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Haley, Melissa A. ***Secrecy and Eating Disorders***

Abstract

Eating disorders have become widespread during the past few decades, especially amongst young adolescents. The two most common types of eating disorders, anorexia nervosa and bulimia nervosa, involve self-starvation and excessive eating (binging) and compensatory behaviors to get rid of food (purging). These behaviors are often done in secret. Some studies demonstrate a correlation between eating disordered behavior and secrecy, but this relationship has not been explored thoroughly.

The present research study sought to determine whether a relationship exists between levels of secrecy and the eating disordered thoughts/behaviors among a population of high school students. Results of the empirical study indicated that secrecy levels differ based on the level of eating disordered thoughts and behaviors, gender, and type of relationship. High levels of secrecy were found in males with eating disordered thoughts and behaviors, but were not found in females with eating disordered thoughts and behaviors. The severity of eating disordered thoughts and behaviors was found to have a significant effect on secrecy level. In males, the severity of eating disordered thoughts/behaviors was found to be related to secrecy with family members, friends, and with significant others. In females, no positive relationships were found between eating disordered thoughts/behaviors and secrecy in relationships.

Table of Contents

List of Tables

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Chapter I: Introduction

The occurrence of eating disorders has increased dramatically in our society during the past few decades. Eating disorders are defined as "severe disturbances in eating behavior," according to the Diagnostic and Statistical Manual of Mental Disorders: Fourth Edition (DSM IV) (American Psychiatric Association, 2000, p. 539). Three main types of eating disorders exist: anorexia nervosa, bulimia nervosa, and eating disorder not otherwise specified. To date, researchers have not been able to identify what causes eating disorders. Many speculate that weight gain in adolescence, low self-esteem, perfectionism, media messages of thinness, and excessive concern over body appearance all contribute to the development of an eating disorder (Phelps, Sapia, Nathanson, & Nelson, 2000). Females are much more likely to develop an eating disorder than males, as females account for 85 to 95% of people with anorexia or bulimia and 65 percent of people with eating disorders not otherwise specified (National Institute of Mental Health, 2001).

The symptoms and characteristics of anorexia, bulimia, and eating disorder not otherwise specified vary significantly. As stated in the DSM IV, anorexia nervosa is "characterized by a refusal to maintain a minimally normal body weight" (American Psychiatric Association, 2000, p. 539). People with anorexia have an intense fear of gaining weight and see themselves as overweight, even though they are dangerously thin (National Institute of Mental Health, 2001). The intense fear of becoming fat is not alleviated by weight loss. In fact, "concern about weight gain often increases even as actual weight continues to decrease" (American Psychiatric Association, 2000, p. 584). Self-esteem in people with anorexia seems to be dependent on their body weight and shape. When weight is lost, they see this as an achievement. When weight is gained, those with the disorder perceive this as a failure. Many persons with anorexia deny the

seriousness of their health. They do not have insight into their problem and have considerable denial of their malnourished state. Anorexia often begins in early to late adolescence. Persons with anorexia develop unusual eating habits, such as avoiding food and meals, eating only certain foods, and carefully measuring and portioning food. Other disordered behaviors include frequent weighing, measuring body parts, compulsive exercising, and purging by means of vomiting, using laxatives, enemas, or diuretics.

According to the DSM IV, bulimia nervosa is "characterized by repeated episodes of binge eating followed by inappropriate compensatory behaviors such as self-induced vomiting; misuse of laxatives, diuretics, or other medications; fasting; or excessive exercise" (American Psychiatric Association, 2000, p. 539). A binge is defined as "eating in a discrete period of time an amount of food that is definitely larger than most individuals would eat under similar circumstances" (p. 589). Binges are often triggered by negative mood states, stress, or intense hunger following dietary restriction. Vomiting is the most common method of purging and is employed by 80 percent of people with bulimia.

People with bulimia are often ashamed of their eating disorder and strive to keep their symptoms, including binging and purging, a secret. Persons with bulimia usually weigh within the normal range for their age group. However, like those with anorexia, people with bulimia fear gaining weight and are dissatisfied with their bodies (National Institute of Mental Health, 2001). Frequent vomiting often leads to permanent loss of dental enamel and an increase of cavities. Many people with bulimia also develop calluses or scars on their hands due to repeated trauma from the teeth. Bulimia nervosa is a serious disorder that can cause many physical complications if not identified and treated.

The category of eating disorder not otherwise specified includes eating disorders that do not meet the criteria for anorexia or bulimia. Examples of disordered eating behaviors that would qualify in this category are chewing and spitting out food, binge-eating without purging, and using compensatory behavior, such as vomiting or exercising, after eating small amounts of food (American Psychiatric Association, 2000). Individuals who do not qualify for anorexia or bulimia may be diagnosed under this category if their behaviors are similar to someone with anorexia or bulimia, but are not as severe.

Eating disorders can be extremely difficult to assess and diagnose. Only medical physicians, psychologists, and psychiatrists are able to diagnose eating disorders. The Diagnostic and Statistical Manual of Mental Disorders: Fourth Edition (DSM IV) is used to diagnose anorexia nervosa, bulimia nervosa, and eating disorder not otherwise specified. Since people with eating disorders tend to be secretive about their thoughts and behaviors, the disorder will likely be first recognized by a parent, teacher, or friend. Early signs of eating disorders can be seen in a person's appearance, affect, thinking, learning capacity, and work ethic (Natenshon, 2002). The most obvious sign of an eating disorder is rapid weight loss. People with eating disorders may skip lunch, refuse to eat in front of others, and chew gum or drink water excessively. In addition, they will often seem depressed, fatigued, and withdrawn. If a friend or family member recognizes these symptoms, they should make an effort to refer the symptomatic person to a doctor or psychologist for evaluation and treatment.

Many treatment programs are available for persons with eating disorders. These treatments focus mainly on medical monitoring and psychotherapy. Physicians monitor medical concerns and prescribe necessary medications, while psychotherapists and nutritionists serve as sources of support and information regarding weight, body shape, and eating (National Eating

Disorders Association, 2004). During treatment, the person with an eating disorder works on gradually changing disordered thoughts and behaviors into more healthy thoughts and behaviors (Phelps & Bajorek, 1991). Psychotherapy and medical treatment have been found to be very successful, as they are able to produce lasting improvements in healthy eating and body attitude (Wilson, 2000).

Since eating disorders have become more widespread in our society during the past several decades, it is important that research be conducted on this topic. Although eating disorders have existed for many centuries, they have only been studied during the past few decades. One of the interesting aspects is the connection between eating disorders and secrecy. Many eating disordered behaviors, such as starvation and binging and purging are done in secret. Research has shown that a variety of factors contribute to the concealment of an eating disorder. These factors include the lack of self awareness (Barry, 1992; Vitousek, Watson, & Wilson, 1998), denial of an eating disorder (Vitousek et al., 1998), secretive thoughts and behaviors (Smart & Wegner, 1999), and a person's readiness to change (Gusella, Butler, Nichols, & Bird, 2003; Prochaska, DiClemente, & Norcross, 1992). These studies point to a correlation between eating disordered behavior and secrecy levels, but this relationship has not been explored thoroughly. Currently, a lack of knowledge on the relation between secrecy in eating disorders exists, and much remains to be discovered.

Statement of the Problem

Despite growing recognition of the prevalence of eating disorders and a developing body of related research, there is a continuing need for a more complete understanding of these conditions and the factors related to them.

Purpose Statement

The purpose of the study is to determine whether a relationship exists between levels of secrecy and eating disordered thoughts and behaviors.

Rationale

Eating disorders have become more widespread in our society, especially among adolescents. Because of the growing number of people affected by eating disorders, it is important for school psychologists, educators, and parents to be informed about the prevalence and risks associated with eating disorders. Eating disorders can be dangerous and life threatening. The more knowledge discovered on the topic will better help prevent and treat these disorders. If a relation is found between secrecy and eating disordered thoughts and behaviors, this information may provide helpful clues into the prevention and treatment of eating disorders. Currently, not much is known about the prevention and treatment of eating disorders. The current study will seek to uncover whether there is a relationship between eating disordered thoughts/behaviors and secrecy. Much is unknown about the etiology of eating disorders, and research on the topic will be beneficial to the ongoing examination and treatment of eating disorders.

Research Questions

The current study seeks to answer the following questions:

1. Are high levels of secrecy found in people with eating disordered thoughts/behaviors?
2. Are there gender differences in eating disordered thoughts/behaviors and secrecy levels?
3. Is there a relationship between levels of secrecy and eating disordered thoughts/behaviors?

Definition of Terms

The following is a list of definition of terms that will be used in this study.

Amenorrhea: The absence of menstrual cycles.

Anorexia nervosa: Purposeful weight loss beyond the normal range. Characteristics include a fear of being fat, perfectionism, excessive exercise, ritualistic eating patterns, and body image disturbance. Anorexia nervosa is classified into two types: (1) the restricting type and (2) binge eating/purging type.

Binge: Rapid consumption of high-calorie foods.

Bulimia nervosa: An emotionally based disorder in which binging and purging is a response to distress in an individual's life.

Eating disorder: Anorexia nervosa or bulimia nervosa.

Purge: The act of getting rid of consumed food by vomiting, using laxatives, or diuretics.

Chapter II: Literature Review

Little research has been conducted on the role of secrecy in eating disorders. Eating disorders are a relatively new research topic. Although eating disorders have existed for many centuries, they have only been studied during the past few decades. The Diagnostic and Statistical Manual of Mental Disorders: Fourth Edition-Text Revision (DSM-IV-TR), published in 2000, currently lists specific criteria that individuals must meet in order to be diagnosed with an eating disorder. In this chapter, the diagnostic criteria will be addressed, as well as research findings on eating disorders. The presence of secrecy in eating disorders, self-awareness and denial in eating disorders, and varying levels of readiness to change behavior patterns of an eating disorder will be explored.

Diagnosing Eating Disorders

Eating disorders are diagnosed by professionals, including physicians, psychologists, and psychiatrists. In order to diagnose an eating disorder, certain criteria must be met using the DSM-IV-TR, with separate diagnoses for anorexia nervosa, bulimia nervosa, and eating disorder not otherwise specified.

Anorexia nervosa. The essential features of anorexia nervosa are the refusal to maintain a normal body weight, the fear of gaining weight, and a disturbance in the perception of body shape and size. Another common feature is amenorrhea, the absence of menses. The diagnostic criteria for anorexia nervosa outline these essential features:

A. Refusal to maintain body weight at or above a minimally normal weight for age and height (e.g., weight loss leading to maintenance of body weight less than 85% of that expected; or failure to make expected weight gain during period of growth, leading to body weight less than 85% of that expected).

B. Intense fear of gaining weight or becoming fat, even though underweight.

C. Disturbance in the way in which one's body weight or shape is experienced, undue influence of body weight or shape on self-evaluation, or denial of the seriousness of the current low body weight.

D. In postmenarcheal females, amenorrhea, i.e., the absence of at least three consecutive menstrual cycles. (A woman is considered to have amenorrhea if her periods occur only following hormone, e.g., estrogen, administration) (American Psychiatric Association, 2000, p. 544-545).

As outlined in the DSM-IV-TR diagnostic criteria, two subtypes of anorexia nervosa are described: the restricting type and the binge eating/purging type. The restricting subtype of anorexia is defined by the absence of binge eating and purging behavior. An individual's weight loss is accomplished mainly by dieting, fasting, or excessive exercise. The second subtype, binge-eating/purging type, is defined by the presence of binge eating or purging (or both).

Bulimia nervosa. According to the DSM-IV-TR, "the essential features of bulimia nervosa are binge eating and inappropriate compensatory methods to prevent weight gain" (American Psychiatric Association, 2000, p. 545). The diagnostic criteria for bulimia nervosa outline these essential features:

A. Recurrent episodes of binge eating. An episode of binge eating is characterized by both of the following:

1) Eating, in a discrete period of time (e.g., within any 2-hour period), an amount of food that is definitely larger than most people would eat during a similar period of time and under similar circumstances.

2) A sense of lack of control over eating during the episode (e.g., a feeling that one cannot stop eating or control what or how much one is eating).

B. Recurrent inappropriate compensatory behavior in order to prevent weight gain, such as self-induced vomiting; misuse of laxatives, diuretics, enemas, or other medications; fasting; or excessive exercise.

C. The binge eating and inappropriate compensatory behaviors both occur, on average, at least twice a week for 3 months.

D. Self-evaluation is unduly influenced by body shape and weight.

E. The disturbance does not occur exclusively during episodes of Anorexia Nervosa (American Psychiatric Association, 2000, p. 549-550).

As outlined in the DSM-IV-TR diagnostic criteria, two subtypes of bulimia nervosa exist: the purging type and the nonpurging type. The purging subtype of bulimia is defined by "regularly engaging in self-induced vomiting or the misuse of laxatives, diuretics, or enemas" (American Psychiatric Association, 2000, p. 550). The nonpurging subtype is defined by using "other inappropriate compensatory behaviors, such as fasting or excessive exercise," but not engaging in vomiting or the misuse of laxatives, diuretics, or enemas (p. 550).

Eating disorder not otherwise specified. The category of eating disorder not otherwise specified is for eating disorders that do not meet the criteria for anorexia or bulimia. There are no specific criteria in this category, but examples of disordered eating patterns are given to aid in the identification of persons with this disorder. The examples of disordered eating patterns are as follows:

1. For females, all of the criteria for Anorexia Nervosa are met except that the individual has regular menses.

2. All of the criteria for Anorexia Nervosa are met except that, despite significant weight loss, the individual's current weight is in the normal range.
3. All of the criteria for Bulimia Nervosa are met except that the binge eating and inappropriate compensatory mechanisms occur at a frequency of less than twice a week or for a duration of less than 3 months.
4. The regular use of inappropriate compensatory behavior by an individual normal body weight after eating small amounts of food (e.g; self-induced vomiting after the consumption of two cookies).
5. Repeatedly chewing and spitting out, but not swallowing, large amounts of food.
6. Binge-eating disorder: recurrent episodes of binge eating in the absence of the regular use of inappropriate compensatory behaviors characteristic of Bulimia Nervosa (American Psychiatric Association, 2000, p. 550).

The diagnostic criteria for anorexia nervosa, bulimia nervosa, and eating disorder not otherwise specified are quite specific in order to properly identify and diagnose individuals with eating disorders. The identification of persons with eating disorders can often be difficult, as many people with eating disorders tend to be secretive about their thoughts and behaviors (Barth, 2008; Gayle, 2006; Huke & Slade, 2006; Siebold, 2008; Smart & Wegner, 1999).

Secrecy in Eating Disorders

Secrecy seems to play a large role the lives of people with eating disorders. These individuals are often able to keep their eating disordered behaviors a secret from others. People with eating disorders are often viewed negatively, as indicated by nationwide surveys in London conducted in 1998 and 2005 (Crisp, 2005). Over the five years between the administration of the surveys, there were small reductions in the percentages of people expressing negative views.

According to Smart and Wegner (1999), eating disorders are "concealable stigmas" because they are often kept hidden. In their 1999 study, Laura Smart and Daniel Wegner recruited 61 female college students who either did or did not have an eating disorder. Both groups of women were told to role-play a person either with or without an eating disorder. Participants with an eating disorder who role-played not having an eating disorder reported feeling more secretive and thought suppressive, and had more thought intrusions about their eating disorder. Results showed that people who are secretive tended to think about their eating disorder more often than people who did not conceal their eating disorder. Smart and Wegner asserted that by keeping their eating disorder a secret, the secrecy triggers further thoughts about the disorder; therefore, these thoughts become a prominent area of mental focus.

Related to secrecy, a lack of openness in relationships has been found to correlate with eating disorders. In 1998, Evans and Wertheim conducted a study with 360 females who had eating disorders. The researchers found that women with greater eating problems reported more difficulties in intimate relationships. These difficulties included "less satisfaction, less closeness, and less comfort in close intimate relationships, and less positive descriptions of friend and mother" (p. 355). The study indicated that persons with eating disorders experienced difficulties relating to friends, romantic partners, and parents. Intimacy difficulties were found to be most prevalent in bulimic women. Women with eating disorders scored low on scales of closeness and dependence, indicating that they avoided closeness and mistrusted others.

Even when a person recovers from an eating disorder, secrecy may still abound. Some may share their story with others, but many keep their experiences a secret. For example, Marya Hornbacher, a recovered eating disorder patient, wrote an autobiography about her experiences with both anorexia and bulimia. In her book, she stated,

> I have not enjoyed writing this book. Making public what I have kept private from those closest to me, and often enough from myself, all my life, is not exactly my idea of a good time…. After a lifetime of silence, it is difficult then to speak (p. 275).

Due to the fact that people with eating disorders often remain secretive and ashamed for so long, it is difficult for them to speak about their experiences, even once they have recovered (Hornbacher, 1998).

If a person's eating disorder remains a secret, the symptoms of the disorder are likely to worsen. "When symptoms are kept secret, most often it is because shame and stigma are attached to the particular symptom. Such shame engenders secrecy, which, in turn, engenders a deepening sense of shame" (Imber-Black, 1993, p. 14). When a person with an eating disorder maintains secrecy, he/she disconnects and isolates from others, which helps to maintain the eating disordered symptoms (Tantillo, Nappa Bitter, & Adams, 2001). In a qualitative study conducted by Pettersen, Rosenvinge, and Borgunn in 2008, 38 female subjects were interviewed about their social interaction with others. Many subjects reported that they lived a "double life," or had a dichotomy between active and outgoing behaviors versus concealing bulimic behaviors. Concealment strategies were used to avoid shame, exposure, and stigmatization. The most common concealment strategy was the avoidance of talking to others about their disordered eating patterns or belittling bulimic symptoms. Many women feared that disclosing their disordered behaviors would increase their feelings of shame and guilt. However, many of the women eventually reached the point where "the need to talk to someone about the problems was stronger than the need to hide" (Pettersen et al., 2008, p. 208).

When patients enter therapy for an eating disorder, they are encouraged to disclose information about their eating disorder. Through self-disclosure, the secretiveness of an eating disorder becomes less prevalent. However, the secrecy of an eating disorder does not seem to completely end once the behavior has been disclosed (Imber-Black, 1993). People with eating disorders are often unwilling to talk about their problem, thus upholding the secrecy.

Self-Awareness and Denial

Studies have been conducted on people's awareness of their own eating disorder. Many deny the existence of a problem. In fact, one of the diagnostic symptoms of an eating disorder is the presence of denial (Barry, 1992; Vitousek, Watson, & Wilson, 1998). Patients with anorexia often believe there is nothing wrong with their eating. They claim to not experience hunger. Starvation makes it nearly impossible for anorexic patients to accurately appraise their condition (Vitousek et al., 1998). People with anorexia often refuse to acknowledge their illness, thinness, fatigue, and disordered eating behaviors. In fact, according to Vitousek, many take pride in their ability to maintain unhealthy thinness and feel superior to persons of natural weight.

In contrast to people with anorexia, people with bulimia are more willing to admit they have an eating problem (Vitousek et al., 1998). Bulimic individuals are aware of their disordered eating and are often distressed and ashamed by their behavior. They are often reluctant to talk about their behaviors with others (Vitousek et al., 1998). In her 1998 autobiography, Marya Hornbacher described the shame and embarrassment that bulimic individuals experience. In her words, "their self-torture is private, far more secret and guilty than is the visible statement of anoretics" (p. 153).

Although people with bulimia are very ashamed of their eating, they are more willing than anorexics to admit they have a problem and to seek treatment (Vitousek et al., 1998).

Bulimic persons are aware of their eating disordered behaviors, but they are often unable to explain what triggers a binge and report a loss of control when eating. When 445 children and adolescents were interviewed about their binge eating, a correlation was found between youth's lack of awareness regarding amount consumed and loss of control (Tanofsky-Kraff et al., 2007). This study suggests that bulimic individuals have little or no self-awareness during bulimic behaviors.

Cultural knowledge about bulimia has become widespread in the past few decades and bulimia has become more recognized as an illness. Both anorexic and bulimic persons are often hesitant to talk about their eating disorders and sometimes even deny there is any problem. From past studies, denial has been found to play a large role in eating disorders.

Even though some people with eating disorders are willing to admit they have a problem, many still deny the severity of the disorder. Little research has been conducted on the prevalence rates of denial in eating disorders. From the studies conducted, reported rates of denial range from 15 to 80% (Vitousek et al., 1998, p. 395).

In a study conducted by Meyer (2001), 238 high school females were asked to assess their eating behaviors. Most participants with moderate to severe eating disorders stated that their behaviors were "not problematic enough to merit counseling" (p. 23). When participants with moderate eating disorders were asked why they avoided counseling, 50% answered that the problem was not worrisome to them, 35% believed they did not have a problem, and 21% did not want anyone to know about their problem (p. 29). When females with severe eating disorders were asked why they avoided counseling, 40% responded "I don't want anyone to know." When the moderate and severe eating disordered groups were compared in the Meyer study, the women in the severe group are much more secretive about their problem. After analyzing the data, it

was found that women with severe eating disorders are more reluctant to let others know about their problem (p. 29).

Denial is often used as a mechanism to preserve the symptoms of an eating disorder (Vitousek et al., 1998). By denying the problem, attention is not called to their behavior. "Individuals [with eating disorders] may never come to the attention of treatment personnel if their denial is sufficiently persuasive, their opposition sufficiently forceful, or their lives sufficiently isolated that significant others fail to intervene on their behalf" (p. 394).

In a 1998 study by Kelly Vitousek and her colleagues, former anorexic females were asked about their levels of denial. Seventy-two percent reported that they had denied anything was wrong in the early months or years of their eating disorder (p. 395). This percentage is most likely an underestimate of the occurrence of denial, since the women all volunteered to discuss their symptoms and may represent "an unusually candid subset" (p. 395). Although denial plays a large role in the early stages of an eating disorder, levels of denial may decrease once treatment is undertaken.

Many people who deny having an eating disorder believe, on some level, that their behavior is normal. Besides their abnormal eating behaviors, most people with eating disorders lead otherwise normal lives. Marya Hornbacher (1998), in her autobiography of experiences with anorexia and bulimia, stated that she often felt normal growing up despite having an eating disorder. During her adolescent years, she had friends, crushes, and a normal school life. When comparing these aspects of her life to others, she believed she led a fairly "normal" life (p. 59). After years of disordered eating, Hornbacher states that she essentially forgot what "normal" was. To her, having an eating disorder was normal because it was such an integral part of her life for many years (p. 111). Due to her feeling of normalness, Hornbacher felt that her eating

disorder was not a huge threat to her identity and she maintained the behaviors during much of her childhood and adolescence. Hornbacher, like many people with eating disorders, maintained denial and high levels of secrecy throughout the course of her eating disorder. Denial has been found to be a common phenomenon in persons with eating disorders (Vikousek et al., 1998).

Stages of Change: The Trans-Theoretical Model

In any mental illness, there are thought to be five stages of recovery (Gusella, Butler, Nichols, & Bird, 2003). Each stage represents a different motivational level. The five stages include the precontemplation stage, in which the behavior is not recognized as a problem; the contemplation stage, in which the problem is recognized but no action is taken to resolve the problem; the preparation stage, when the person intends to take action within the next month; the action stage, in which the person begins to change his/her behavior; and the maintenance stage, when the person maintains his/her changed behavior and works on preventing relapse. These stages of change are collectively known as the trans-theoretical model. Although the model was originally used to explain motivation change in people with substance abuse problems, it has been widely used to describe people with eating disorders (Gusella et al., 2003).

According to Barth (2008), a key issue in the successful treatment of persons with eating disorders is whether an individual is ready and willing to change. Associated with readiness to change is a person's motivation to disclose and recover from an eating disorder. In the trans-theoretical model, people are thought to move through a series of stages in which their readiness and motivation to change increases over time (Gusella et al., 2003).

In the first stage of the trans-theoretical model, people with eating disorders have no intentions of changing and are not motivated to make improvements in their eating behaviors. In this stage, many are unaware of their disordered eating or may even be proud of their eating

patterns. They maintain secrecy about their eating disorder and also disconnect and isolate from others (Tantillo, Nappa Bitter, & Adams, 2001). This beginning stage is called the precontemplation stage. Individuals in this stage do not voluntarily enter treatment, for they have no internal desire to change their behavior.

The contemplation stage follows the precontemplation stage (Gusella et al., 2003). During this phase, people are aware that a problem exists and are considering changing their disordered eating behaviors. However, they have not yet made any commitments to take action. People in this stage appear to struggle with the pros and cons of keeping an eating disorder. Eating disorders can become addictive, and a great amount of effort and energy is needed to overcome the problem. People in the contemplation stage want to overcome their eating disorder, but have not yet committed to taking action. People can remain in this stage for many years.

According to Gusella et al., (2003), the next stage in the trans-theoretical model is the preparation stage. Individuals in this stage report true intentions to take action against their eating disorder. They are able to make small behavioral changes, but are unable to completely conquer their disordered eating patterns. However, they fully intend to continue taking action and are motivated to overcome their eating disorder.

The next stage is the action stage, in which individuals significantly modify their behaviors (Gusella et al., 2003). This stage requires considerable commitment and energy. People are considered to be in the action stage if they have altered their behavior during a period of from one day to six months. According to Prochaska, DiClemente, and Norcross (1992), "successfully altering the addictive behavior means reaching a particular criterion, such as

abstinence [from eating disordered behavior]" (p. 3). In order to be classified in the action stage, people must make overt behavioral changes and be fully successful in altering their behavior.

The fifth and final stage in the trans-theoretical model is the maintenance stage (Gusella et al., 2003). During this stage of recovery, individuals continue to take action against their eating disorder and consistently remain free of eating disordered behaviors. They work to prevent relapse into their eating disordered thoughts and behaviors. In order to be classified in the maintenance stage, an individual must remain free of the eating disorder for at least six months. During this time, they continue to work on strengthening new eating behaviors and avoiding relapse.

Although people with eating disorders move through these five stages of recovery, they often do not move through the stages in a perfect linear sequence (Prochaska et al., 1992). People often make gains, then relapse into eating disordered behaviors and recycle through the stages. "…Most people taking action to modify addictions do not successfully maintain their gains on their first attempt" (p. 3). Each time people recycle through the stages, they are able to learn from their past mistakes and try something different in the future. According to Prochaska et al., even with relapses and setbacks, people with eating disorders can successfully move through the five trans-theoretical recovery stages and begin the road to recovery.

The stage that an individual is currently in can affect treatment effectiveness (Prochaska et al., 1992). In the early stages of an eating disorder, people often deny problems and resist changes in eating patterns. They maintain secrecy about their eating disorder and also disconnect and isolate from others (Tantillo, Nappa Bitter, & Adams, 2001). This behavior helps to maintain eating disordered symptoms. If people are treated during these early stages, success in treatment has been found to be minimal. When people enter treatment at a higher stage, they

are more likely to make significant changes in their behaviors (Prochaska et al., 1992). They are more motivated to change their eating disordered behaviors and are willing to put forth commitment and effort. Individuals in a higher stage are often more open in their disclosures with others. According to Prochaska et al. (1992), they are willing to evaluate themselves and experience their emotions and feelings. When people enter therapy for an eating disorder, they are often encouraged to disclose information about their eating disorder. Through therapeutic sessions and self-disclosure, the secretiveness of an eating disorder becomes less prevalent (Imber-Black, 1993).

In one study, Gusella et al. (2003) arranged for 34 adolescent girls to meet weekly in a group setting for nine weeks. The purpose of the group was to encourage the girls to disclose information about their eating disorders to obtain support from other group members. Before the group began and after the group ended, the girls responded to questionnaires which assessed their readiness to change their eating disorder. Gusella et al. (2003) found that "greater gains were reported by those who started at a more advanced stage" (p. 58). Those who began in the precontemplation stage were least likely to change their attitudes, whereas those who began in the action stage reported greater attitude changes in body satisfaction and motivation levels. Although all participants reported benefits from the group therapy, those in higher stages reported greater changes in motivation and readiness.

A similar study was conducted with smokers in 1992 by Prochaska et al. People with substance abuse problems and people with eating disorders are often compared because both groups are highly resistant to treatment and are often unmotivated to change (Feld, Woodside, Kapplan, Olmsted, & Carter, 2001; Vitousek, 1998). In the study, smokers in different stages of change were placed in self-help treatment programs and were observed over two years. In

general, an individual's initial stage was related to the amount of success that he/she made in treatment. When people began therapy in the action stage, 94% were not smoking in a six month follow up. In contrast, no significant behavioral changes were made by people who began the program in the precontemplation or the contemplation stages. Prochaska et al. (1992) found the stage of change was a good predictor of success in the program; stage was a better predictor than age, socioeconomic status, problem severity, and goals and expectations.

From these previous studies on readiness and motivation to change, it has been concluded that treatment interventions were most successful when a person has a high level of motivation and readiness to change (Gusella et al., 2003; Prochaska et al., 1992). Although treatment can help all persons progress through the five stages of change, treatment was most successful when the person entered treatment with some level of motivation to change. Persons with eating disorders are able to recover, but it takes a tremendous amount of time, energy, and effort. The process of recovery from an eating disorder is difficult, but attainable.

From previous studies, it has been shown that denial and secrecy play a large role in the maintenance of an eating disorder. While studies show that there is a correlation between eating disorders and secrecy levels, there is an incomplete understanding of this relationship and the effect of other factors, such as gender. The purpose of the present study is to determine whether a relationship exists between levels of secrecy and the prevalence of eating disorders.

Chapter III: Methodology

This chapter will include a description of the participants and how they were selected for this study. A description of the design and all instruments used to collect information will be provided, as well as information on the validity and reliability of each instrument. Data collection and analysis procedures will be provided.

Participants

The subjects consisted of 64 high school students (28 males and 31 females) at a high school in southern Minnesota. Five subjects failed to indicate their gender on the provided questionnaires. A total of 50-75 subjects was desired in order to empirically determine statistical significance.

Selection of Sample

To obtain a sample of high school students, three large study hall sections were randomly selected. The teachers of each study hall were approached and informed of the study. Consent forms were sent to the parents of all students two weeks prior to the date of the study (see Appendix A). Study hall teachers each set aside one class period in which their students were able to participate in the study. Students were given an overview of the study, were told what their involvement entailed, and were told their participation in the study was voluntary (see Appendix B). Consent forms were distributed and obtained from each participant (see Appendix C).

Design

This study consisted of correlational analysis using Pearson's product moment correlations (Pearson r) and comparative analysis using univariate Analysis of Variance (ANOVA). Participants completed two questionnaires, the Eating Disorder Inventory-3 and an

inventory on secrecy created by the researcher. These two instruments will be further explained in the following section. Participants' responses on both questionnaires were compared to determine if any relationship existed between eating disordered thoughts and/or behaviors and secrecy.

Instrumentation

The Eating Disorder Inventory-3, also known as EDI-3, was used to assess eating disordered behaviors in participants. EDI-3 item booklets and answer sheets were purchased by the researcher through a 2006 grant from the University of Wisconsin-Stout. The EDI-3 is a questionnaire in which eating disordered behaviors and symptoms are self-reported by an individual. It consists of 91 questions, each containing a 6 point Likert scale. Individuals are asked if an item applies to them "always," "usually," "often," "sometimes," "rarely," or "never." Eight subscales are included on the inventory. The subscales include the drive for thinness, bulimia, body dissatisfaction, ineffectiveness, perfectionism, interpersonal distrust, interoceptive awareness, and maturity fears. The EDI-3 also provides 3 provisional subscales, consisting of asceticism, impulse regulation, and social insecurity. The EDI-3 is not a diagnostic instrument, but is used to assess levels of eating disordered behaviors and symptoms.

The EDI-3 has been shown to have good reliability and consistency over time. The internal reliability coefficients for the EDI-3 in the subscales of Drive for Thinness, Bulimia, and Body Dissatisfaction have been found to range from .90 to .97 for the eating disorder sample (Atlas, 2007). Internal reliability coefficients in the remaining subscales demonstrated somewhat lower, but acceptable, alpha coefficients of .84, .74, and .85 for the sample. A test-retest study was conducted on the EDI-3. In the study, 34 females who had previously undergone treatment for an eating disorder completed the inventory twice, during time intervals which ranged from

one to seven days. The correlation coefficients ranged from .86 to .98, which suggests excellent stability of subscale and composite scores (Atlas, 2007). Reliability studies have demonstrated that the EDI-3 is a reliable and consistent measure of eating disordered symptomology.

The EDI-3 has been examined for convergent validity and construct validity. To measure convergent validity, 543 females were administered the EDI-3 and the Rosenberg Self-Esteem Scale. An inverse correlation of .82 was found between the Low Self Esteem subscale of the EDI-3 and the Rosenberg, supporting convergent validity. Construct validity was measured by correlating various subscales of the EDI-3 with corresponding subscales of the Eating Attitudes Test (EAT-26), the Bulimia Test Revised (BULIT-R), and the Rosenberg Self Esteem Scale. Correlations ranged from low (-.13) to very high (.83). The previous version of the assessment (EDI-2) was examined for content validity. In order to achieve content validity, 146 questions were developed by clinicians who were knowledgeable about eating disorder research and who also worked with eating disordered patients. Items that were kept have a high level of face validity. In the original EDI validation study, criterion validity was met. Criterion validity is the ability of the items to discriminate between the eating disordered and non-eating disordered samples. The EDI-3 has been subjected to some research on validity, but more research on the instrument would be beneficial to thoroughly examine its validity (Atlas, 2007).

A measure of secrecy was developed by the researcher in order to assess levels of secrecy. The measure consisted of items on a Likert scale in order to obtain frequencies of secretive thoughts or behaviors. The secrecy questionnaire was tested for face validity by having others look at the scale and determine if the questionnaire appears to be measuring levels of secrecy. Because no known assessments exist for measuring levels of secrecy, a questionnaire developed specifically for this study was employed (See Appendix D). The EDI-3, the secrecy

questionnaire, and the data collection process were reviewed and approved by the Institutional Review Board (IRB) at the University of Wisconsin-Stout.

Data Collection Procedures

Each participant was given an Eating Disorder Inventory-3 (EDI-3), as well as a secrecy questionnaire. These inventories were completed during the participants' study hall period. Testing time was approximately 45 minutes. Participants were read the description of the study and the instructions for the inventories. After completing the inventories, participants placed them in an envelope in order to ensure confidentiality of data. Participants were allowed time to ask questions about the study.

Data Analysis Procedures

The data were analyzed to determine if there are any trends in responses relating to eating disordered thoughts or behaviors and levels of secrecy. Descriptive statistics were used. Correlational relationships and univariate analysis of variance were explored to examine relationships and differences between answers on the EDI-3 and the secrecy questionnaire.

Chapter IV: Results

The purpose of this study was to determine whether a relationship exists between levels of secrecy and eating disordered thoughts and behaviors. Subjects consisted of 64 high school students in southern Minnesota. Subjects completed two questionnaires, the Eating Disorder Inventory-3 and an inventory on secrecy created by the researcher. Data were analyzed using SPSS-X to obtain Pearson Correlation Coefficients and Analysis of Variance (ANOVA) on combinations of items. Participants' responses on both questionnaires were compared to determine if any relationship exists between eating disordered thoughts and/or behaviors and secrecy. This chapter will discuss the results of the study and will be guided by the four research questions proposed in the introduction.

Research Question 1: Are high levels of secrecy found in people with eating disordered thoughts/behaviors?

In order to assess if subjects displayed eating disordered thoughts or behaviors, EDI-3 questionnaires were scored to obtain Eating Disorder Risk Composite (EDRC) scores. The Eating Disorder Risk composite score consists of three EDI-3 scales: Drive for Thinness (DT), Bulimia (B), and Body Dissatisfaction (BD). The score provides a measure of eating and weight concerns with equal weighting for each contributing scale. According to the EDI-3 manual, an EDRC T-score of 57 or higher is within the Elevated Clinical range and indicates extreme eating and weight concerns. According to the normative clinical sample, an EDRC T-score of 57 or above is within the 67^{th} to 99^{th} percentile. An EDRC T-score of 46 or higher is within the Typical Clinical range and indicates significant eating and weight concerns and is common among those diagnosed with eating disorders. An EDRC T-score of 46 to 56 is within the 25^{th} to 66^{th} percentile. An EDRC T-score of 45 or below is within the Low Clinical range and indicates

that an individual does not have significant eating or weight concerns. An EDRC T-score at or below 45 is within the 1st to 24th percentile. In the current study, 25 individuals scored within the Low Clinical range and 34 individuals scored within the Typical to Elevated Clinical ranges. Dividing these groups by gender, 15 males and 10 females scored within the Low Clinical range. Thirteen males and 21 females scored within the Typical to Elevated Clinical ranges.

In the EDI-3 normative sample, four groups were established based on eating disordered behaviors (Anorexia Nervosa-Restricting type, Anorexia Nervosa-Binge-Eating/Purging type, Bulimia Nervosa, and Eating Disorders Not Otherwise Specified). In the normative sample, group mean scores ranged from 17.74 to 20.79 on the Drive for Thinness scale. On the Bulimia scale, mean scores ranged from 2.86 to 16.59. On the Body Dissatisfaction scale, mean scores ranged from 24.06 to 29.46. In the current study, the mean score of participants on the Drive for Thinness scale was found to be 5.72 with a standard deviation of 7.18. 31.2 percent of subjects obtained scores above the mean, indicating a higher drive for thinness. On the Bulimia scale, the mean score was found to be 5.83 with a standard deviation of 6.99. Over thirty percent (32.8 percent) of subjects obtained scores above the mean, indicating higher amounts of thoughts and behaviors associated with bulimia. On the Body Dissatisfaction scale, the mean score was found to be 11.05 with a standard deviation of 9.08. 43.7 percent of subjects obtained scores above the mean, indicating higher body dissatisfaction. Eating Disorder Risk Composite (EDRC) scores, Drive for Thinness scores, Bulimia scores, and Body Dissatisfaction scores were correlated with items on the secrecy inventory in order to assess any relationships between eating disordered thoughts/behaviors and secrecy levels.

Table 1 displays correlations between EDRC scores and scores on the secrecy inventory. Secrecy survey items included in the analysis of withholding information from others were

questions 4, 5, 6, 7, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, and 22. Items included in the analysis of listening/gaining information from others were questions 23, 24, and 25. Pearson's product moment correlations (Pearson r) were calculated to assess relationships. A Pearson r determines the relationships between variables and if they affect each other to a significant degree.

No significant correlations were found between EDRC scores and scores on the secrecy inventory. When data was divided by gender, differences were discovered between males and females. In the male group, the EDRC scores were found to be positively correlated with withholding information from others. While males with a higher risk of an eating disorder were more likely to report withholding information from others, females with a higher risk of an eating disorder were not more or less likely to report withholding information from others. The statistical difference was found to be quite large between male and female subjects. Males with a higher risk of an eating disorder reported that they are less likely to listen to or gain information from others. Similarly, females with a higher risk of an eating disorder also reported that they are less likely to listen to or gain information from others. Data from this study appears inconclusive as to whether general high levels of secrecy are found in people with eating disordered thoughts and behaviors. Data indicates that adolescent males with a risk of an eating disorder may withhold more information and have higher levels of secrecy than females with higher risks of an eating disorder.

Table 1

Pearson correlations between EDI-3 EDRC scores and secrecy inventory scores

	Withholding information from others	Listening/ gaining information from others
All participants: EDRC	.295	-.103
Males: EDRC	.565*	-.029
Females: EDRC	-.515	-.140

* Correlation is significant at the .05 level (2 tailed)

Table 2 displays correlations between EDI-3 Drive for Thinness (DT), Bulimia (B), and Body Dissatisfaction (BD) subscales and scores on the secrecy inventory. The data are presented by gender. In males, Drive for Thinness was found to be positively correlated with withholding information from others, but not at a significant level. Bulimia and Body Dissatisfaction were found to be positively correlated with withholding information from others at a .05 significance level. No significant correlations were found between the EDI-3 subscales of DT, B, and BD and scores on the secrecy inventory.

In females, Drive for Thinness was found to be negatively correlated with withholding information from others at a .05 significance level. Bulimia was also found to be negatively correlated with withholding information from others at a .05 significance level. Body Dissatisfaction was found to be negatively correlated with withholding information from others, but not at a significant level. No significant correlations were found between the EDI-3 subscales of DT, B, and BD and scores on the secrecy inventory. Results indicate a sharp contrast between male and female responses in relation to withholding information from others.

Males with DT, B, and BD reported that they withhold information from others, while females with DT, B, and BD reported that they do not withhold information from others. High levels of secrecy were found in males with eating disordered thoughts and behaviors, but were not found in females with eating disordered thoughts and behaviors.

Table 2

Pearson correlations between EDI-3 DT, B, and BD scores and secrecy inventory scores

		Withholding information from others	Listening/ gaining information from others
Males:	DT	.418	-.136
	B	.548*	-.056
	BD	.579*	.098
Females:	DT	-.631*	-.209
	B	-.586*	-.335
	BD	-.318	.033

* Correlation is significant at the .05 level (2 tailed)

Research Question 2: Are there gender differences in eating disordered thoughts/behaviors and secrecy levels?

EDI-3 Eating Disorder Risk Composite (EDRC) scores were calculated for males and females. According to the EDI-3 manual, an EDRC T-score of 57 or higher is within the Elevated Clinical range and indicates extreme eating and weight concerns. According to the normative clinical sample, an EDRC T-score of 57 or above is within the 67th to 99th percentile. An EDRC T-score of 46 or higher is within the Typical Clinical range and indicates significant eating and weight concerns and is common among those diagnosed with eating disorders. An EDRC T-score of 46 to 56 is within the 25th to 66th percentile. An EDRC T-score of 45 or below

is within the Low Clinical range and indicates that an individual does not have significant eating or weight concerns. An EDRC T-score at or below 45 is within the 1st to 24th percentile.

In the current study, females were more likely to rate themselves within the Typical to Elevated Clinical ranges. Fifteen males and 10 females scored within the Low Clinical range. Thirteen males and 21 females scored within the Typical to Elevated Clinical ranges.

Univariate Analysis of Variance (ANOVA) tests were completed to compare variations between male and female group averages. ANOVA is a statistical method for making comparisons between two or more group means and determining whether significant relationships exist between variables. The independent factors were gender and EDRC categories (Low Clinical and Typical/Elevated Clinical), and the dependent variable was the total score on the secrecy inventory. Total scores on the secrecy inventory ranged from one to six, where lower scores indicated greater secrecy. Table 3 displays the descriptive statistics regarding gender, EDI-3 EDRC scores, and secrecy inventory scores.

Individuals in the Typical or Elevated Clinical categories reported higher levels of secrecy than individuals in the Low Clinical category. Within the Low Clinical category, males reported higher levels of secrecy than females. Similarly, within the Typical or Elevated Clinical category, males reported higher levels of secrecy than females.

Table 3

Descriptive statistics regarding gender, EDI-3 EDRC scores, and secrecy inventory scores

		Mean	Standard Deviation	N
Low Clinical EDRC Score:	Male	4.05	.811	15
	Female	4.28	.281	10
	Total	4.14	.653	25
Typical or Elevated Clinical EDRC Score:	Male	3.56	.729	13
	Female	3.88	.680	21
	Total	3.76	.705	34
Total of all EDRC Scores:	Male	3.82	.800	28
	Female	4.01	.606	31
	Total	3.92	.705	59

Univariate Analysis of Variance (ANOVA) results determined the effect of gender, level of eating disordered thoughts and behaviors (Low Clinical and Typical/Elevated Clinical EDI-3 EDRC scores), and the interaction between these two factors on secrecy levels. Table 4 displays the between-subjects effects of gender and EDI-3 EDRC scores on secrecy inventory scores.

The severity of eating disordered thoughts and behaviors, as indicated by Low Clinical and Typical/Elevated Clinical EDI-3 EDRC scores, was found to have a significant effect on secrecy level ($t(1) = 2.726$, $p \leq .05$). Gender was not found to have a significant effect on secrecy level ($t(1) = 1.025$, $p \leq .05$). The interaction between eating disordered thoughts/behaviors and gender was not found to have a significant effect on secrecy level ($t(1) = 0.028$, $p \leq .05$).

Table 4

Between subjects effects of gender and EDI-3 EDRC scores on secrecy inventory scores

	df	Mean Square	*F*	Sig.
EDRC score	1	2.726	5.872	.019*
Gender	1	1.025	2.208	.143
EDRC score and gender	1	.028	.060	.807

* Results significant at the .05 level

Since not all participants in the study had boyfriends/girlfriends or counselors/psychologists, a second ANOVA comparative analysis was completed. Questions regarding boyfriends/girlfriends and counselors/psychologists were taken out of the secrecy inventory. Table 5 displays the descriptive statistics regarding gender, EDI-3 EDRC scores, and secrecy inventory scores without boyfriend/girlfriend and counselor/psychologist questions. Individuals in the Typical or Elevated Clinical categories reported higher levels of secrecy than individuals in the Low Clinical category. Within the Low Clinical category, males reported higher levels of secrecy than females. Similarly, within the Typical or Elevated Clinical category, males reported higher levels of secrecy than females.

Table 5

Descriptive statistics regarding gender, EDI-3 EDRC scores, and secrecy inventory scores without boyfriend/girlfriend and counselor/psychologist questions

		Mean	Standard Deviation	N
Low Clinical EDRC Score:	Male	3.98	.752	15
	Female	4.38	.274	10
	Total	4.14	.632	25
Typical or Elevated Clinical EDRC Score:	Male	3.60	.740	13
	Female	3.82	.617	21
	Total	3.74	.664	34
Total of all EDRC Scores:	Male	3.80	.758	28
	Female	4.00	.588	31
	Total	3.91	.675	59

Univariate Analysis of Variance (ANOVA) results determined the effect of gender, level of eating disordered thoughts and behaviors (Low Clinical and Typical/Elevated Clinical EDI-3 EDRC scores), and the interaction between these two factors on secrecy levels (when boyfriend/girlfriend and counselor/psychologist questions were taken out of the secrecy inventory). Table 6 displays the between-subjects effects of gender and EDI-3 EDRC scores on secrecy inventory scores without boyfriend/girlfriend and counselor/psychologist questions.

The severity of eating disordered thoughts and behaviors, as indicated by Low Clinical and Typical/Elevated Clinical EDI-3 EDRC scores, was found to have a significant effect on secrecy level when boyfriend/girlfriend and counselor/psychologist questions were removed ($t(1) = 3.026$, $p \leq .05$). Gender was not found to have a significant effect on secrecy level when boyfriend/girlfriend and counselor/psychologist questions were removed ($t(1) = 1.370$, $p \leq .05$).

However, this factor approached the .05 significance level (p = .074). The interaction between eating disordered thoughts/behaviors and gender was not found to have a significant effect on secrecy level when boyfriend/girlfriend and counselor/psychologist questions were removed ($t(1) = 0.112$, $p \leq .05$).

Table 6

Between subjects effects of gender and EDI-3 EDRC scores on secrecy inventory scores without boyfriend/girlfriend and counselor/psychologist questions

	df	Mean Square	*F*	Sig.
EDRC score	1	3.026	7.322	.009*
Gender	1	1.370	3.314	.074
EDRC score and gender	1	.112	.272	.604

* Results significant at the .05 level

Overall, univariate Analysis of Variance (ANOVA) results indicated that the level of eating disordered thoughts and behaviors had a significant effect on reported secrecy levels with others. An individual's EDI-3 EDRC score had an effect on secrecy levels with others, whether or not girlfriend/boyfriend and counselor/psychologist questions were included in the secrecy inventory. Gender did not appear to have a significant effect on secrecy levels with others, but gender approached a significant level when boyfriend/girlfriend and counselor/psychologist questions were removed. The interaction between eating disordered thoughts/behaviors and gender was not found to have a significant effect on secrecy level.

Research Question 3: Is there a relationship between levels of secrecy and eating disordered thoughts/behaviors?

EDI-3 EDRC scores were compared to items on the secrecy inventory. Table 7 displays Pearson's product moment correlations between EDRC scores and scores on the secrecy inventory. Data will be presented by gender, as differences were discovered between males and females. In males, higher EDRC scores were found to be positively correlated with secrecy with family members, friends, and with significant others. According to responses by male subjects, males with a higher risk of an eating disorder reported keeping more secrets from family members, keeping more secrets from friends, and keeping more secrets from their significant others. Each of these correlations was found to be significant at the .05 or the .01 significance level. No significant correlations were found between male EDRC scores and secrecy with counselors/psychologists.

In females, no significant positive correlations were found between EDRC scores and secrecy in relationships. However, there was an inverse relationship between EDRC scores and secrecy with friends, significant others, and counselors/psychologists. This indicates that females with a higher risk of an eating disorder do not maintain higher levels of secrecy with friends, significant others, and counselors. It appears that females tend to disclose more information and maintain open communication in these relationships.

Data obtained from both males and females indicates that males with eating disordered thoughts or behaviors (as indicated by EDRC scores on the EDI-3) maintain higher levels of secrecy in various types of relationships than people without eating disordered thoughts or behaviors. Males with eating disordered thoughts or behaviors also maintain higher levels of

secrecy in various types of relationships than females with eating disordered thoughts or behaviors.

Table 7

Pearson correlations between EDI-3 EDRC scores and secrecy inventory scores

	Secrecy with family	Secrecy with friends	Secrecy with significant other	Secrecy with counselor/ psychologist
Males: EDRC	.383*	.544**	.646**	.295
Females: EDRC	.219	-.067	-.006	-.474

* Correlation is significant at the .05 level (2 tailed)

** Correlation is significant at the .01 level (2 tailed)

EDI-3 Drive for Thinness (DT), Bulimia (B), and Body Dissatisfaction (BD) subscale scores were compared to various items on the secrecy inventory. Table 8 displays correlations between DT, B, and BD subscales and scores on the secrecy inventory. Data will be presented by gender. In males, DT, B, and BD were all found to be positively correlated with secrecy in friendships and secrecy in romantic relationships. Correlations were found to be significant at the .05 or the .01 significance level. BD was also found to be positively correlated with family secrecy. This indicates that males who display thoughts and behaviors associated with a drive for thinness, bulimia, and body dissatisfaction maintain higher levels of secrecy in various relationships. In females, DT was found to be negatively correlated with secrecy with a counselor/psychologist. In addition, B was found to be negatively correlated with secrecy in friendships and secrecy with a counselor/psychologist. No significant correlations were found

between the BD and scores on the secrecy inventory. In contrast to males, females who display thoughts and behaviors associated with a drive for thinness and bulimia do not maintain high levels of secrecy in relationships with others. In fact, they appear to disclose information and maintain open communication with friends, significant others, and counselors/psychologists. Data obtained from both males and females indicates that males who display thoughts and behaviors associated with a drive for thinness, bulimia, and body dissatisfaction maintain higher levels of secrecy in various types of relationships than people without eating disordered thoughts or behaviors. Males who display thoughts and behaviors associated with a drive for thinness, bulimia, and body dissatisfaction also maintain higher levels of secrecy in various types of relationships than females who display thoughts and behaviors associated with a drive for thinness, bulimia, and body dissatisfaction.

Table 8

Pearson correlations between EDI-3 DT, B, and BD scores and secrecy inventory scores

		Secrecy with family	Secrecy with friends	Secrecy with significant other	Secrecy with counselor/ psychologist
Males:	DT	.266	.384*	.504*	.213
	B	.307	.446*	.610**	.381
	BD	.460*	.637**	.665**	.199
Females:	DT	.156	-.143	-.158	-.534*
	B	.000	-.380*	-.159	-.522*
	BD	.330	.153	.194	-.317

* Correlation is significant at the .05 level (2 tailed)

** Correlation is significant at the .01 level (2 tailed)

Secrecy levels appear to differ depending on gender and type of relationship. Males with eating disordered thoughts/behaviors reported that they were more likely to uphold secrecy with their friends and significant others than with their family or counselor/psychologist. Females with eating disordered thoughts/behaviors reported insignificant and similar levels of secrecy with family, friends, and significant others. Females reported that they maintain less secrecy with their counselor or psychologist. Females appear to avoid secrecy in this type of relationship, and maintain more open communication with their counselor/psychologist. Data appears to support the idea that secrecy levels differ based on level of eating disordered thoughts/behaviors, gender, and the type of relationship.

Chapter V: Discussion

The purpose of this study was to determine whether a relationship exists between levels of secrecy and eating disordered thoughts and behaviors. Participants in the study completed two questionnaires, the Eating Disorder Inventory-3 and an inventory on secrecy created by the researcher. Participants' responses on both questionnaires were compared to determine if any differences existed between eating disordered thoughts and/or behaviors and secrecy. This chapter will discuss the major conclusions of the study as well as its limitations, suggestions for future research, and implications for practice.

Conclusions

The literature review and previous research studies indicate that denial and secrecy may play a role in the maintenance of an eating disorder. The purpose of the present study was to determine whether a relationship existed between levels of secrecy and eating disordered thoughts and behaviors in a high school population.

In the current study, responses on the Eating Disorder Inventory-3 (EDI-3) and the secrecy inventory were compared to determine any relationships between items on these measures. Pearson's product moment correlations (Pearson r) were calculated to assess correlational relationships between variables. Univariate Analysis of Variance (ANOVA) tests were completed to compare variations between group averages.

Correlations were found between EDI-3 EDRC scores and scores on the secrecy inventory. In males, high Eating Disorder Risk Composite (EDRC) scores on the EDI-3 were found to be positively correlated with withholding information from others. While males with a higher risk of an eating disorder reported they withhold more information from others, females with a higher risk of an eating disorder reported they did not withhold information from others.

Contrary to the results found by Evans and Wertheim (1998) and Meyer (2001), no significant positive correlations were found between females' levels of eating disordered thoughts/behaviors (as measured by EDRC scores) and secrecy levels. Data indicates that males with a risk of an eating disorder withhold more information and have higher levels of secrecy than females with a risk of an eating disorder. Males with high levels of Drive for Thinness, Bulimia, and Body Dissatisfaction reported that they withhold information from others, while females with Drive for Thinness, Bulimia, and Body Dissatisfaction reported that they do not withhold information from others. Higher levels of secrecy were found in males with eating disordered thoughts and behaviors, but were not found in females with eating disordered thoughts and behaviors.

Univariate Analysis of Variance (ANOVA) results determined that females were more likely to rate themselves within the Typical to Elevated Clinical ranges. Fifteen males and 10 females scored within the Low Clinical range. Thirteen males and 21 females scored within the Typical to Elevated Clinical ranges. Individuals in the Typical or Elevated Clinical categories reported higher levels of secrecy than individuals in the Low Clinical category. Within the Low Clinical category, males reported higher levels of secrecy than females. Similarly, within the Typical or Elevated Clinical category, males reported higher levels of secrecy than females.

ANOVA results also indicated that the severity of eating disordered thoughts and behaviors (as indicated by Low Clinical and Typical/Elevated Clinical EDI-3 EDRC scores) was found to have a significant effect on secrecy level. This finding supports research from Barth (2008), Gayle (2006), Huke and Slade (2006), Siebold (2008), and Smart and Wegner (1999). Gender was not found to have a significant effect on secrecy level. The interaction between eating disordered thoughts/behaviors and gender was not found to have a significant effect on secrecy level. Since not all participants in the study had boyfriends/girlfriends or

counselors/psychologists, a second ANOVA comparative analysis was completed. Questions regarding boyfriends/girlfriends and counselors/ psychologists were taken out of the secrecy inventory. Results indicated that the severity of eating disordered thoughts and behaviors had a significant effect on secrecy level when boyfriend/girlfriend and counselor/psychologist questions were removed. Gender was not found to have a significant effect on secrecy level when boyfriend/girlfriend and counselor/ psychologist questions were removed. However, this factor approached the .05 significance level ($p = .074$). The interaction between eating disordered thoughts/behaviors and gender was not found to have a significant effect on secrecy level when boyfriend/girlfriend and counselor/psychologist questions were removed.

Correlations were discovered between EDI-3 scores and scores on the secrecy inventory. According to responses by male subjects, males with a higher risk of an eating disorder reported keeping more secrets from family members, keeping more secrets from friends, and keeping more secrets from their significant others. Contrary to the results found by Meyer (2001), no significant positive correlations were found between females' levels of eating disordered thoughts/behaviors (as measured by EDRC scores) and secrecy in relationships. There was an inverse relationship between EDRC scores and secrecy with others, indicating that females with a higher risk of an eating disorder do not maintain high levels of secrecy with friends, significant others, and counselors. Results contradicted the findings by Pettersen et al. (2008), as data indicated that females tend to disclose more information, maintain open communication in relationships, and perhaps admit to higher levels of disordered thoughts and behaviors. Data obtained from both males and females indicates that males with eating disordered thoughts or behaviors (as indicated by EDRC scores on the EDI-3) maintain higher levels of secrecy in various types of relationships than people without eating disordered thoughts or behaviors.

Males with eating disordered thoughts or behaviors also maintain higher levels of secrecy in various types of relationships than females with eating disordered thoughts or behaviors.

In males, the Drive for Thinness, Bulimia, and Body Dissatisfaction were all found to be positively correlated with secrecy in friendships and secrecy in romantic relationships. This indicates that males who display thoughts and behaviors associated with a drive for thinness, bulimia, and body dissatisfaction maintain higher levels of secrecy in various relationships. In females, Drive for Thinness was found to be negatively correlated with secrecy with a counselor/psychologist. Bulimia was found to be negatively correlated with secrecy in friendships and secrecy with a counselor/psychologist. In contrast to males, females who display thoughts and behaviors associated with a drive for thinness and bulimia do not maintain high levels of secrecy in relationships with others. In fact, they appear to disclose information and maintain open communication with friends, significant others, and counselors/psychologists.

Data indicates that secrecy levels differ depending on eating disordered thoughts/behaviors, gender, and type of relationship. Males with eating disordered thoughts/behaviors reported that they were more likely to uphold secrecy with their friends and significant others than with their family or counselor/psychologist. Females with eating disordered thoughts/behaviors reported insignificant levels of secrecy with family, friends, and significant others. Females reported that they maintain less secrecy with their counselor or psychologist. Females appear to avoid secrecy in this type of relationship and maintain more open communication with their counselor/psychologist.

Limitations

Although the researcher attempted to obtain as much control as possible over this study, there were several limitations that may have interfered with obtaining clear and accurate results.

In this research study, subjects were asked to complete two questionnaires and provide honest answers on all items. The researcher assumed that subjects were able to self-interpret their own experiences, thoughts, and actions. Since it was impossible for the researcher to directly observe, measure, and record subject behaviors, data was obtained on the basis of trust. The research may be limited by ability to elicit honest responses from the participants. Since the inventories assess sensitive subjects (eating disorder symptoms and secrecy), participants may not have disclosed their true thoughts or behaviors. Since the inventories were distributed in class, participants may have answered quickly or carelessly, as their responses were not graded or used for diagnostic purposes.

Because no known assessments exist for measuring levels of secrecy, a measure of secrecy was developed by the researcher. Although this questionnaire was created with university faculty advisement and was determined to have face validity, no statistical analysis was completed to substantiate the validity and reliability of this measure.

The current study utilized correlational analysis using Pearson's product moment correlations (Pearson r) and comparative analysis using univariate Analysis of Variance (ANOVA). Correlational and comparative studies are unable to determine causation of any factor. Therefore, results from this study cannot confirm the causation of secrecy levels or eating disordered thoughts/behaviors.

The results of this study may not be easily generalized to a larger population. All participants were students at a high school in southern Minnesota, and the findings may be limited by the size of the representative sample. More studies would need to be conducted with male and female subjects in order to show patterns in responses, thereby supporting the generalizability of these findings.

Even though these limitations exist, the research is intended to help practitioners, educators, and parents better understand the prominence of secrecy in eating disorders. This information will hopefully contribute to a more complete understanding of the role of secrecy in eating disorders.

Suggestions for Future Research

This study examined eating disordered thoughts/behaviors and levels of secrecy. Results were obtained by self report assessments administered in a large group setting. Similar studies conducted in the future would be better controlled if the researcher was able to collect data through individual interviews or individually administered assessments. Such strategies might decrease the chances of inaccurate reporting of thoughts and behaviors.

Because few studies have been conducted on the topic of secrecy in eating disorders, future research needs to be carried out in order to learn more about the topic. Eating disorders are prevalent in our society and it remains unknown how eating disorders begin and why they progress to dangerous levels. By studying secrecy within eating disorders, researchers can enhance the knowledge on the topic. More research is needed to further understand the progression of secrecy within eating disorders. Given eating disorders are widespread in our society, any future research on the experience of eating disorders will be helpful in understanding and treating the disorder.

Implications for Practice

While the nature of this study appears to be more applicable to the field of clinical psychology, it is also an important topic for school psychologists. With the increasing prevalence of eating disordered behaviors in adolescents in the United States, school psychologists, as well as general and special education staff, need to be aware of the signs,

severity, and possible secrecy surrounding eating disordered behaviors.

While previous research has indicated that eating disorders are more common in females, the current study found that both male and female adolescents report eating disordered thoughts and behaviors. Adolescent males also reported high levels of secrecy in association with eating disordered thoughts/behaviors. School psychologists, as well as other professionals, need to recognize that eating disordered behaviors exist in both genders, and males may be more likely to conceal their thoughts and maintain secrecy in regard to eating disordered behaviors.

School psychologists often work collaboratively with general education and special education staff members. A team of professionals work together to serve the needs of individual students; team members may include parent(s), teacher(s), psychologist, nurse, physical therapist, and/or adapted physical education instructor. An interdisciplinary team can work together to uncover concerns and/or unhealthy behaviors in students and establish appropriate supports or programs for each child. Because school psychologists have expertise in behavioral analysis and interventions, they are able to work with school staff in order to set up interventions and assess the effectiveness of these interventions.

The current study supports literature reviews and studies, which indicate a correlation between eating disordered behavior and secrecy. The literature indicates secretive thoughts and behaviors may have an impact on the formation and maintenance of an eating disorder. With this knowledge, school psychologists can work with school staff members to set up appropriate interventions for students who are displaying eating disordered thoughts or behaviors. Interventions may include, but are not limited to: talking individually with a school psychologist, school counselor, or trusted teacher in order to increase communication and decrease the level of secrecy surrounding eating disordered behaviors, participating in group discussions with

facilitation from a school psychologist or school counselor, or establishing an adult or peer mentor to encourage open communication. The goal of each intervention would be to increase a student's communication and self-disclosure and reduce the amount of shame and secrecy often associated with eating disordered thoughts and behaviors.

Summary

Eating disorders have become widespread during the past few decades, especially among young adolescents. Many eating disordered behaviors, such as starvation and binging and purging, are done in secret. Some studies demonstrate a correlation between eating disordered behavior and secrecy, but this relationship has not been explored thoroughly.

Research studies have found that there may be a variety of secretive thoughts and behaviors that can have an impact on the formation and maintenance of an eating disorder. These factors include secrecy (Barth, 2008; Gayle, 2006; Huke & Slade, 2006; Siebold, 2008; Smart & Wegner, 1999), a lack of self awareness (Barry, 1992; Vitousek et al., 1998), denial (Vitousek et al., 1998), and a person's readiness to change (Gusella et al., 2003; Prochaska et al., 1992). Although these factors may play a role in the prominence of an eating disorder, no conclusive relationships have been found between levels of secrecy and eating disordered behavior.

The purpose of the present study was to determine whether a relationship exists between levels of secrecy and eating disordered thoughts and behaviors. Data indicates that that secrecy levels differ based on the level of eating disordered thoughts and behaviors, gender, and type of relationship. Correlational data indicated a significant positive relationship between eating disordered thoughts/behaviors and secrecy levels in males. Negative relationships were found between eating disordered thoughts/behaviors and secrecy levels in females.

Univariate Analysis of Variance (ANOVA) results indicated that the level of eating disordered thoughts and behaviors had a significant effect on secrecy levels. An individual's EDI-3 EDRC score had an effect on secrecy levels with others, whether or not girlfriend/boyfriend and counselor/psychologist questions were included in the secrecy inventory. Gender did not appear to have a significant effect on secrecy levels with others, but gender approached a significant level when boyfriend/girlfriend and counselor/psychologist questions were removed. The interaction between eating disordered thoughts/behaviors and gender was not found to have a significant effect on secrecy level.

Correlational data indicated that the relationship between secrecy levels and eating disordered thoughts/behaviors differs depending on gender and type of relationship. Males who reported eating disordered thoughts/behaviors maintained higher levels of secrecy in various types of relationships than people without eating disordered thoughts or behaviors. Males with eating disordered thoughts/behaviors also maintained higher levels of secrecy in various types of relationships than females with eating disordered thoughts or behaviors. Males reported that they were more likely to uphold secrecy with their friends and significant others than with their family or counselor/psychologist. In females, no positive correlations were found between eating disordered thoughts/behaviors and secrecy in relationships. However, there was a significant inverse relationship between EDI-3 scores and secrecy with friends and counselors/psychologists. There was also an inverse relationship between EDI-3 scores and significant others. This indicates that females with a higher risk of an eating disorder do not maintain high levels of secrecy with friends, significant others, and counselors/psychologists. In fact, they appear to disclose information and maintain open communication in these relationships. Females reported that they maintain most open communication with their

counselor or psychologist. Overall, data appears to support the idea that secrecy levels differ based on the level of eating disordered thoughts and behaviors, gender, and type of relationship.

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Appendix A: Consent Form for High School Students' Parents

Consent to Participate In UW-Stout Approved Research

Title: Attitudes About the Self and Secrecy

Investigator:
Melissa Haley, School Psychologist
Office of Special Education
xxx

Research Sponsor:
Jackie Weissenburger, Associate Professor of Education
University of Wisconsin-Stout
xxx

Description:
Your student is being asked to participate in a research project on attitudes about the self and secrecy. The study will consist of filling out a questionnaire related to thoughts about the body, eating, emotions, communication, and secrecy. The questionnaire will be administered to all students in one of your student's classes and will take approximately twenty minutes. Your student is not required to complete the questionnaire and can withdraw at any time. All information will be kept confidential and will not be available to anyone other than the researcher and faculty members conducing this project. Your student's name will not be linked to any data.

Risks and Benefits:
There is little or no risk to your student in filling out the questionnaire. Responses are completely anonymous and confidential. The questionnaire contains items about communication, secrecy, and eating patterns, and students could experience emotional discomfort. If your student feels uncomfortable with questions, he/she may discontinue the project at any time. Students will be given the opportunity to talk with me or a school counselor during and after the questionnaires are distributed. As a young adult, your student will be allowed to identify attitudes about him/herself and thoughts on secrecy. This research can help effectively measure attitudes about the self and secrecy and contribute to the knowledge of young adults in our society.

Special Populations:
Since your student may be a minor, this letter is being sent to parents or guardians so they may be informed of the project.

Time Commitment and Payment:
Students will be provided time during their study hall to complete the questionnaires. The questionnaires will take approximately twenty minutes to complete. No payment or compensation will be given.

Confidentiality:
Your student's name will not be included on any documents. We do not believe that your student can be identified from any of this information.

Right to Withdraw:
Your student's participation in this study is entirely voluntary. Your student may choose not to participate without any adverse consequences to him/her. However, should your student choose to participate and later wish to withdraw from the study, there is no way to identify the anonymous document after it has been turned into the investigator.

IRB Approval:
This study has been reviewed and approved by The University of Wisconsin-Stout's Institutional Review Board (IRB). The IRB has determined that this study meets the ethical obligations required by federal law and University policies. If you have questions or concerns regarding this study please contact the Investigator or Advisor. If you have any questions, concerns, or reports regarding your rights or the rights of your student as a research subject, please contact the IRB Administrator.

Investigator:
Melissa Haley, School Psychologist
xxx

IRB Administrator:
Sue Foxwell, Director, Research Services
xxx

Advisor:
Jackie Weissenburger, Associate Professor of Education

Statement of Consent:
When your student signs the consent form and completes the described questionnaire, he/she agrees to participate in the project entitled "Attitudes About the Self and Secrecy."

Appendix B: Information Given to Students Regarding the Research Study

Statement Read to Students Before Filling out the Questionnaires

You are being asked to participate in a research project on attitudes about the self and secrecy. Your participation in this study is entirely voluntary. The study will consist of filling out questionnaires related to thoughts about the body, eating, emotions, communication, and secrecy. Your name will not be linked to any data. All information will be kept confidential and will not be available to anyone other than the researcher and faculty members conducing this project. There is little or no risk to you in filling out the questionnaire. If you feel uncomfortable with questions, you may discontinue the project at any time. You also have the opportunity to talk with me or a school counselor during and after the questionnaires are distributed. As a young adult, you will be allowed to identify attitudes about yourself and thoughts on secrecy. This research can help effectively measure attitudes about the self and secrecy.

Do you have any questions?

When you sign the consent form, you agree to participate in the project entitled "Attitudes About the Self and Secrecy."

Appendix C: Consent Form for High School Students

Consent to Participate In UW-Stout Approved Research

Title: Attitudes About the Self and Secrecy

Investigator:
Melissa Haley, School Psychologist
Office of Special Education
xxx

Research Sponsor:
Jackie Weissenburger, Associate Professor of Education
University of Wisconsin-Stout
xxx

Description:
You are being asked to participate in a research project on attitudes about the self and secrecy. The study will consist of filling out a questionnaire related to thoughts about the body, eating, emotions, communication, and secrecy. This is a voluntary study and you can withdraw at any time. All information will be kept confidential and will not be available to anyone other than the researcher and faculty members conducing this project. Your name will not be linked to any data.

Risks and Benefits:
There is little or no risk to you in filling out the questionnaire. Responses are completely anonymous and confidential. The questionnaire contains items about communication, secrecy, and eating patterns, and you may experience emotional discomfort. If you feel uncomfortable with questions, you may discontinue the project at any time. You also have the opportunity to talk with me or a school counselor during and after the questionnaires are distributed. As a young adult, you will be able to identify your attitudes about yourself and your thoughts on secrecy. This research can help effectively measure attitudes about the self and secrecy and contribute to the knowledge of young adults in our society.

Special Populations:
Since you are likely a minor, a letter of implied consent was sent to your parents/guardians in order to inform them of this research project.

Time Commitment and Payment:
You will be provided time during your study hall to complete the questionnaires. The questionnaires will take approximately twenty minutes to complete. No payment or compensation will be given.

Confidentiality:
Your name will not be included on any documents. We do not believe that you can be identified from any of this information.

Right to Withdraw:
Your participation in this study is entirely voluntary. You are not required to complete the questionnaire and may withdraw at any time. If you do not wish to participate, you can leave the questionnaire blank and place it in the envelope when the class is instructed to do so. If you do choose to participate and later wish to withdraw from the study, there is no way to identify the anonymous document after it has been turned into the investigator.

IRB Approval:
This study has been reviewed and approved by The University of Wisconsin-Stout's Institutional Review Board (IRB). The IRB has determined that this study meets the ethical obligations required by federal law and University policies. If you have questions or concerns regarding this study please contact the Investigator or Advisor. If you have any questions, concerns, or reports regarding your rights as a research subject, please contact the IRB Administrator.

Investigator:
Melissa Haley, School Psychologist
xxx

IRB Administrator:
Sue Foxwell, Director, Research Services
University of Wisconsin-Stout
xxx

Advisor:
Jackie Weissenburger, Associate Professor of Education
University of Wisconsin-Stout
xxx

Statement of Consent:
When you sign this consent form and complete the described questionnaire, you agree to participate in the project entitled "Attitudes About the Self and Secrecy."

I attest that I have read and understood the above description, including potential risks, benefits, and my rights as a participant, and that all of my questions about the study have been answered to my satisfaction. I hereby give my informed consent to participate in this research study.

Signature _____ Date_____

Appendix D: Secrecy questionnaire

This questionnaire will ask you about your thoughts and behaviors related to secrecy. There are no right or wrong answers. Please answer each question honestly.

A=Always U=Usually O=Often S=Sometimes R=Rarely N=Never N/A=Not Applicable

1. I like to keep information about myself private.	A	U	O	S	R	N	
2. It is okay to withhold information from others.	A	U	O	S	R	N	
3. I feel ashamed when I keep secrets from people.	A	U	O	S	R	N	
4. I keep secrets from my family.	A	U	O	S	R	N	
5. I keep secrets from my friends.	A	U	O	S	R	N	
6. I keep secrets from my boyfriend/girlfriend.	A	U	O	S	R	N	N/A
7. I keep secrets from my counselor/psychologist.	A	U	O	S	R	N	N/A
8. I am very private about my feelings.	A	U	O	S	R	N	
9. I am very private about my eating habits.	A	U	O	S	R	N	
10. When I have a large problem, I keep it to myself.	A	U	O	S	R	N	
11. I talk about my problems with my family.	A	U	O	S	R	N	
12. I talk about my problems with my friends.	A	U	O	S	R	N	
13. I talk about my problems with my boyfriend/girlfriend.	A	U	O	S	R	N	N/A
14. I talk about my problems with my counselor/psychologist.	A	U	O	S	R	N	N/A
15. I have kept a big secret from my family.	A	U	O	S	R	N	
16. I have kept a big secret from my friends.	A	U	O	S	R	N	
17. I have kept a big secret from my boyfriend/girlfriend.	A	U	O	S	R	N	N/A
18. I have kept a big secret from my counselor/psychologist.	A	U	O	S	R	N	N/A
19. I feel comfortable disclosing information about myself to my family.	A	U	O	S	R	N	
20. I feel comfortable disclosing information about myself to my friends.	A	U	O	S	R	N	
21. I feel comfortable disclosing information about myself to my boyfriend/girlfriend.	A	U	O	S	R	N	N/A
22. I feel comfortable disclosing information about myself to my counselor/psychologist.	A	U	O	S	R	N	N/A
23. My family members tell me secrets about themselves.	A	U	O	S	R	N	
24. My friends tell me secrets about themselves.	A	U	O	S	R	N	
25. My boyfriend/girlfriend tells me secrets about him/herself.	A	U	O	S	R	N	N/A