0.98 / **0.92** / 0.68				
57	EDI-3 Emotional Dysregulation									48	0.99 / **0.94** / 0.73	38	0.98 / **0.92** / 0.66
	.												
	.												
	.												

* Confidence Intervals overlapped, indicating caution when interpreting significance of differences
** With Responses Set at 1 SD Δ NTS probability: 0.95 (95% confidence interval: 0.78 < p < 0.99)

Table 10 Cont'd. Conditional Probabilities for Selected Independent Variables Predictive of NTS (With Responses Set at change in 1 SD for Remaining Variables: 0.95)**

1 SD toward Higher NTS	Conditional Probabilities	1 SD Δ		2 SD Δ		1 SD Δ		2 SD Δ		1 SD Δ		2 SD Δ	
95% CI Limit / Conditional Probabilities / 95% CI Limit		Value	Upper / Cond Prob / Lower	Value	Upper / Cond Prob / Lower	Value	Upper / Cond Prob / Lower	Value	Upper / Cond Prob / Lower	Value	Upper / Cond Prob / Lower	Value	Upper / Cond Prob / Lower
	.												
61	MMPI-2 L (Lie)	50	0.99 / **0.94** / 0.72	40	0.98 / **0.91** / 0.65								
61	PSY-5 Disconstraint					51	0.99 / **0.94** / 0.73	41	0.99 / **0.92** / 0.66				
18	BMI									31	0.96 / **0.90** / 0.76	43	0.90 / **0.81** / 0.67
	.												
	.												

* Confidence Intervals overlapped, indicating caution when interpreting significance of differences

** With Responses Set at 1 SD Δ NTS probability: 0.95 (95% confidence interval: 0.78 < p < 0.99)

Table 10 Cont'd. Conditional Probabilities for Selected Independent Variables Predictive of NTS (With Responses Set at change in 1 SD for Remaining Variables: **0.95**)**

1 SD toward Higher NTS	95% CI Limit / **Conditional Probabilities** / 95% CI Limit	1 SD Δ		2 SD Δ		Binary Δ		Binary Δ		Binary Δ	
		Value	Upper **Cond Prob** Lower	Value	Upper **Cond Prob** Lower	Value	Upper **Cond Prob** Lower	Value	Upper **Cond Prob** Lower	Value	Upper **Cond Prob** Lower
	.										
	.										
0	Miles Away	271	0.98 **0.86** 0.42	483	0.98 **0.55** .03*						
no	Axis IV Diagnosis					yes	0.97 **0.86** 0.55				
no	Mood Disorder Diagnosis							yes	0.60 **0.90** 0.98		
no	AN Diagnosis									yes	0.98 **0.87** 0.49

* Confidence Intervals overlapped, indicating caution when interpreting significance of differences
** With Responses Set at 1 SD Δ NTS probability: 0.95 (95% confidence interval: 0.78 < p < 0.99)

In summary, the probability that a client did not return for treatment between 2008 and 2010 following initial evaluation was 0.25. Clients from this sample were primarily female and had an average BMI of 30.0. Logistic regression analyses showed that both client characteristics and one situational variable differentially predicted non-treatment start from treatment start, confirming the main hypothesis of the study. Probability modeling showed that lower BMI, higher discrepancy between current and ideal weight, short distance to the clinic and fewer psychosocial and environmental stressors seem to make the most notable contributions toward increasing the probability of non-treatment start.

Chapter 5.

Discussion

The present study found that group membership between clients who did not start community based specialized eating disorders treatment and those who did can be differentially predicted. The current findings stand in contrast to previous research that indicated age, less previous treatment and longer wait time predicted non-treatment start. These results instead add to this body of research by providing preliminary evidence that higher weight loss ideal, higher emotional dysregulation, a tendency to try to appear well-adjusted, and greater impulsivity increase the probability of not returning for treatment after intake. Findings also suggest that less severe eating and weight concerns lower BMI, shorter travel distance to clinic, the absence of AN diagnosis, absence of mood diagnosis and absence of Axis IV problems are predictive of non-treatment start. An interactive probability model demonstrated that the following four variables of lower BMI, higher discrepancy between current and ideal weight, short distance to the clinic and fewer psychosocial and environmental stressors seem to make the most notable contributions toward increasing the probability of non-treatment start.

The following discussion is organized in reference to the main hypothesis of the study, proposed in Chapter 2. Contributions to the literature covering non-treatment start (NTS) are presented according to individual variables as well as integration of findings. Strengths and limitations of the current research study are presented. Finally, suggestions for future research and clinical practice are made in relation to findings and theoretical models.

The primary focus of this discussion is on the main results found using an interactive probability model. The clinical utility of this model lies within its potential for direct application to initial evaluation procedures. The model is contained within a basic data document, easily transferable to a computer and therefore has potential for usefulness in real time (i.e. the clinician's office). Beyond this written discussion, use of this model would allow for greater understanding regarding the multiple combinations of variables when they are set at differing values. In other words, individual differences between client and situational characteristics and their combined influence on the probability of NTS could be explored with each new client entering initial evaluation at specialized eating disorders clinics by using this model. Beyond the four main findings demonstrated to cause greater influence on NTS probability according to the predictive model, the other variables included in the interactive model were emotional dysregulation, tendency to try to appear well-adjusted, impulsivity, overall eating and weight concerns and AN and mood diagnoses. Discussion of findings includes reference to study results and their potential implications.

Main Hypothesis

The main goal of this thesis was to determine whether researched variables increased the probability of clients not starting treatment services following initial evaluation procedures. The stated null hypothesis proposed variables representing client and situational characteristics would not predict group membership. Statistical analyses and subsequent probability modeling rejected this null by indicating that some of the variables studied predicted group membership.

Greater Differences between Current Weight and Ideal Weight

This study found that greater difference between current and ideal weight increases the probability of NTS. As follows, due to the direction of this calculation, larger numbers can be taken to signify that greater weight loss is idealized, or in other words, is an ultimate wish. This outcome supports past findings by Burket and Hodgin (1993) who also found that NTS clients less frequently reported their current weight at or below their ideal weight. Other research has not included BMI or weight in analyses to date.

One interpretation of this finding may be that greater weight difference indicates greater body dissatisfaction in NTS clients. Furthermore the distinction between current and ideal weight can be viewed as reflecting a discrepancy in self-concept. This leads to the idea that clients may feel dissonance between whom they are and who they want to be. Discrepancies between actual and ideal self-concepts, in this case regarding weight, have been noted as significantly associated with eating disorders, in particular BN, and furthermore, linked to appearance related concerns (Wonderlich et al., 2008). Therefore the current findings of greater weight difference ideal in NTS might lead to the assumption that greater weight concerns are present in this sub-sample. Importantly, this result can be interpreted in conjunction with the other main findings of this study, such as lower BMI.

Lower BMI

With regard to the finding that lower BMI increased the probability of NTS in this sample, it is important to reference descriptive information for BMI categories assigned to clients. Mean BMI was 31 (SD = 12), which denotes obesity classification,

and range in BMI (12 – 88) indicated great variation in clients' body makeup within the sample. This finding contrasts with Burket and Hodgin's (1993), the only other research on NTS in eating disorders that included a variable related to BMI, which was weight. Burket and Hodgin (1993) did not demonstrate that weight was significantly associated with NTS. Therefore, the current results, showing that lower BMI increases the probability of NTS, is a novel finding in the field of research and warrants further investigation.

One potential explanation for the finding that lower BMI increases probability of NTS is that clients, whose BMI falls within lower classifications, may be less likely to notice that their weight control thoughts and behaviors are causing problems. In other words and based on clinical observation, weight loss is often a primary goal for persons with eating disorders, regardless of their weight or BMI. Clients who do not return for treatment might be less dissatisfied with the product of their weight control behaviors (i.e. a lower BMI) compared to the average person in the sample. Also based on clinical observation, lower BMI status tends to produce a false sense of self acceptance (Giordano, 2005), which is furthermore mediated by cultural thin ideals (Giordano, 2005; Stice, 2001). Taken together, the goal of weight loss and the partial achievement of this goal resulting in lower BMI, likely offers clients with eating disorders a false sense of accomplishment. In fact, when clients might not have a sense of self-efficacy for any other area beyond the manipulation of eating and weight, reinforcement for maintaining unhealthy weight control mechanisms is perpetuated. Hence, one could imagine that the prospect of entering treatment, with the expectation that some behavioral change is required upon treatment start, would be quite daunting.

Another interpretation of the finding that lower BMI increases the probability of NTS is that denial of illness severity and fear of weight gain, two of the diagnostic features of AN, could be involved in increasing NTS probability. Denial in people with AN is often characterized by a lack of agreement with substantial evidence for the medical and psychological complications associated with low weight (Bruch, 1962). Yet only a small proportion of this sample was diagnosed with AN, and a much greater percentage of clients received EDNOS diagnoses. Furthermore, absence of AN diagnosis was retained in the logistic regression as one variable associated with NTS. It is possible therefore that clients with variants of AN (i.e. sub-threshold AN) and other eating disorder diagnoses labeled as EDNOS within the current sample also experience denial of the fact that eating and/or weight problems exist. Additionally, in relation to both findings of lower BMI and higher discrepancy between current and ideal weight, the NTS clients' wish to lose more weight and the potential denial of seriousness of their illness likely creates an interplay leading to minimal motivation for changing eating disorder behaviors. Other variables retained in the logistic regression along with lower BMI might also conjointly increase the probability of NTS. A denial of illness could also be related to the attempt to appear virtuous and well-adjusted, as would be reflective of higher MMPI-2 L validity scores.

Fewer Miles between Clients' Home Address and Treatment Clinic

The interactive probability model used for the current study showed that with closer proximity to specialized eating disorders treatment comes increased probability of NTS. This result is different from previous findings relating distance between clinic and mental health treatment facilities. For example, results from Jackson et al. (2006)

showed that further distance from a specialized alcohol use treatment center predicted NTS. Alternatively, Issakidis and Andrews (2004) studied distance between clinic and client's addresses at a specialized clinic for anxiety disorders, and found that miles between clients' home and clinic were not significantly associated with NTS. In other words, one study supports the idea that distance between clinic and treatment start is positively associated, another does not. And in contrast, a negative association was found in the current study.

One possible explanation for these differences in findings is the varying nature of the sample populations studied, i.e. there could possibly be a factor that mediates the relationship between primary diagnosis (alcohol disorder, anxiety and/or eating disorder) and importance of distance to clinic. Alternatively, it might be assumed that in line with the interpretation above stating that lower BMI and greater weight loss ideals are potentially connected to treatment resistance, closer proximity to treatment might also designate higher probability of NTS in clients who are unlikely to enter initial evaluation committed to the idea of change. In other words, if a client knows that treatment is readily available, literally closer to them, they might be less motivated to seize an opportunity to start treatment following initial evaluation, especially when the may question if there is a problem or not. This may also be related to the current finding that increased impulsivity, as measured by the EDI-3 disconstraint variable, is associated with higher NTS probability. Alternatively, the fact that lesser anonymity is likely associated with lesser distance from clinic may also play a role in determining this particular finding. Shame and guilt surrounding eating disorders are common (Fairburn, 2008). Related to the fact that clients take years to seek treatment after onset of disorder,

anecdotal evidence supports the idea that clients either do not recognize they have a problem and/or do not share information about their eating disordered thoughts, feelings and behaviors with others. Therefore attending a clinic close to home might induce a great shift in clients' experience, due to the increased likelihood that their eating disorder could be "outed."

On the other hand, clients whose home addresses are further away from specialized eating disorder treatment most likely needed to make financial and situational adjustments in order to create the possibility of treatment start. Therefore these individuals might have entered initial evaluation with greater intent on starting treatment to begin with. Such environmental provisions, in connection with the current study's goal to included situational factors beyond simply client characteristics associated with NTS, are considered important.

The Absence of Axis IV Problems (i.e. Psychosocial and Environmental Stressors)

This finding indicates that overall, absence of outside complications, such as with education, housing or support people, increases probability of NTS. The independent variable from the current study labeled *Axis IV Diagnoses* referred to the presence of psychosocial and environmental problems, as diagnosed by the intake interviewer. While this dichotomous rating encompassed the absence or presence of a range of diagnoses recorded including problems with primary support, social environment, education, occupation, housing, economics, health care access, the legal system and other. This rating also might be seen as a broad measure of compounded stress, or severity of illness.

This outcome might be interpreted in a couple ways. First, the lack of Axis IV problems likely indicates less functional stress, and therefore these clients are less likely to be concerned about their current state of affairs. It is possible that with fewer psychosocial and environmental problems, encouragement to start treatment for eating disorders is less likely to come from others. In other words, external concerns such as psychosocial and environmental problems that are observed by others may act as stronger motivators for treatment than internal concerns like psychological distress regarding weight and shape. In turn, if clients with eating disorders outwardly appear to be functioning at comparable levels to others, less external pressure to start specialized treatment is also likely. In other words, fewer Axis IV problems might indicate fewer barriers to maintaining eating disordered behaviors.

The current findings did not confirm previous NTS research findings which suggested younger age, less past treatment and increased wait time in the field of chemical dependency treatment lead to higher NTS probability (Jackson et al., 2006). Differences in findings might be explained by the fact that the current sample included a younger age range, with approximately 60% of the sample under the age of 35 whereas mean age for clients in the Jackson et al. (2006) study was 45. The fact that incidence of eating disorders occur at younger ages compared to other treatment groups is also supported by the DSM-IV-TR (APA, 2000). As follows, younger people would have fewer years with opportunity to seek treatment.

Previous NTS research indicating that lower levels of past treatment were significantly associated with NTS was primarily from the substance use literature (Jackson et al., 2006). Potential differences in age of presenting concern or other

demographic variables might have influenced this discrepancy in results also. Unlike

previous findings, the variable representing longer wait time used in the current study's

analyses was not selected in regression analyses. This difference in findings is likely due

to the fact that studies, including the current one, used different measures of wait time.

Nonetheless, this variable was not selected in statistical analyses, which indicates either

that waiting time was not associated with NTS probability in this sample or that the

variable used was not an accurate measure for purposes of comparison with other

research results. Therefore, differences in sample demographics and variable

measurement again might have influenced lack of support for previous findings.

Also in contrast to previous findings regarding non-treatment starters in the

anxiety, college counseling and substance abuse samples reviewed in Chapter 2, the

current findings do not lend support for the fact that males are less likely to start

treatment for eating disorders. One explanation for this finding is related to the fact that

the current sample included 7.6% males, which is lower than the average reported 10%

of people affected by eating disorders are male and 90% female (APA, 2000). Due to the

smaller likelihood that male clients present with eating disorder concerns, it can be

assumed that fewer specialized treatment opportunities are available for males.

Therefore, male clients entering a specialized eating disorders clinic might perceive less

likelihood that they would be able to receive help in other social contexts and therefore

more likely to accept formal treatment opportunities presented upon intake evaluation.

Although previous NTS research had not shown that personality variables predict

non-treatment start, the current study's findings show that higher MMPI-2 PSY-5

disconstraint scale scores increase the probability of NTS. Elevated levels on the

disconstraint variable represent a personality type associated with impulsivity and tendency to engage in risky behaviors such as alcohol and drug use. Importantly though, the average disconstraint scores of clients in both TS and NTS groups did not reach levels that are interpretable according to the guidelines for interpreting MMPI-2 scale elevations (Graham, 2006). Yet those 2 standard deviations above and below the mean did. Disconstraint as measured by the PSY-5 scale, indicates difficulty making decisions in relation to long-term consequences, which matches the conceptualization of a client who is considering treatment start as indicated by involvement in intake evaluation procedures, yet changes their mind and does not return for treatment.

Demographic results from the current sample show that beyond disconstraint, overall the other PSY-5 scales do not discriminate between NTS and TS treatment categories. Instead it appears that in this sample some traits or lack therefore was common in all clients. More specifically, the lack of difference between mean scores on the other PSY-5 scales indicate general levels of low aggressiveness and perceptual distortion and somewhat elevated levels of negative affect, and introversion across all clients with eating disorders despite treatment start.

Increased emotional dysregulation was also found in this study to increase probability of NTS. This indicates that a tendency toward mood instability, impulsivity, recklessness, anger, and self-destructive behavior such as self-harm and substance abuse, increases likelihood of not starting treatment. These tendencies are already known to be found in clients with eating disorders who are resistant to treatment (Garner, 2004). So this finding makes sense relative to the fact that treatment is likely to

elicit emotional reactions, and for someone who experiences seemingly uncontrollable and extreme moods, their conception of what treatment might entail could be daunting.

Lastly, after exploring the descriptive information for this sample, rates of co-morbid depression and anxiety in the NTS and TS groups gives us an idea of which type of sample the results are genearalizable. Rates of all other comorbid Axis I diagnoses (e.g. substance use) in the current sample were not analyzed due to small numbers of other diagnoses and therefore insufficient power to detect significant differences. Yet it is important to note that, as displayed in Table 1, the descriptive rates of comorbid mood disorders from the current sample fall within the lower ends of previously reported nationally representative rates in people with eating disorders (Hudson et al., 2007). In the present sample, 65% of clients received at least one other Axis I disorder diagnosis in addition to an eating disorder. Mood disorders were diagnosed in 44% and anxiety diagnoses were diagnosed in 34% of the clients. Differences in these findings may be explained by the fact that comparison rates provided by other researchers differed in terms of treatment population and eating disorder diagnosis. For instance rates published by Blinder et al. (2006) were for clients entering residential only treatment and those from Gadalla (2008) were from a nationally representative sample, yet assessment measures did not specifically produce eating disorder diagnoses, just risk for eating disorders. Of note, even if overall rates were lower, the clinical significance of comorbid diagnoses in this sample is supported nonetheless due to the fact that mood disorder diagnosis was selected in logistic regression. Probability modeling indicated that absence mood disorder diagnoses increased likelihood of NTS. Overall, this indicates that the current results are genearalizable to samples of eating disorders clients with

rates of co-morbid mood and anxiety disorders in the lower range of rates published by other studies including a national comorbidity survey (Hudson et al., 2007).

Integration of Findings

As mentioned above, an interesting intersection exists between the findings that lower BMI and a greater discrepancy between current and ideal weight (indicating greater desired weight loss) both increase the probability of NTS. Although the relationship between these results may not make intuitive sense, anecdotal evidence seems to substantiate their connection. One might unknowingly assume that, within range, lower BMI is an indicator of good health, especially within the context of a sample where the mean BMI denotes obese classification. But at a lower BMI, a higher weight difference ideal would likely indicate more pathology. As highlighted in Chapter 2 and according to a multiaxial assessment, a complex set of problems is often found in clients with eating disorders. This in turn indicates that beyond medical concerns (such as a BMI that falls above or below a healthy range) indicate the need for specialized eating disorders treatment. Interestingly, presence of these two findings, lower BMI and higher weight difference ideal, may not indicate to the identified client nor to an outside observer that sufficient distress warrants the start treatment. It also might be interpreted that the current findings of increased MMPI-2 L scores and lower eating disorder risk scores (which fall within their designated thresholds for interpretation) indicate clients who are potentially more inclined to minimize (as opposed to over-report) symptoms. These individuals also may not realize the extent to which eating disorders impact their lives. This in turn is likely to impact their receipt of specialized treatment or not.

Some researchers (Mond, Hay, Rodgers, & Owen, 2006; Mond, 2009; Wilson et al., 2009) have looked closely at peoples' beliefs about eating disorders, which symptoms are more readily recognized as problematic, or even treatable, and how these factors relate to treatment receipt. For instance, Mond et al. (2006) compared young adult women with bulimic eating disorders who endorsed having an eating problem with those who did not. They found that women with vomiting behaviors and higher weight were more likely to recognize a problem than others with different variants of bulimic behaviors. The fact that NTS clients from the current sample might have tried to appear more virtuous and well-adjusted and the findings from Mond et al. (2006) might be explained by the idea that eating disorders by nature are ego-syntonic and treatment resistant. In other words, when a client feels that their eating disorder thought patterns and behaviors are simply just a part of who they are, then the concept of changing behavior is not readily accessible. Mond et al. (2009) furthermore showed that greater perceived impairment in role functioning (e.g. problems in home life, social life and overall quality/enjoyment of life) as well as greater perceived inability to suppress emotional difficulties in clients with eating disorders, was associated with increased likelihood of seeking treatment. Taken together the current findings of lower Axis IV problems and greater emotional dysregulation increasing the probability of NTS, align with the findings of Mond et al. (2009). These results taken together have broad implications for the promotion of mental health literacy.

In a social context in which beauty and fitness are idealized it is not surprising that lower levels of symptom endorsement are predictive of non-treatment start up, despite the fact that inherent to eating disorder diagnoses is a noteworthy level of

impairment and/or distress. In other words, in a culture where weight control behaviors are commonly endorsed, promoted, and practice, extreme use of weight control leading to psychological impact may not seem 'too far from the norm' to those who are afflicted. If impaired psychological well-being, which is inherent to eating disorder diagnoses, was less associated with stigma and more commonly recognized as treatable conditions, fewer indicators for treatment start would be necessary in order for clients to recognize a need for help (Wilson et al., 2009). If less of a cultural ideal was placed on low BMI then increased acceptance of other concerns, such as psychological dissonance regarding weight and shape concerns, could lead to the potentially greater likelihood of accepting and starting treatment.

Based on previous research, it is unclear whether higher symptom severity indicates non-treatment start. The current finding that higher weight related self-discrepancy and increased impulsivity and emotional dysregulation increase the probability of NTS seem to be the main finding that most clearly suggests greater severity of illness increases the probability of NTS. Alternatively, absence of Axis IV problems, AN and mood disorders also lower EDI-3 eating disorder risk scores seem together to indicate that less symptom severity is more probable in NTS versus TS clients. Therefore, some of the current findings seem to support the claim that less symptom severity increases probability of NTS. On the other hand, some findings indicate the opposite and others seem to indicate denial of problems and seriousness. More appropriately, taken together the current findings may not provide a good sense of whether severity of illness influences NTS, but instead could be taken to mean that lack of treatment readiness is a key factor relevant to this area study.

Clients' readiness for making behavioral change might be related to their decision to attend treatment. Yet readiness for change is a complex phenomenon, especially in relation to eating disorders. As described in the second chapter of this thesis, eating disorders are multifaceted mental health problems and often multiple behaviors are included in the diagnosis of eating disorders. As researchers point out, clients may feel varying degrees of readiness related to changing (or letting go of) different aspects of eating disorders (Ackard, Croll, Richter, Adlis, & Wonderlich, 2009; Hasler, Delsignore, Milos, Buddeberg, & Schnyder, 2004). Stages and processes of change theory (Prochaska, DiClemente, & Norcross, 1992; Prochaska & Norcross, 2002) is a six step model that outlines how people make change. In particular, this theory was rooted in the study of change from addictive behaviors such as cigarette smoking, but has expanded to many other areas including eating and weight control. Importantly, the stage of change model acknowledges that psychotherapy is a complex undertaking, client ambivalence about change is common, behavioral change is a gradual and nonlinear process, and that clients' cycles through the first five changes do not represent failure but instead progress. The stages include pre-contemplation (in disagreement there is a problem), contemplation (problem acknowledged, weighing the pros and cons of change), preparation (actively planning for change), action (substitute positive behaviors for problems behaviors, accept support) maintenance (long-term perseverance at behavior change, navigation through evolving life circumstances) and finally termination (problem behavior no longer poses a threat).

Minimal research has combined the study of stage of change and treatment start. Preliminary research shows that pre-treatment stage of change is not significantly related

to clients' decision to engage (TS) or not engage in treatment (NTS) yet that it is significantly predictive of development of the therapeutic alliance (Treasure et al., 1999) and positive treatment outcome (Norcross, Krebs, & Prochaska, 2011; Wolk & Devlin, 2001). Thus, based on the available evidence to date, it might be assumed that traditional initial intake procedures have the important role of laying groundwork for clients to return and start treatment, but may not have enough of an influence to induce sustained behavioral change. Future study of the factors related to sustained change, throughout treatment course, should reference stage of change theory as well as other factors shown to be intricately tied to change such as therapeutic alliance (Cartwright, Hyams, & Spratley, 1996; Principe, Marci, Glick, & Ablon, 2006; Treasure et al., 1999). In context of the current findings, it seems probable that clients who do not view as many external problems, who may not recognize their low BMI and/or weight difference ideals pose a problem and/or lead to psychological distress, might be in the pre-contemplation stage. Clients who are a shorter distance from clinic and perceive the potential barrier of exposure could be in contemplation stage and less likely to start treatment. A related discussion regarding the implications for risk reduction or what might be labeled tertiary prevention (Caplan, 1964) follows the below reviewed strengths and limitations of the current study.

Strengths

The current study's strengths include its large sample size, which is inclusive of both females and males with eating disorder diagnoses. Inclusion of males is in contrast to previous research on treatment starters and non-treatment starters for specialized eating disorders treatment. The inclusion of many independent variables led to

exploration of a range of potential associations with NTS. Therefore the current analyses included most but not all of the variables studied in previous NTS research on samples of clients with eating disorders. Use of as archival data is a strength due to the fact that this eliminated the problem of selection bias, which might be present if clients had originally been required to consent to participation in research and intake procedures. The larger sample size, leading to greater inclusivity and variability in predictor variables allowed comparisons between minimally consistent previous research findings. This study aimed to include client characteristic as well as situational variables studied in relation to treatment start, which also represents a strength. From a therapeutic perspective, focus on the idea that "the client needs to change" omits the importance of interaction between client and service provided. By viewing the conundrum of non-treatment start through a lens of client needs versus client faults, it is more likely that positive change can be reached.

Another major strength of this study is the use of probability modeling to enrich understanding of the findings. In contrast to traditional presentations of statistical significance, reference to probability of group membership and use of confidence intervals to indicate precision and magnitude provides readers with a better sense of clinical application. Also, the use of probability modeling is real time going forward could greatly improve clinician's ability to appropriately offer targeted services to clients with high probabilities of NTS.

Limitations

Several limitations to this thesis exist. First, clients' reasons for non-treatment start were not collected as a routine procedure between 2008 and 2010. Therefore

omission of confounding variables such as whether or not other treatment options were pursued, for example, via a different modality such as spiritual counsel or even via a different eating disorders specific treatment center, limit the generalizability of the current study's findings. Additionally, a portion of intake evaluation materials did not include details regarding treatment recommendations. Therefore amount of treatment services recommended beyond intake, for individuals with eating disorders could not be included in analyses. This in turn may also have been used as a measure of severity of illness. Referral source for initial evaluation was also not available for routine data entry. The inability to include information on referring party is a limitation due to the fact that this may have a significant impact on clients' decision to return for future services following initial evaluation. A further limitation is that despite the fact that this study included a large sample of both males and females seen for intake procedures, the diagnostic EDNOS category, and represented clients with a broad range of symptoms. Individual differences are often found between sub-categories of EDNOS. Yet the diagnoses available for the current study did not provide specific information regarding symptomatology for approximately 30% of the sample, thus we could not include further diagnostic specification in analyses. This in turn reflects the broader problem of eating disorders diagnostic classification, which does not yet independently acknowledge sub-threshold versions of and other eating disorders beyond AN and BN (e.g. binge eating disorder; Wolfe et al., 2009). Another missing variable reflective of individual client difference was ethnic identity. Race or ethnicity was also not routinely collected during intake evaluations used in this study, leading to the inability to control for potential cultural difference related to treatment start. Findings from the more broad

base of literature on treatment drop-out (Barrett et al., 2008) show that minority status and cultural values increase likelihood of attrition, therefore they could potentially also be related to treatment start.

Follow-up and treatment outcome measurement was also unavailable. Although previous research has shown that clients who do not engage in treatment for eating disorders are typically worse off, without follow-up data to evaluate it cannot be certain. Also, this research design excluded random assignment. Therefore confounding variables such as testing environment or intake interview conditions that were not controlled may threatened the magnitude of effects attributable to group membership. Despite the strength that the clients represented in this study included more than simply clients who attend treatment, who are typically presented in eating disorders research (Campbell, 2009; Fairburn et al., 1996), some clients still never even present for treatment evaluation. Therefore it cannot be certain that findings regarding NTS group are genearalizable to the larger population of individuals with eating disorders who never even initiate the process of treatment engagement by attendance at initial evaluation procedures. This again likely reflects a much broader issue of stigma related to mental health problems and seeking help for mental health concerns.

Lastly, it was assumed that fewer interpersonal variables are at play during initial intake interviews or when clients complete psychological testing versus when they are involved in a therapy session. Yet factors such as interviewer commitment and alliance could still create influence during these first sessions as well. Without measure of therapeutic interaction between intake therapist and clients, the current study's analyses omitted potential confounding variables such as perceived alliance on both the part of

clients and interviewers. Based in the structured nature of intakes at this specialized clinic, though, omission of these variables is likely to have produced less noise than they would have if this study had intended to measure therapy adherence or engagement.

Future Suggestions for Research

Primarily, it is suggested that the interactive probability model created for the current study is implemented in future clinical settings and its efficacy measured in future research. Based on the limitations outlined above, future non-archival research should consistently collect reasons for non-treatment attendance, greater diagnostic specification, treatment recommendation details and demographic information such as ethnicity. Outside of the current findings, the continued pursuit of situational variables is also warranted in line with the thinking that specialized services need to work toward providing services that better fit a range of clients' needs. Furthermore, the application of this and future studies' findings through a lens of prevention intervention strategies that include more structured attempts at influencing clients' behavior change, such as increased attention to empathizing with clients' ambivalence, may prove useful for the field of NTS research. Longitudinal measure of such interventions is imperative in order to understand which services are most suited for clients with particular symptom profiles.

Future Suggestions for Clinical Practice

As noted above, the interactive probability model created for the current study can be applied to everyday use at specialized eating disorders clinics. It is suggested that this model is used by intake interviewers in real time in order to indicate which clients might have a high probability of non-treatment start. By virtue of analyzing the

predictability of mainly client characteristics, previous research on treatment start included an underlying assumption that client no-shows are out of clinician's control. Although the current research studied both client characteristics as well as situational variables, our findings also mainly emphasize that client characteristics influence treatment decisions. Fewer miles away was the only situational variables studied that was suggested to influence probability of NTS. Even still, these results are not mutually exclusive to the idea that clinicians and agencies can play an important role in creating more appropriate services for these clients. As some researchers (i.e. Lichtenberg & Hummel, 1976; Walitzer, Dermen, & Connors, 1999) suggest, a different point of view asserts that clinicians do have potential for great impact on the behavior of some clients, even within the initial interview. An even further revised assumption would include the interplay between client characteristics and outside factors. Therefore the future clinical suggestions below are presented within a theoretical framework which gives emphasis to both client and situational factors.

Overall, it is suggested that future conceptualization of treatment start in the area of eating disorders measures and references each client's position within a stage of change model per the above discussion. This in turn may benefit the tertiary prevention of chronic and non-self limiting eating disorders. Future clinical work should also be grounded in theoretical concepts such as Social Cognitive Theory (Bandura, 1986). This promotes the inclusive view, in opposition to the possible notion that only client characteristics lead to impoverished ability to engage in clinical services, that instead the current services available may not meet some clients' needs. The following clinical

suggestions are therefore made using both a theoretical lens and in consideration of the four variables found in the current study to greatly influence probability of NTS.

Social cognitive theory is often used as the theoretical basis for prevention of eating problems (Levine & Smolak, 2006). Regarding this papers' future suggestions, social cognitive theory is applied specifically through a tertiary prevention lens. In other words, interventions which might increase treatment start have the potential to lead to increased treatment engagement. In turn, these behaviors have broader implications for the prevention of chronic and treatment resistant forms of eating disorders. The social cognitive theory asserts that sociocultural factors influence the onset and maintenance of beliefs, emotions, and behaviors (Bandura, 1986). Social cognitive theory is relevant to the tertiary prevention of eating disorders because researchers such as Levine and Piran (2004) theorize that important eating disorder characteristics such as overvaluation of appearance in self-worth, and discrepancy between actual and unrealistic and internalized ideas about ideal bodies are accepted by the community at large. Additionally, negative feelings about one's body and therefore self, and unhealthy eating and weight control behaviors fit within the structure of social cognitive theory.

Upon the use of the interactive probability model created from the current results, clinical staff have the opportunity to implement intervention strategies appropriate for clients with high probabilities of non-treatment start. In order to experiment with creating more suitable conditions for clients who are most likely not to start specialized eating disorder treatment, suggestions for future research should be guided both by both previous findings, as well as consideration of additional factors involved in clients' treatment start behavior following initial intake. Previous research

on the improvement of intake procedures included various attrition prevention techniques and strategies. Studies have shown that reminder calls are helpful in increasing the likelihood that clients attend a first mental health session (Smith et al., 2010; Tracy, 1977). Tracy (1977) found that the likelihood of attendance at first appointment increased by simply placing between one and three reminder calls to clients who did not show after referral. More involved preparatory strategies included providing didactic, vicarious and experiential resources to clients. These in particular may be useful for clients within a pre-contemplation or contemplation stage of change and who do not yet acknowledge a problem and/or do not know what treatment entails.

Didactic materials to read through were suggested to include explanation of psychotherapy, and rationale to help clients understand therapeutic principles of client involvement, honesty and expression of emotions. In a review of studies, didactic, vicarious, and experiential learning strategies used in preparation for psychotherapy were shown to have a significant effect on treatment start (Ogrodniczuk, Joyce, & Piper, 2005; Walitzer et al., 1999).

Vicarious learning can take place through watching videos of and/or reading about example therapy sessions (Johansen, Lumley, & Cano, 2011; Ogrodniczuk et al., 2005). These are meant to teach clients through observational learning, what behaviors are appropriate in therapy as well as scenarios that might be likely to happen, (e.g. clients self-disclosing information). Experiential preparation might include involvement in a pre-treatment group where clients gain first hand practice with therapy skills like self-disclosure and empathy. While these activities could be quite useful for clients with hi probability of NTS, particular attention should be paid to the factors found to be

associated with NTS and related fears that are common among clients with eating disorders. For example, providing clients who are at particularly at risk for NTS with detailed information regarding therapeutic meals at intake would be unadvisable. This might interplay with factors such as greater weight difference ideals and related fears of weight gain. Within a social cognitive theory context, it would also be recommended that veteran clients are involved in such groups. In an ideal world, these people representing peers could both empathize with clients' ambivalence about treatment start and also help foster a social context in which thin ideas are less revered.

Further strategies suggested include collecting intentions for treatment as well as inducing intentions about clients' treatment start and progress. In one research study, stemming based on the Theory of Planned Behavior (Ajzen, 2008) researchers sent home a questionnaire after intake interview, asking clients to rate their intention of following through with their scheduled appointment as well as about barriers and norms they perceived related to starting therapy. This mailing also included an additional paragraph, meant to induce intention, at the end of some client's questionnaires (Sheeran et al., 2007). Although many clients did not respond to this survey, of those who did, the additional paragraph was associated with an increase in attendance of people who rated shame as a cost of treatment start as well as intention statements associated with a increased rate (between 12-26%) of attendance. This type of intervention may be particularly useful for clients in the contemplation stage of change, who could benefit from recognizing intentions and barriers (pros and cons) related to treatment start. In relation to the current findings, this intervention seems like it could be particularly

useful for clients who live closer to the clinic, have lower BMIs and therefore may be less motivated for change.

Other interventions could include using a specific type of assessment protocol. In one study, a protocol labeled MTA involved an average of four pre-therapy sessions, and included specific guidelines for using interpersonal process comments, facilitating client affect, offering psychoeducation and collaborative development of treatment goals and tasks (Hilsenroth & Cromer, 2007). Furthermore, setting time limits for and negotiating treatment, patient selection and providing external resources are examples of procedures clinicians can implement to prevent NTS (Ogrodniczuk et al., 2005). Setting a short-term contract and negotiating treatment for therapy sessions might have an effect on client treatment start by establishing clarity of what is expected from both client and treatment provider in concrete terms, (e.g. five sessions with one agreed upon main goal). An example of providing an outside resource to aid with barriers to treatment would be offering case management to clients who may have literal difficulty starting treatment for reasons such as transportation, housing, occupational and financial concerns. Patient selection refers to clinician's choice of particular clients who might be at risk of not returning, or of those who might be particularly suited to a pre-therapy intervention for other reasons and providing those clients with an intentionally and possibly individually tailored care pathway. In reference to the current study's findings, a personally tailored approach might include both provision of facts regarding bodies nutritional functioning, as well as inclusion of social influences on clients' behaviors such as family members, role models or peers. These provisions might lessen fears and promote buy-in from clients with eating disorders. In fact, other researchers promote the

inclusion of support persons and family (Hoste, Zaitsoff, Hewell, & Le Grange, 2007; Smith et al., 2010). For example, clients' hesitation to enter treatment may be defused if family involvement is required and therefore clients understand that more than they will explore making changes. In other words, clients with eating disorders might be much more likely to initiate changes for the greater good versus solely for reasons of self-benefit, which they may or may not agree with.

Although, not all of the studies implementing the above reviewed strategies measured their relationship with treatment adherence and outcome, those that did showed mixed results in terms of impact on treatment start and termination. Overall, favorable outcomes seemed to be related to strategies that connected clients' input and choice with supportive information and motivation inducing approaches made by the clinician. In order to involve the client, starting with their initial interaction, it is important to foster a sense of self-efficacy within clients (Walitzer et al., 1999). In particular related to clients with eating disorders, this seems especially important given the high rates of correlated problems with self-esteem and negative affect. This also relates to the social cognitive theoretical ideas that beliefs and cognitions play a role in influencing change.

Implementing multiple strategies for the prevention of pre-therapy termination are suggested (Ogrodniczuk et al., 2005). With regard to the multi-faceted nature of concerns involved with eating disorder diagnoses, such as medical, nutritional and interpersonal issues, implementing pro-treatment strategies should inherently relate to these varied yet highly intertwined issues. For example, in relation to the current study's results, after identification of clients with greater weight difference ideal, lower BMI,

without Axis IV stressors and who live at a closer distance, as well as who may be impulsive and prone to up and down moods, right within the intake one could provide resources. These could include opportunity to and help in scheduling a case management visit to aid with navigating outside stressors, provision of clear information regarding the privacy of clients' treatment as well as a video about counseling, all of which might be helpful to clients who would typically not start treatment. Furthermore, promotion of mental health literacy, as mentioned above, fits with a framework of social cognitive theory. A social shift of lowered stigma related to eating disorder diagnoses has great potential for increasing the likelihood of recognition. People with eating disorders would more readily acknowledge a problem for example, when psychological dissonance related to high weight difference ideal is present, even in the absence of a clinically severe BMI or external psychosocial and environmental pressures.

Focus on the intake interview approach is particularly important in working with clients with eating disorders who often hold mixed feelings about change (Brewerton, 2004; Fairburn & Brownell, 2002). In fact, some researchers encourage the use of psychological assessments regarding stage of change (Brewerton, 2004) since clients' ambivalence is common. The initial intake is often the first contact a client has with an agency, and sometimes their first with any clinical setting. These procedures therefore play an important role in establishing clients' trajectory toward change through a balance of acknowledging ambiguity about change as well as empowering clients to feel autonomy, except of course for when medical and psychological safety is paramount, in their decision to engage in treatment. As Palmer (2002), writes, "clinical assessment is

the start of the human business of helping the patient to feel safe enough to change" (pg.

300).

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Appendix A: Eating Disorder Criteria summarized from the DSM-IV-TR (APA, 2000)

Diagnostic criteria for Anorexia Nervosa

1. Body weight below that expected for height and weight
2. Fear of weight gain or fat despite underweight
3. Undue influence of shape and weight on self-evaluation, body image distortion or denial of seriousness
4. In females, loss of menses

Types:

Restricting Type: absence of binge eating and compensatory behavior
Binge-Eating/Purging Type: currently engaging in binge eating and/or compensatory behavior

Diagnostic criteria for Bulimia Nervosa

1. Recurrent binge eating, characterized by consumption of objectively large amount of food and loss of control feeling during eating episode
2. Recurrent inappropriate compensatory behavior, such as vomiting and misuse of diet aids
3. Criterion 1 and 2 occur, on average, at least twice a week for 3 months.
4. Undue influence of shape and weight on self-evaluation
5. A diagnosis of Anorexia Nervosa is absent

Types:

Purging Type: the individual regularly engages in self-induced vomiting or the misuse of laxatives, diuretics, or enemas
Non-purging Type: use of other inappropriate compensatory behaviors, such as fasting or excessive exercise, without regular purging type behaviors

Diagnostic criteria for Eating Disorder Not Otherwise Specified

Disorders of eating that do not meet the criteria for any specific Eating Disorder.
Examples include:

1. Sub-threshold Anorexia Nervosa (e.g. all other criterion met despite presence of menses or individual maintains a weight within the normal range)
2. Sub-threshold Bulimia Nervosa (e.g. all other criterion met except frequency of binge eating and compensatory behavior occurs less frequently).
3. Recurrent use of inappropriate compensatory behaviors after eating small amounts of food.
4. Repeatedly chewing and spitting out food without swallowing
5. Binge-eating disorder: recurrent episodes of binge eating in the absence of the regular use of inappropriate compensatory behaviors characteristic of Bulimia Nervosa

Appendix B: Template for Initial Intake Evaluation

ADULT INTAKE EVALUATION

IDENTIFYING INFORMATION:　　　　Date(s) of Consultation: _____

Patient Name: _____　DOD: _____ Age: _____ Sex: _____

Relationship Status: _____ Residence: _____ Occupation: _____

Referral Source: _____ Accompanied by: _____

CHIEF COMPLAINT:

_____

ASSESSMENT OF DISORDERED EATING:

Background: _____

_____

_____

Eating behaviors (frequency, typical pattern, age onset, duration, symptom-free periods, etc.)

Typical eating pattern:

_____

_____

_____

_____

Binge eating: _____

Purging:

　Vomiting: _____

　Laxatives: _____

　Diuretics: _____ Ipecac: _____

　Diet Pills: _____ Chewing & Spitting: _____

Food restriction:

　Dieting: (calorie/fat counting, variety, weight loss programs, etc.) _____

_____

　Fasting: _____

　Food preoccupations: _____

_____

　Food rituals: _____

_____

Exercise: _____

_____

Weight history

Current wt:____ ht:____ = BMI:____   Lowest wt:____ ht:____ = BMI:____ at age:____

"Ideal" wt:____ ht:____ = BMI:____   Highest wt:____ ht:____ = BMI:____ at age:____

_____

_____

Body Perception

Body Dissatisfaction: ____/10 (1= not at all dissatisfied; 10 = extremely dissatisfied)

Weight preoccupation: (thoughts, measuring, etc.): _____

Feelings re: wt. loss/gain:_____

Size estimation: (accuracy, thoughts/feelings, etc.) : _____

Relationship to self-esteem: _____

_____

ED Dx

____AN (restricting;binge eating/purging) ____BN (purging;nonpurging) ____EDNOS

ASSESSMENT OF OTHER PSYCHOLOGICAL SYMPTOMS: (+/-, freq, severity, duration)

Depression:

____ Sadness	____ Feels as if being punished	____ Sleep difficulties
____ Discouragement	____ Disappointment	____ Fatigue
____ Crying	____ Self-criticism/Blame	____ Appetite disturbance
____ Loss of satisfaction	____ Appearance concerns	____ Weight disturbance
____ Loss of interest	____ Irritability	____ Health concerns
____ Feelings of failure	____ Decision making difficulty	____ Loss of libido
____ Feelings of guilt	____ Low energy/productivity	____ Suicidal ideation

Overall Depression Rating: ____/10 (1= not at all depressed; 10 = extremely depressed)

BDI: ____ (0-9= minimal, 10-16 = mild, 17-29 = moderate, 30-63 = severe depression)

Anxiety:

Worry/anxiety/perfectionism: _____

Panic (breathing problems, tachycardia, sweating, dizzy/fainting): _____

OCD (organizing, cleaning, checking, ordering, etc.): _____

PTSD (intrusive thoughts, nightmares, flashbacks, increased arousal, avoidance): _____

Overall Stress Rating: ____/10 (1= not at all stressed; 10 = extremely stressed)

Self-Injurious Behavior:

Cutting/burning: _____

Suicide attempts: _____

Mania: _____

Psychotic Symptoms: _____

CHEMICAL USE HISTORY: (Current/past use of alcohol, drugs, tobacco, caffeine)

_____

_____

MENTAL HEALTH TREATMENT HISTORY: (IP/partial/OP; dates, location, effectiveness, etc.)

_____

_____

_____

_____

MEDICAL HISTORY:

General Current & Past Conditions: (pregnancies, diabetes, obesity, infectious disease, allergies,

etc.) _____

_____

_____

Primary MD: _____ Last Physical Exam: _____

Psychiatrist: _____

Medications (including prescribing physician): _____

_____

ED Related:

____ menstrual irregularities	____ diarrhea	____ chest pain
____ cold sensitivity	____ constipation	____ irregular pulse sensations
____ lightheadedness/dizziness	____ sore throat	____ EKG abnormalities
____ fainting	____ vomiting blood	____ electrolyte abnormalities
____ weakness	____ dental concerns	____ edema
____ fatigue	____ heartburn	____ hypertension
____ bruising	____ parotid gland swelling	____ diabetes
____ leg cramps	____ shortness of breath	____ other: _____

DEVELOPMENTAL/SOCIAL HISTORY:

Family of Origin: (Location, composition, quality of relationships, current contact, medical/ psychiatric/CD hx) _____

_____

_____

_____

_____

Nuclear Family: (Current marriage/relationship, previous relationships, children, medical/ psychiatric/CD hx, quality of relationships, support system, friends/peers, etc.) _____

_____

_____

_____

ABUSE HISTORY: (Physical, sexual, emotional abuse) _____

_____

LIVING ARRANGEMENTS: _____

EDUCATION: (Level of education, academic performance, adjustment, etc.) _____

_____

_____

VOCATIONAL HISTORY: (Current job, stability, satisfaction, firings, military history, disability)

_____

_____

RECREATIONAL/LEISURE: (social & leisure activities, hobbies, etc.) _____

_____

LEGAL HISTORY: (Current/previous legal charges, shoplifting) _____

_____

RELIGIOUS/SPIRITUAL: _____

CULTURAL FACTORS: _____

CURRENT STRESSORS: _____

_____

STRENGTHS: _____

MENTAL STATUS:

Appearance & General Behavior: _____
Attitude/Demeanor: _____
Mood and Affect: _____
Rate & Pattern of Speech and Thought: _____
Cognitive and Perceptual Functioning: (Memory, attention, concentration, psychotic sx,
    Folstein score if applicable) _____
Insight/Judgment: _____
Suicidal/Homicidal Ideation: _____

DIAGNOSTIC IMPRESSIONS (DSM-IV):
Axis I: Clinical Disorders: Other Conditions That May Be a Focus of Clinical Attn.
      Diagnostic Code   DSM-IV Name

      __ __ __ __ __   _____
      __ __ __ __ __   _____
      __ __ __ __ __   _____

Axis II: Personality Disorders, Mental Retardation
      Diagnostic Code   DSM-IV Name

      __ __ __ __ __   _____

Axis III: General Medical Conditions
      ICD-9-CM Code   ICD-9-CM Name

      __ __ __ __ __   _____

Axis IV: Psychosocial and Environmental Problems
      ____Problems with primary support group: _____
      ____Problems related to the social environment: _____
      ____Educational problems: _____
      ____Occupational problems:_____
      ____Housing problems: _____
      ____Economic problems: _____
      ____Problems with access to health care services: _____
      ____Problems related to interaction with the legal system/crime: _____
      ____Other psychosocial and environmental problems: _____

Axis V: Global Assessment of Functioning (GAF) Scale, Current = _____

CLINICAL IMPRESSIONS: (motivation, insight, cooperation, etc.)

_____
_____
_____
_____

GOALS:

____ increase healthy eating	____ increase exercise
____ expand food selections	____ decrease excessive exercise
____ decrease food restriction	____ weight restoration
____ decrease overeating	____ weight loss
____ decrease binge eating	____ weight stabilization
____ decrease purging	____ enhance positive body image
____ improve mood	____ decrease food/weight/shape related
____ decrease anxiety	preoccupations/distorted cognitions
____ improve interpersonal functioning	____ other: _____

PLAN:

Treatment recommendations:

____ Individual Psychotherapy: _____

____ Group Psychotherapy: _____

____ Intensive Outpatient: _____

____ Nutritional Counseling: _____

____ Psychiatry: _____

____ Primary Care: _____

____ Other: _____

Other:

____ Releases of Information: _____

____ Communications: _____

____ Records: _____

____ Testing: _____

        ____ EDI-3   ____ YBC-EDS   ____ SCID-ED Module

        ____ BDI   ____ MMPI-2   ____ Other

REVIEWED:

____ Informed Consent for Treatment: _____

____ Confidentiality & Limitations: _____

____ Billing & Cancellation Policy: _____

____ Scheduling & Emergency Procedures: _____

____ Other: _____

Appendix C: List of Dependent and Independent Variables

Dependent Variable

Treatment Start (yes or no)

Independent Variables

Self-reported

Age (range: 18-78)

Gender (male or female)

Received past counseling (yes or no)

Perceived support (yes or no)

History of sexual abuse (yes or no)

History of physical abuse (yes or no)

History of suicide attempts (yes or no)

Calculated

Body Mass Index (BMI)

Difference between current and "ideal" weight

Insurance coverage for services (yes or no)*

Miles between clinic and home*

Wait time between psychological testing and initial interview*

T Scores from Psychological Tests

EDI-3 Drive for Thinness (desire to be thin)

EDI-3 Bulimia (tendency toward binge eating) not BN diagnosis

EDI-3 Body Dissatisfaction

EDI-3 Eating Disorder Risk Composite

EDI-3 Low Self-Esteem

EDI-3 Personal Alienation (emotional emptiness)

EDI-3 Interpersonal Insecurity (tense / discomfort around others)

EDI-3 Interpersonal Alienation (withdrawal from others)

EDI-3 Introceptive Deficits (difficulty understanding and responding to emotions)

EDI-3 Emotional Dysregulation (unstable mood)

EDI-3 Perfectionism (holding self to high standards)

EDI-3 Asceticism (strive toward ideals such as self-restraint and self-denial)

EDI-3 Maturity Fears (wish to return to comfort of childhood)

MMPI-2 VRIN (Random response)

MMPI-2 TRIN (Fixed response)

MMPI-2 F (Infrequency)

MMPI-2 L (Lie)

MMPI-2 K (Defensiveness)

Overall MMPI-2 validity (yes or no)

MMPI-2 PSY-5 Aggressiveness

MMPI-2 PSY-5 Psychoticism

MMPI-2 PSY-5 Disconstraint

MMPI-2 PSY-5 Negative Emotionality/Neuroticism

MMPI-2 PSY-5 Introversion/Low Positive Emotionality

Diagnosed

Eating Disorder Diagnosis (AN, BN, EDNOS)

Mood Disorder Diagnosis (present or absent)

Anxiety Disorder Diagnosis (present or absent)

Axis III General Medical Condition Diagnosis (present or absent)

Axis IV Psychosocial and Environmental Problems Diagnoses (present or absent)

*Denotes situational variables (vs. client characteristics)