THE IMPACT OF PERCEIVED COERCION ON EATING DISORDER TREATMENT
OUTCOMES

by
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Abstract

Introduction: Whether or not coerced mental health treatment is as effective as non-coerced treatment remains a highly debated topic. Perceived coercion can be described as how much a patient feels pressured to participate in treatment. How the level of perceived coercion upon admission to eating disorder treatment effects treatment outcome is currently unknown. This study evaluated the relationship between level of perceived coercion upon admission to eating disorder treatment and treatment outcomes one year post discharge.

Methods: Patients over 18 years of age admitted to the Eating Disorder Center at Rogers Memorial Hospital from March 2012 to June 2013 were invited to participate in this study. Level of perceived coercion was measured via the Admission Experience Survey at admission and discharge, and treatment outcome was measured via the Eating Disorder Examination Questionnaire version 4, at admission, discharge, and one year post discharge. Linear regression was conducted to identify relationships between perceived coercion and treatment outcome.

Results: There was no difference in gender, diagnosis, age, and length of stay between patients who did and did not participate in the study. Age had a weak but significant inverse association with perceived coercion. Average perceived coercion scores at discharge of participants diagnosed with BN (7.9 +/- 6.9) were significantly lower than those of participants diagnosed with AN (11.5 +/- 18.8) and EDNOS (11.3 +/- 21.6) (p=.009). Average score on the Eating Disorder Examination Questionnaire was significantly higher for females compared to males at admission and discharge. There was no relationship between average Admission Experience Survey score at admission and Eating Disorder Examination score at the one year follow-up (n=11)(R^2 = 0.1506, p = 0.238).

Conclusion: Effective eating disorder treatment outcomes may be achieved regardless of level of perceived coercion at admission, which provides initial evidence that eating disorder treatment can be effective even when the patient feels coerced to participate.

ACKNOWLEDGMENTS

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Chapter 1: Introduction

The topic of coercion, as it relates to mental health treatment, is a globally controversial issue. One aspect of coercion recently emerging and gaining interest in the mental health treatment community is that of perceived coercion. According to Guarda et al., (2007) perceived coercion can be described as "how much a patient feels forced, pushed or intimidated into treatment". Perceived coercion is measured and identified as separate from the use of actual coercive methods when analyzing level of coercion at admission. Perceived coercion is a relatively new concept especially in the metal health sub population of eating disorders but it has received some attention in general mental health.

Studies conducted by Bindman et al., (2005), Rain et al., (2003) and Rain, Steadman and Robbins (2003) explored how treatment outcomes are affected by level of perceived coercion at admission to treatment in general mental health populations. Results from these studies suggest there is no relationship between level of perceived coercion at admission and treatment outcomes further suggesting that level of perceived coercion at admission is not predictive of treatment outcomes.

Research conducted by Guarda et al. in 2007 was the first study to explore the topic of perceived coercion in the eating disorder population. However, no known research has examined the relationship between level of perceived coercion at admission and treatment outcomes in the eating disorder population. Eating disorder treatment outcomes can be acceptably measured in a number of different ways with the most common measure being the frequency of engagement in eating disorder behaviors. Assessing treatment outcomes after treatment completion is one indicator of the effectiveness of the provided treatment. Although engaging in structured eating

disorder treatment is the most accepted course of action following eating disorder diagnosis, eating disorder psychology commonly presents with ambivalence towards recovery and treatment refusal. At times, ambivalence and treatment refusal can lead to feelings of being coerced into treatment, especially at the time of admission. Currently, two conflicting beliefs exist regarding the efficacy of coerced treatment. The first belief finds that coerced treatment is generally ineffective while the second belief finds that coerced treatment can be effective. In order to determine whether or not coerced eating disorder treatment is or is not effective this study will explore the relationship between perceived coercion at admission and treatment outcomes post discharge.   This study hypothesized that level of perceived coercion at admission to eating disorder treatment would not significantly affect the treatment outcomes.

Sub problems: Sub problems to the study included finding level of perceived coercion at admission and discharge and measuring eating disorder severity at admission, discharge and follow-up.

Limitations: Limitations to the study included the lack of legally involuntary admissions, the high rate of loss to follow-up, and the fact that the level of care at admission was only residential.

Delimitations: Delimitations to the study included time limitations of the researcher, exclusion of patients admitted at the inpatient and partial hospitalization levels of care, exclusion of minors, a lack of participants admitted on an involuntary legal status and exclusion of participants who did not complete the Admission Experience Survey (AES) at admission.

Assumptions: Assumptions were that participants completed the questions on the AES and Eating Disorder Examination Questionnaire (EDE-Q) as honestly as possible.

List of Definitions:

Perceived Coercion: Level of pressure a person feels to enter into treatment.

Eating Disorder: All those diagnoses listed under the eating disorder category in the Diagnostic and Statistical Manual of mental disorders (4th ed., text rev.) (DSM-IV-TR).

Anorexia Nervosa: characterized by a refusal to maintain a minimally normal body weight.

Bulimia Nervosa: 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.

Eating Disorder Not Otherwise Specified: characterized by disordered eating behaviors that that do not meet criteria for a specific Eating Disorder.

Pica: characterized by persistent and compulsive cravings (lasting 1 month or longer) to eat nonfood items.

Rumination Disorder: characterized by bringing up food from the stomach into the mouth (regurgitation) and re-chewing the food.

Avoidant/Restrictive Food Intake Disorder: characterized by symptoms that do not match the criteria for traditional eating disorder diagnoses but significant struggles with eating and food are present.

Binge Eating Disorder: characterized by frequently consuming unusually large amounts of food, usually in secret.

Cognitive Behavioral Therapy: psychotherapeutic approach that addresses dysfunctional emotions, maladaptive behaviors and cognitive processes and contents through a number of goal-oriented, explicit systematic procedures.

Motivational Enhancement Therapy: is an adaptation of motivational interviewing (MI) that includes one or more client feedback sessions in which normative feedback is presented and discussed in an explicitly non-confrontational manner.

Asceticism: a person can attain a high spiritual and moral state by practicing self-denial, self-mortification, and the like.

Coercive Methods: defined as the pressures exerted by one person (or organization) on another with the intention of making the latter act in accordance with the wishes of the former including persuasion, interpersonal ,leverage, inducements, threats, and compulsory treatment.

Chapter 2: Review of Related Literature

Eating disorders as defined by the DSM-IV-TR include the diagnoses Anorexia Nervosa (AN), Bulimia Nervosa (BN), and Eating Disorder Not Otherwise Specified (ED-NOS). All three diagnoses involve engagement in various eating behaviors which impact the physical and mental functioning of an individual reducing the functionality of the individual. Recovery from an eating disorder via a reduction in the frequency of engagement in eating disorder behaviors is crucial in improving the functional capacity of the individual. Treatments specific to eating disorder recovery is one pathway with the potential to reduce the frequency of eating disorder behaviors. However, acceptance of eating disorder treatment can be complicated by an individual's resistance to recovery. These feelings of resistance to recovery can lead to feelings of being coerced into treatment. How much an individual feels forced, pushed or intimidated into treatment has been termed perceived coercion (Guarda et al., 2007). The impact of perceived coercion on eating disorder treatment outcomes is not yet fully understood. Understanding the impact or perceived coercion is important in determining whether or not coerced treatment can be effective.

The purpose of this literature review is to critically analyze existing research regarding perceived coercion, both in the general mental health population and the sub population of eating disorders, and its relationship to treatment outcomes. To the best knowledge of this researcher, as determined by an extensive internet database search for peer reviewed articles on this topic, previous studies regarding perceived coercion in the eating disorder population are limited to a single study completed by Guarda et al in 2007. Studies that investigated the relationship between perceived coercion and treatment outcomes in the general mental health population will be reviewed and utilized to provide evidence that has relevance to the sub population of eating

disorders. First, a general overview of the topics eating disorders and perceived coercion will be discussed.

Eating Disorders

There is no universally agreed upon definition that exists to encompass the three conditions that comprise the group of disorders termed eating disorders. Thus, several descriptions developed by experts in the field of eating disorders will be utilized to provide an understanding. Setnick (2011) described eating disorders as abnormal and maladaptive eating and related behaviors with psychological and biological underpinnings. Fairburn and Walsh (2002) described eating disorders as "a persistent disturbance of eating behavior or behavior intended to control weight, which significantly impairs physical health or psychosocial functioning".

The American Psychiatric Association (APA) oversees the development and regulation of the criteria used to diagnose eating disorders and thus offers the most comprehensive definition available. Although the updated Diagnostic and Statistical Manual of Mental Disorders (5th ed.) (DSM-5) was released in May 2013 the DSM-IV-TR definitions will be used here for consistency with the time period over which data collection occurred, March 2012 to June 2013. A discussion of the differences between the DSM-IV-TR and the DSM-5 follows. The DSM-IV-TR identified Anorexia Nervosa (AN), Bulimia Nervosa (BN), and Eating Disorder Not Otherwise Specified (ED-NOS) as diagnoses within the more general category of Eating Disorders (American Psychiatric Association, 2000). Diagnostic criteria for AN, BN and ED-NOS will be reviewed here for increased understanding and will serve as the definition for each individual disorder.

Diagnostic criteria. AN, coded 307.1 in the DSM-IV-TR (American Psychiatric Association, 2000), contains the following four diagnostic criterions:

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 post-menarcheal females, amenorrhea, i.e., the absence of at least 3 consecutive menstrual cycles. (A woman is considered to have amenorrhea if her periods occur only following hormone, e.g., estrogen, administration.

Following the AN diagnosis using the above criterion, the DSM-IV-TR distinguishes the type of AN:

Restricting type: During the current episode of anorexia nervosa, the person has not regularly engaged in binge eating or purging behavior (i.e., self-induced vomiting or the misuse of laxatives, diuretics, or enemas).

Binge eating/purging type: during the current episode of anorexia nervosa, the person has regularly engaged in a binge eating or purging behavior (i.e., self-induced vomiting or the misuse of laxatives, diuretics, or enemas).

BN, coded 307.51 in the DSM-IV-TR (American Psychiatric Association, 2000) contains the following five diagnostic criterions:

A. Recurrent episodes of binge eating, characterized by both 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 three months.
D. Self-evaluation is unduly influenced by body shape and weight.
E. The disturbance does not occur exclusively during episodes of anorexia nervosa.

Following the BN diagnosis using the above criterion the DSM-IV-TR (American

Psychiatric Association, 2000) distinguishes the type of BN:

> Purging type: During the current episode of bulimia nervosa, the person has regularly engaged in self-induced vomiting or the misuse of laxatives, diuretics, or enemas.

> Non-purging type: During the current episode of bulimia nervosa, the person has used other inappropriate compensatory behaviors, such as fasting or excessive exercise, but has not regularly engaged in self-induced vomiting or the misuse of laxatives, diuretics, or enemas.

ED-NOS, coded 307.50, is reserved for atypical eating disorders, those that are not best

defined by AN or BN, but have clinical significance. An ED-NOS diagnosis does not imply the

presence of a milder version of AN or BN but rather defines a disorder with characteristics

separate from AN or BN (Fairburn and Walsh, 2002). Binge Eating Disorder (BED), described

as recurrent episodes of binge eating in the absence of extreme compensatory behavior, is one

potential presentation of ED-NOS. Fairburn and Walsh (2002) reported that most atypical eating

disorders share with AN and BN the classic eating disorder characteristics of over evaluation of

eating, weight and shape. The ED-NOS category currently includes research criterion for BED

(Fairburn & Walsh, 2002). Setnick (2011) cautions that the ED-NOS diagnosis should not be

considered a less severe form of AN or BN but rather a diagnostic category that includes many

eating disorders not yet defined.

Variations of possible ED-NOS cases are listed in the DSM-IV-TR (American

Psychiatric Association, 2000) in place of diagnostic criterion:

> 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 of for a duration of less than three months.
4. The regular use of inappropriate compensatory behavior by an individual of 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.

As mentioned previously, the DSM-IV-TR was updated and released as the DSM-5 in May 2013. The DSM-5 renamed the DSM-IV-TR category of eating disorders as Feeding and Eating Disorders. The Feeding and Eating Disorders category now recognizes six diagnoses as opposed to the three recognized by the DSM-IV-TR: Pica, Rumination Disorder, Avoidant/Restrictive Food Intake Disorder, Anorexia Nervosa, Bulimia Nervosa, and Binge Eating Disorder. A discussion of all the differences between the DSM-IV-TR category of Eating Disorders and the DSM-5 category of Feeding and Eating Disorders is beyond the scope of this paper. However, three changes have such significance that mention is essential. ED-NOS no longer exists as a recognized diagnosis, BED now exists as a stand-alone diagnosis, and amenorrhea is no longer considered criteria for AN diagnosis (American Psychiatric Association, 2013).   At the time of data collection, AN, BN, and ED-NOS as defined by the DSM-IV-TR were the three individual diagnoses available to clinicians and thus the remainder of this review will consider only the DSM-IV-TR diagnoses and criteria for consistency.

Eating disorder diagnoses should not be confused with the term *disordered eating.* Disordered eating has no clinical definition that is agreed upon by professionals nor is the term recognized by the DSM-IV-TR or DSM-5. Disordered eating is best summarized by Tholking et al., (2011) as attitudes about food, weight, body size, and body shape that are associated with

rigid eating and exercise behaviors that jeopardize physical health, emotional stability, and safety. Disordered eating and eating disorders both have the ability to produce negative effects on the emotional, social and physical health of an individual. Disordered eating and eating disorders may present with similar symptoms and health complications. However, disordered eating is not synonymous with a diagnosed eating disorder and this understanding is vital to comprehend the acute and chronic dangers of a diagnosed eating disorder.

History. A discussion of the historical background of AN, BN and ED-NOS will provide information that is vital to fully comprehending their current clinical significance and social influence.

Historians have documented cases of individuals struggling with symptoms similar to that of AN as early as the 14th century. Documentation from the 1300s detailed cases of young girls engaging in self-imposed starvation for religious purposes. These girls were given the label "holy anorexics". The most infamous case of the "holy anorexics" was Saint Catherine of Sienna (1347-80), was one of the first women documented as suffering with symptoms similar to that of modern day AN. The period of "holy anorexia" in its entirety was short lived, and in the sixteenth century, the Catholic Church no longer tolerated asceticism. Anorexics were, in fact, after that condemned as witches (Brumberg, 2000).Despite its well documented existence, not all historians agree that "holy anorexics" would fit the DSM-IV-TR criteria for AN as it is defined today.   Thus, interpretation of the label "holy anorexic" remains open to debate (Silverman, 1995). Nonetheless, symptoms and behaviors similar to those found in modern day AN can be traced back hundreds of years.

AN resurfaced again at the end of the 17th century when English physician, Richard Morton, coined the term "nervous consumption". Nervous consumption was described by Morton as a condition of wasting due to emotional turmoil (Silverman, 1995). Morton is credited with authoring the first medical account of AN.

In 1764, seventy five years after Morton's medical account of AN, Robert Whytt, documented a case of "nervous atrophy" in a 14 year old boy. The nervous atrophy was described by Whytt as self-imposed starvation. In addition to his recognition of nervous atrophy, Whytt is also credited as being the first professional to recognize that bradycardia, a slowed heart rate, accompanies the process of starvation (Silverman, 1995). Bradycardia is a condition that remains relevant in cases of AN today.

In 1874, Dr. William W. Gull presented the paper *Anorexia Nervosa* to the clinical society of London believing that the illness was due to a "morbid mental state" (Silverman, 1995, p.143). Gull's description of a "morbid mental state" shares the following characteristics with the current DSM-IV-TR definition of AN: severe weight loss, amenorrhea, constipation, restlessness, and no evidence of underlying organic pathology. From the time of Dr. Gull's presentation until the mid-1900's interest in AN from a clinical and research perspective was minimal with no new developments (Vandereycken, 2002).

In the mid-20th century, American psychiatrist, Hilde Bruch, began conducting research and completing work focused on what is now defined as AN by the DSM-IV-TR. Bruch delved into the psyche of anorexic patients and found three common areas of disordered functioning: a delusion regarding body image and body concept, failure to recognize signs of nutritional needs and a sense of ineffectiveness that pervades all thinking. In 1978, Bruch published *The Golden*

Cage: the Enigma of Anorexia Nervosa describing the classic pursuit of thinness and search for

superiority via self-denial that defines AN (Silverman, 1995). Bruch's work in the 1960s has

been credited as leading to much of the current knowledge regarding AN today (Vandereycken,

2002).

The documented history of BN is far more limited than that of AN. An increase in

incidence of BN behaviors during the 1970's allowed for the recognition and definition of BN by

the British psychiatrist, Gerald Russell (Perry-Jones and Perry-Jones, 1995). Despite its recent

official definition, BN behaviors have been documented throughout 2000 years of human history

(Perry-Jones and Perry-Jones, 1995). The case of Ellen West, published by the Swiss

psychiatrist, Ludwig Binswanger, in 1944 is the best documented case of BN preceding its

official recognition in the 1970s. Although West was inaccurately diagnosed with schizophrenia,

the medical account vividly describes her struggle with the pursuit of thinness, violent vomiting

and laxative abuse (Vandereycken, 2002). BN cases are documented in a rather sporadic manner

throughout history and often overlap with descriptions and cases of persons already described as

struggling with the self-starvation behaviors more classically associated with AN . Catherine of

Sienna, the case of the "holy anorexic", was purported to use a straw to perform self-induced

vomiting, a behavior more classically associated with BN. Despite overlap with AN in historical

documentation, the cases of Catherine of Sienna and Ellen West provide evidence of BN's

existence on human history far preceding its widespread recognition in the 1970s.

The history of ED-NOS is far more limited than that of both AN and BN. Due to the

large variant of eating and feeding disturbances comprising the ED-NOS diagnosis, a

comprehensive history is not well understood and is thus not available for review at this time.

Incidence and mortality. The National Institutes of Health (NIH) reported lifetime prevalence rates for Eating Disorders between 2001 and 2003 in a study published by Hudson, Hiripi, Pope, and Kessler in 2007. The study revealed the following incidence rates: 0.6% for AN, 1.0% for BN, 2.8% for BED, 1.2% for sub-threshold binge eating disorder, and 4.5% for any binge eating. A sub-threshold eating disorder describes a situation in which the symptoms of the individual do not meet existing criteria for diagnosis but may meet criteria in the future. BED, sub-threshold binge eating disorder and any binge eating would fall into the ED-NOS diagnostic category of the DSM-IV-TR.

Lifetime prevalence was consistently one and three fourths to three times higher among women as men for AN, BN, and BED, three times as high among men as women for sub-threshold binge eating disorder, and approximately equal among women and men for any binge eating (Hudson, Hiripi, Pope, and Kessler, 2007). High rates of treatment refusal and ambivalence regarding recovery, which will be discussed at length later in this review, likely impact reported rates of incidence for eating disorders.

Keel and Brown (2010) conducted a literature review summarizing eating disorder mortality rate found in 26 different articles. The Keel and Brown (2010) review found a range of AN associated mortality from 0-8% with a cumulative rate of 2.8%, estimated BN mortality rates ranged from 0-2% with a cumulative rate of 0.4%, and estimated ED-NOS mortality rates were found to be 0%. However, when BED was reviewed independently of the entire ED-NOS category, mortality rates ranging from 0-3% with a cumulative rate of 0.5% were found. After adjusting for duration of follow-up, death appeared to be almost five times as likely to occur in AN as compared to BN across the 26 studies that were reviewed (Keel and Brown, 2010). The

rates of mortality may not accurately reflect the mortality rate as many persons with eating disorders go undiagnosed and are thus not included in rate data.

Symptoms and health complications. While AN, BN and ED-NOS each have unique and individual symptoms, they frequently overlap, resulting in similar health complications. AN commonly presents with agitation, amenorrhea (in females), constipation, cold intolerance, fatigue, irritability, denial of illness, bradycardia, dental erosion, dry skin, yellow/orange skin, edema, hair loss, hypotension, inanition, lanugo, low body temperature and low body weight. BN commonly presents with abdominal pain or bloating, constipation, irregular menses, swollen cheeks, dental complaints of erosion, weakness, lesions on knuckles, edema, and salivary gland hypertrophy (Mitchell, Pomeroy, and Adson, 1997). ED-NOS often constitutes cases of sub-acute AN and BN and includes Binge Eating Disorder (BED). Due to inclusion of BED, cases of ED-NOS present with obesity, diabetes, high blood pressure, high blood cholesterol, gallbladder disease, heart disease and certain types of cancer (ADA, 2011). Pomeroy and Mitchell (2002) reported that behaviors associated with AN and BN may result in abnormalities to the following physiologic systems: renal (including electrolyte imbalances), cardiovascular, gastrointestinal, endocrine, metabolic, reproductive, dermatologic, dental, neurologic, hematologic, and immune. Cardiovascular system abnormalities resulting in sudden death due to abnormal heart rate or rhythm is a well described consequence of eating disorders (Pomeroy and Mitchell, 2002).

Treatment. The potential fatalities associated with eating disorder symptoms makes timely treatment essential. Finding effective treatment programs to provide assistance with symptom management is of the utmost priority to successful recovery. Eating disorder treatment aims to reduce or better manage an individual's eating disorder symptoms such that they are prevented from manifesting as health complications.

An ideal treatment program, as defined by Kaplan (2002) meets certain characteristics under three categories: conceptual, clinical and educational. Conceptual characteristics include a multidisciplinary treatment team of clinicians who have experience treating patients with severe and persistent mental illness, up-to-date treatment guidelines and evidence based care, and cost-effective care. Clinical characteristics of a "stepped care" program include: a systematic and comprehensive initial evaluation conducted by a psychiatrist trained in the care of persons with eating disorders, education to give patients an understanding of the psychobiologic nature of the disorder, outpatient psychotherapy including cognitive-behavioral therapy (CBT) and motivational enhancement therapy on an individual or group basis, nutritional counseling, an intensive day hospital treatment program ideally 5 days per week and 8 hours each day, an inpatient program for medical stability, an aftercare and chronic care program focusing on relapse prevention, and special interventions for subgroups of patients with specialized needs. Educational characteristics include providing education to the community, consumers, and clinicians and acting as an advocate in lobbying government and third party payers for adequate insurance coverage and financial resources to adequately treat patients with eating disorders. Additionally Kaplan (2012) emphasized that the administrative structure of an effective eating disorder treatment program includes a clearly designated director who will take steps to main the integrity of the program, including the quality and quantity of care offered.

In measuring treatment outcomes, Peterson (2010) found that eating disorder symptoms are the main outcomes variables and can be measured by interview based measures, questionnaire based instruments, and a variety of other methods including self-monitoring.

 Although Kaplan (2002) identifies Cognitive Behavioral Therapy (CBT) as an effective therapy approach for the treatment of eating disorders, many different therapy approaches are

currently utilized including cognitive remediation, family-based, interpersonal psychotherapy, dialectic behavioral (DBT), integrative cognitive-affective, psychodynamic, self-help, pharmacotherapy, and CBT. The goal of CBT is to change problematic thought patterns that have a negative influence on behavior. Vitousek (2002) acknowledges that the CBT model is slightly preferred over other alternative forms of individual therapy in the treatment of AN, however CBT has not yet been proven to be more effective than other therapies. CBT is the leading evidence based treatment for BN and is currently accepted as the treatment of choice for the disorder (Fairburn, 2002). A systematic review of different treatment methods for BN performed by Shapiro et al. in 2007 revealed findings in agreement with Fairburn (2002). The Shapiro et al. (2007) study provided strong evidence for the effectiveness of CBT in BN cases along with good evidence that the medication Fluoxetine (60mg/day) reduces the frequency of bingeing and purging short term. Due to the large variation of feeding and eating disturbances found in cases of ED-NOS, no studies have been able to offer conclusive findings for a single most effective therapy approach. Garner and Needleman (1997) reported the use of CBT in the treatment of BED to be promising but inconclusive. In 2006, a systematic review of 26 randomized control studies including medication-only, medication plus behavioral intervention, and behavioral intervention only designs concluded that treatment efficacy for BED is variable (Brownley, Berkman, Sedway, Lohr & Bulik, 2007). Currently, CBT is the most widely accepted therapy approach in the treatment of BN. However, several acceptable therapy approaches exist for AN and ED-NOS, including BED. Research to find the most effective therapy approach to successfully treat eating disorders is ongoing.

In addition to therapy recommendations, Kaplan (2002) identified the use of a multidisciplinary team in the treatment of eating disorders. Ideally the team includes a

psychiatrist, psychologist, social worker, occupational therapist, nursing staff and a nutritionist. Eating disorder programs may choose to designate a Registered Dietitian (RD) in the role of the nutritionist to address nutritional complications. Setnick (2011) highlighted some possible functions performed by an RD as a part of a multidisciplinary team: evaluate current eating patterns, share relevant nutrition information with members of the treatment team, construct an individualized plan for improving nutritional status, challenge nutritional myths and beliefs, provide nutrition education, offer food related learning opportunities, and educate family and caregivers regarding eating disorders and/or nutrition.

In addition to the functions outlined by Setnick (2011), an RD may monitor for refeeding syndrome, a medical complication that is of concern in the eating disorder population. Tresley and Sheean (2008) described refeeding syndrome as a life threatening combination of pulmonary, cardiovascular, hepatic, renal, neuromuscular, metabolic, and hematological abnormalities that occur when a severely malnourished individual consumes nutrition at an inappropriate rate. Clinical indicators of refeeding syndrome include hypophosphatemia (e.g., serum phosphorus concentration <1.0 to 1.5 mg/dL [0.3 to 0.5 mmol/L]), hypokalemia (e.g., serum potassium concentration <2.5 mEq/L [<2.5 mmol/L]), hypomagnesaemia (e.g., serum magnesium concentration <1.0 mg/dL [<0.5 mmol/L]), hyperglycemia and thiamin deficiency. As refeeding syndrome can have fatal consequences, the RD will carefully monitor laboratory values and provide slow increases in caloric provisions to provide the best defense against any medical complications (Setnick, 2011).

In August of 2011 the American Dietetic Association (ADA), renamed the Academy of Nutrition and Dietetics (AND) in 2012, released the following position statement regarding nutrition intervention in the treatment of eating disorders:

It is the position of the ADA that nutrition intervention, including nutrition counseling by an RD, is an essential component of the team treatment of patients with AN, BN, and other eating disorders during assessment and treatment across the continuum of care (ADA, 2011).

The position statement also concluded that an RD working in the field of eating disorders should possess collaboration and communication skills, advanced training, and an understanding of the complexities, nutritional complications and sensitivities of eating behaviors.

Barriers to eating disorder treatment. Kaplan (2002) has identified numerous ideal characteristics present in a comprehensive eating disorder treatment program including an appropriate therapeutic method and provision of a multidisciplinary team, including a nutritionist. Ideally, offering a treatment program synonymous with Kaplan's recommendations would ensure recovery from eating disorders. However, providing treatment as a means to eating disorder recovery is frequently complicated by feelings of ambivalence toward recovery and/or treatment refusal.

Ambivalence has been described as "the process of having conflicting motivations" or "feeling two ways about something" (Miler, 1998; Reid and Williams, 2010). The impact of ambivalence on eating disorder treatment and recovery is best understood in individuals diagnosed with AN. Patients with AN are often ambivalent about their need to have treatment because they do not view themselves as unwell. AN contains a psychological component that is ego-syntonic in nature that provides positive reinforcement to the individual in response to engaging in eating disorder behaviors (Treasure, 2002). In AN, feelings of ambivalence stem from the two differing views the individual maintains regarding their disorder, the positive and the negative. Positive attributes might include a feeling of being able to control one's weight or secondary gains from remaining ill while the negative attributes might include symptoms of

depression and anxiety. An individual's ability to acknowledge the positive attributes of an

eating disorder can lead to feelings of ambivalence regarding treatment and obtaining recovery.

Individuals can be resistant to letting go of the negative aspects of the disorder in the hopes of

being able to keep the aspects of the disorder they view as positive.

Feelings of ambivalence toward AN recovery have been labeled as part of the core

psychopathology of the disorder and although BN is believed to be less ego-syntonic in nature

than AN, it does share a drive to engage in unhealthy eating behaviors and an intense fear of

weight gain (Guarda et.al, 2007). At this time little research is available to determine if there is

an ego-syntonic component in the ED-NOS diagnosis.

Ambivalence towards recovery can often lead to treatment refusal. Setnick (2011)

describes the following as some potential reasons for eating disorder treatment refusal: denial of

the presence of the disorder, denial of the severity of the disorder, fear of gaining weight as a

result of recovery, being too embarrassed and/or ashamed of behaviors to discuss them openly,

cost of treatment and inadequate insurance coverage.

Therefore, even with access to an ideal eating disorder treatment program, recovery is

often hindered by an individual's ambivalence toward recovery or treatment refusal.

Ambivalence toward recovery or treatment refusal can prompt professionals to consider using

coercive measures to provide treatment. Goldner, Birmingham and Smye (1997) acknowledged

the significance of treatment ambivalence in the eating disorder population by posing the

question: "What is one to do when a patient is seriously ill and refusing to accept treatment?"

To summarize, AN, BN and ED-NOS comprise the eating disorder diagnoses recognized

by the DSM-IV-TR. The release of the DSM-5 in May 2013 occurred after completion of this

study and thus DSM-IV-TR diagnostic criteria have been used for consistency. A review of the history and incidence, prevalence, and mortality rates provided evidence of the serious and pervasive nature of eating disorders while an examination of symptoms and health consequences revealed the grave nature of these disorders.   Fatalities secondary to health complications provide evidence that eating disorder treatment as a means to recovery can be vital to protecting life. Treatment programs ideally provide an effective form of therapy and a multidisciplinary team of professionals, including an RD, to assist with the recovery process. CBT was shown to be the most effective therapy for BN while further research is necessary to determine the most effective treatments for AN and ED-NOS. However, even the ideal treatment program cannot escape the complications of ambivalence toward recovery and treatment refusal. Ambivalence towards recovery and treatment refusal in the eating disorder population are barriers that complicated how and when treatment is administered.

Coercion and Perceived Coercion

The use of coercive measures in psychiatric care is a highly debated issue. Goldner, Birmingham, and Smye (1997) posed two fundamental questions regarding the role of coercion in mental health treatment: "How does one determine whether it is appropriate to comply with a person's refusal to accept treatment?" and "When, if ever, should treatment such as feeding, medication, or psychotherapy be imposed?" These questions intend to evoke thought about the use of coercive methods in the provision of mental health care. Separate from coercive methods, another type of coercion has been recently recognized, perceived coercion. Perceived coercion can occur in the presence or absence of actual coercive methods. Szmukler and Appelbaum (2008) believe that perceived coercion may be the most important issue related to the patient's perspective of coercion.

Coercive measures. Szmukler and Appelbaum (2008) define coercion as "the pressures exerted by one person (or organization) on another with the intention of making the latter act in accordance with the wishes of the former". It would be impossible to identify and discuss all the possible types of coercive pressures applied by the family and friends of mentally ill individuals. Therefore, this review will discuss only the continuum of coercive measures utilized by clinicians as developed by Szmukler and Appelbaum (2008).

Szmukler and Appelbaum's Continuum of Coercive Measures, also called the Spectrum of Treatment, are persuasion, interpersonal leverage, inducements, threats and compulsory treatment. The coercive measures continuum ranges from what is considered the least coercive measure, persuasion, to what is considered the most coercive measure, compulsory treatment. The continuum of coercive measures is summarized below in Figure 1 (Szmukler & Appelbaum, 2008).

Persuasion

- Involves discussing treatment in the context of the individual's value system

Interpersonal Leverage

- Use the emotional dependency of the individual as leverage to pressure the individual

Inducements

- Involve the clinician providing the patient with something that patient would not have

Threats

- Making the patient "worse –off" if the clinician's desired action is not selected.

Compulsory Treatment

- The use of legal proceedings to force an individual into the desired treatment

Figure 1. Continuum of Coercive Measures. This figure illustrates the steps in the Continuum of Coercive Measures.

Szmukler and Appelbaum (2008) dictate that as higher levels of coercive methods are utilized the need to provide justification increases. Additionally, the impact of the coercive method on the individual must be considered.

Perceived coercion & development of the perceived coercion scale. In addition to considering the impact of coercive methods, it is equally important to investigate the impact of perceived coercion. Guarda et. al (2007) defines perceived coercion as "how much a patient felt forced, pushed or intimidated into treatment". Feelings of perceived coercion might lead to disengagement in treatment and cause negative therapeutic relationships (Lidz et. al.,1998) . Some research indicates that perceived coercion can lead to overall negative attitudes toward treatment, poor clinical outcomes, and reduced adherence to treatment after discharge (Katsakou et al., 2011). Katsakou et al., (2011) suggested that reducing feelings of perceived coercion may even improve treatment outcomes. The MacArthur Research Network on Mental Health and the Law (2001) developed the Perceived Coercion Scale to provide a means to understanding how much perceived coercion a person is experiencing.

In 1988 the MacArthur Coercion Study was initiated to gain a better understanding of what makes patients feel coerced into mental health treatment (MacArthur Research Network Executive Summary, 2001). Three studies concerning this topic were conducted beginning in 1991. The first study, involving 157 randomly-selected adult patients who were admitted to either a state hospital in Virginia or a community hospital in Pennsylvania, explored the factors associated with the patients' experience of coercion in their hospital admission. The second study

involved a sample of 433 randomly-selected adult patients from the same jurisdictions as the first

study. However, the second study compared the perceptions of patients at admission and one

month post discharge with the following: the perceptions of their involved family members, the

perceptions of their admitting clinicians, and a "most plausible factual account" of what had

actually transpired during the process of hospital admission. The third study which was

conducted in parallel with the first two, involved adding the empirically validated measure of

perceived coercion, the Perceived Coercion Scale (PCS) (MacArthur Research Network

Executive Summary, 2001) . The questions included in the PCS ask patients to judge the degree

of influence, control, choice, and freedom they had during their admission to the hospital

(MacArthur Research Network Executive Summary, 2001).

Two empirically-validated versions of the PCS were developed. The first version is

derived from the MacArthur Admission Experience Interview (AEI), a structured interview. The

second version is derived from the MacArthur Admission Experience Survey (AES), a

questionnaire (MacArthur Research Network Executive Summary, 2001). Both versions, the

AES and AEI, were designed to be similar in nature but the scale derived from the AES has the

advantage of self-report format which allows for brief completion in absence of a trained

professional. Gardner et al. (1993) found the AES self- report question scores to be highly

correlated with the AEI scores suggesting the AES self- report questionnaire can serve as an

accurate stand-alone measure of perceived coercion. Gardner et al. (1993) found the perceived

coercion scales contained in the AEI and the AES to be "sensitive and internally consistent

measures of patients' perceptions of coercion".

Only the AES will be described in further detail as it has most relevance to this review.

The 41 true/false questions contained in the AES are designed to mimic the questions contained

in the AEI. Five of the true/false statements are intended to measure the amount of perceived coercion an individual is experiencing and include: "I had a lot more influence than anyone else on whether I came into the hospital", "I had a lot of control over whether I went into the hospital", "I chose to come into the hospital", "I felt free to do what I wanted about coming into the hospital", and "It was my idea to come into the hospital" (Gardner et al, 1993). Each true response receives a score of zero while each false response receives a score of one. Scoring allows for a total ranging from zero to five. Higher scores indicate a greater presence of perceived coercion while lower scores indicate a lesser presence of perceived coercion.

In February of 2001, the MacArthur Research Network released their Executive Summary based on the results of the three aforementioned studies. The summary revealed two major conclusions. First, perceived coercion was found to be strongly associated with "procedural justice". This finding meant that certain controllable factors including the patients "voice" and staff treatment and respect toward the individual affects the amount of coercion an individual perceives despite legal status (voluntary or involuntary) at admission. Second, the use of legal status as indirect measure of perceived coercion was deemed obsolete.

Relationship between coercive measures and perceived coercion. The findings of the MacArthur Coercion Study provided evidence that legal status at admission cannot be used to accurately predict the amount of perceived coercion experienced: "A significant minority of "voluntary" patients experience coercion, and a significant minority of "involuntary" patients believe that they freely chose to be hospitalized." Voluntary legal status implies that the individual has accepted to enter into treatment under his or her volition. Involuntary legal status implies the person is receiving treatment as a result of being court ordered or committed via the legal system. Involuntary admission processes assume that the individual was unwilling to enter

into treatment of their own volition thus suggesting that admission was coerced. The findings of the MacArthur Coercion Study (2001) suggested there is little correlation between the coercive method applied, such as legal status, and the amount of coercion perceived which agrees with research conducted by Lidz et al. in 1995 and 1998.

Although level of perceived coercion cannot be predicted by the amount of actual coercion experienced there are several known factors that contribute to higher levels of perceived coercion. The MacArthur Coercion Study Executive Summary (2001) reported that patients who believe they have been allowed a "voice" and have been treated by clinical staff and family with respect, concern and good faith during the admission process report significantly less perceived coercion. This suggests that a patient who is not allowed a "voice" or is treated disrespectfully, with a lack of concern, or not in good faith is likely to experience a greater level of perceived coercion at admission. Interestingly, these same considerations can be applied to legally "involuntary" patients.

A mixed methods study conducted by Katsakou et.al (2011) to investigate factors linked to perceived coercion at admission and during treatment among voluntary inpatients found that approximately one-third of patients admitted on a voluntary basis (per legal standards) perceived their admission as coerced. These findings are consistent with previous studies which estimated that between 10% and 50% of voluntary patient's feel coerced into hospitalization (Rogers, 1993; Monahan et al., 1995, Hiday, Swartz, Swanson, and Wagner, 1997; Katsakou, 2011). These statistics suggest that the relationship between coercive measures applied to an individual and the amount of perceived coercion they experience is unknown at the current time.

Views on compulsory treatment in AN. Tan, Stewart, Fitzpatrick, and Hope (2010) conducted a qualitative interview study that investigated how the use of coercive measures is viewed by individuals with AN. The study investigated how compulsory treatment, treatment decision making and competence are interpreted by individuals with AN. Perceptions of coercion were measured via self-report narratives as provided by the participant. The PCS was not utilized in this study. All study participants were struggling with or had recently struggled with AN and were recruited from four different treatment centers in southern England.

Of the 29 total participants, eight were hospitalized at an inpatient level of care, 18 were either day patients or outpatients, one participant was waiting to have treatment, one participant had been discharged after declining an offer of inpatient treatment for low weight and one participant had chosen not to accept treatment as she had a previous aversive experience of inpatient treatment. All participants were admitted on a legally voluntary basis. Participant ages ranged from 15 years 10 months to 26 years 2 months with 18 years of age defining legal adult status. All data was acquired via self -report without accessing health records. Per self-report, the participants had a mean BMI of 17.7 kg/m^2.

Participants completed qualitative semi-structured, face to face interviews and were asked to discuss their thoughts on the following topics: experiences of compulsion in 'voluntary' treatment, attitudes to the use of formal compulsion for mental disorders, attitudes to the use of compulsion in anorexia nervosa, experience of the restrictions of choice in treatment as helpful and supportive, experience of the restrictions of choice in treatment as unhelpful and coercive, and trust and relationships and their impact on acceptance of restrictions of choice. Study authors noted that the concepts of coercion and compulsory treatment were not defined for participants thus those concepts were left open to participant interpretation.

None of the 29 participants was detained on a legally involuntary basis at the start of the study. However, five of the eight inpatient participants described themselves as being admitted without free choice or being coerced into treatment and six of the eighteen day/out patients described being coerced into treatment against their will. The participants feelings of being coerced into treatment were not clearly defined and study authors arrived at these conclusions per patient "accounts". Only three of the eight inpatients and 18 of the day and outpatient study participants described making the choice to enter into and remain in treatment on their own. Of the 29 participants, 15 (51.7%) reported experiencing a loss of freedom of choice regarding treatment either during the current treatment or in the past including threats of compulsory admission, parental consent for treatment, or restriction of choice.

Participant interviews revealed unanimous agreement on the following two points. First, the use of formal compulsion for treatment is sometimes justifiable, especially if the formal compulsion will ensure personal safety or the safety of the public and secondly, mental health professionals should use formal compulsion to override treatment refusal in cases of AN as no one should be allowed to die from self-starvation. Participants felt that the physical manifestations of AN, including low body weight and poor physical condition, can render a person unable to make their own decisions regarding treatment and thus should be assisted in making decision regarding treatment. Participants also reported that formal compulsory treatment in the absence of life-threatening illness was neither desirable nor helpful in achieving recovery. Some patients reported that inappropriate use of compulsion has the potential to have damaging effects. There was little agreement among participants regarding the ethics and effectiveness of non-legal forms of compulsion.

Participant's views of using coercive pressure for treatment compliance were more complex and varied than their views on formal compulsory treatment. Several participants identified that characteristics of AN that can be barriers to making decisions regarding treatment including a sense of the disorder as part of their personal identity, the issue of control and loss of that control, changes in personal values as a direct result of the disorder, and difficulties in thinking about the risks involved. These characteristics support the use of coercive pressure as a means to providing needed treatment for AN. A large variation in the types of responses regarding coercive pressure rendered a comprehensive summary from participants impossible.

The 2010 Tan, Stewart, Fitzpatrick, and Hope study also revealed that not all participants resented the restrictions of freedom of choice that they experienced. Participants did resent the feeling of being dismissed, belittled or treated punitively. Participants reported that poor relationships with treatment providers or parents resulted in resentment about treatment decisions in lieu of the use of coercion. Interestingly this study also found that many of the participants reported feeling grateful for receiving treatment despite initial resistance and perceived coercion. To this point, the authors of the study suggested that within the context of a trusting relationship, coercion may be experienced by the patient as care and will not necessarily be viewed as a negative action by the individual, especially in life threatening situations by the end of treatment.

Many important considerations were revealed by the 2010 Tan, Stewart, Fitzpatrick, and Hope study. Most importantly persons with a history of AN agreed that using coercion to force treatment is sometimes warranted, especially in life threatening situations and participants often felt grateful for receiving treatment even when initially resistant. These findings suggest that coercion and perceived coercion have a role in the treatment of AN. However, the impact of

perceived coercion on treatment outcomes must be understood before perceived coercion can have an accepted role in eating disorder treatment.

Current evidence on perceived coercion. Two opposing beliefs regarding the effect of coercion, either perceived coercion or the use of coercive measures, on mental health treatment outcomes currently exist. The first belief is that coerced treatment is less effective than non-coerced treatment and can have potentially anti-therapeutic effects or lead to poor treatment outcomes. The opposing belief finds benefit in utilizing coercion in varying degrees to the best interest of the individual, especially for those individuals who may not be capable of making their own medical decisions (Guarda et al., 2007). The body of evidence that follows aims to investigate how perceived coercion impacts treatment outcomes in the general mental health and eating disorder populations.

Inpatient studies: general mental health. In 2003 Rain, Williams, Robbins, Monahan, Steadman and Vesselinow conducted a prospective, observational study to explore the relationship between level of perceived coercion at admission to an inpatient mental health facility and treatment outcomes. This study involved analyzing data generated from the MacArthur Risk Assessment Study. Participants were recruited from three acute psychiatric facilities located in Pennsylvania, Missouri, and Massachusetts between the years of 1992 -1994. Of the 1,136 participants initially interviewed, 825 (73%) had PCS scores and information available from the first follow up at 10 weeks post-discharge. All 825 participants were hospitalized for less than 21 days before recruitment and were described as white, African American, or Hispanic, English speaking, and 18 – 40 years of age. Study participants were hospitalized with the following chart diagnoses: schizophrenia, schizophreniform disorder,

schizoaffective disorder, depression, dysthymia, mania, brief reactive psychosis, delusional disorder, alcohol abuse or dependence, and/or personality disorder.

Participants were provided the PCS upon recruitment to measure level of perceived coercion. Of the 825 participants, 490 (59.4%) scored zero - two on the PCS and were classified in the "low perceived coercion" group. The remaining 335 participants (40.6%) scored three to five on the PCS and were classified in the "high perceived coercion" group. High and low perceived coercion groups did not vary significantly on number of pervious hospitalizations, age or employment status. Participants in the high perceived coercion group were significantly more likely to have a primary diagnosis of substance abuse, to be female in gender, white, and involuntarily admitted. Participants in the low perceived coercion group were significantly more likely than the high perceived coercion group to be admitted with a primary diagnosis of depression (Rain et al., 2003).

Treatment outcomes post-discharge were defined as adherence to mental health treatment and measured via self-reported medication compliance and self-reported compliance with outpatient treatment sessions. Medication compliance was measured as the type, number of, and amount of medication taken versus amount prescribed. Participants were classified as non-compliant upon reporting the following conditions: medication refusal, increasing or decreasing medication dosage without a prescription change, and/or failure to refill prescriptions. Outpatient treatment session compliance was measured as type of treatment prescribed vs. type of treatment received, prescribed frequency of prescribed sessions, and frequency of attended sessions. From this information a ratio of sessions prescribed to frequency of sessions attended was calculated. Participants were classified non-compliant with outpatient treatment session if reported attendance fell below 75% of prescribed sessions. Of the 825 study participants, 34.8% denied

being prescribed outpatient treatment sessions prior to discharge and 27.6% denied being

prescribed medication prior to discharge (Rain et al., 2003).

Rain et al., (2003) quantified the relationship between level of perceived coercion and

treatment adherence 10 weeks post discharge. No significant bi-variate correlations were found

between perceived coercion and medication adherence or perceived coercion and outpatient

session adherence. Results obtained at the first 10 week follow-up remained consistent

throughout the subsequent five follow-ups occurring at 10 week intervals. Results suggested that

level of perceived coercion upon admission to inpatient mental health treatment was not

significantly related to self-reported adherence to treatment post discharge. No significant

differences were found in reported adherence to mental health treatment post discharge between

patients with high coercion scores and those with low coercion scores. These results indicate that

level of perceived coercion at admission to treatment does not significantly impact treatment

outcomes.

Strengths of the Rain et al., (2003) study include the large sample size and use of the PCS

to measure perceived coercion. A major weakness is the use of only self-reported data to

measure treatment adherence. Another weakness is the lengthy recruitment study period which

allowed participants to be provided the PCS up to 21 days after admission. Allowing a

significant period of time to pass between admission and PCS distribution could have

significantly impacted the PCS scores such that level of perceived coercion reported was not

reflective of the level of perceived coercion at admission. Stronger conclusions may have been

possible if treatment outcomes had been recorded via non self-report methods and with better

control of the time period during which the PCS was distributed to study participants. Despite

study weaknesses the data support that the level of perceived coercion at admission (through 21 days) was not significantly related to treatment outcomes.

Another study investigating the relationship between perceived coercion at admission to inpatient mental health treatment and treatment outcomes post discharge was conducted by Bindman, Reid, Szmukler, Tiller, Thornicroft, and Leese in 2005. Bindman et al. (2005) conducted a prospective, cohort study with participants recruited from consecutive admissions to an acute psychiatric hospital in South East London. Of the 118 participants admitted to the hospital during the undefined study period 100 (85%) completed the surveys and were considered part of the final study. Participant demographics were obtained and quantified: 65 (55%) male, 24 (20%) married status, average age of 39 years, 79 (67%) white, 47 (40%) primary diagnosis of schizophrenia, 39 (33%) primary diagnosis affective disorder, 14 (12%) primary diagnosis personality disorder, and 18 (15%) carried primary diagnoses other than those previously listed. Lifetime psychiatric admissions averaged six and a half with a range of 1-29 and 61 (52%) of participants had a previous compulsory admission. Of the 18 admissions not included in the study, 15 (13%) declined to be interviewed and three (2%) were not available for contact. Non –participants were significantly more likely to carry a diagnosis of psychotic illness.

Upon admission participants of the Bindman et al. (2005) study were asked to complete both the AEI and the AES. Of the 100 study participants, 77% completed the initial interview and survey within 72 hours of admission and 90% completed the initial interviews and survey within one week of admission. The PCS was provided as part of the AES to measure level of perceived coercion at admission. PCS scores were binomially distributed (2.6 $\pm$ 2.1, n=98) thus the score was dichotomized around the mean resulting in approximately half of the participants

being assigned to the high perceived coercion group and half being assigned to the low perceived coercion group. Greater age, non-white ethnicity, more days spent in the hospital , a low Global Assessment of Symptoms (GAS) score at admission, low insight, and objective coercion were all associated with a high perceived coercion score.

Three types of objective coercion were considered: legal status, police involvement in the admission, and any other aspects of admission to the hospital which involved the overt threat or use of force. Of the 100 participants, 19 were considered involuntary legal status at admission, however in response to questions in the AEI, only fifteen (15%) participants believed their legal status at admission was involuntary. An examination of case notes revealed that fifteen of the patients who believed their legal status at admission was voluntary had in fact been legally detained by the time of the interview and had received written documentation about their detainment. Of the 100 participants, 24 had police involvement in their admission, and 10 participants identified that they experienced "any form of physical restraint not involving police".

The AES was administered again at discharge and in the case of unplanned discharge the AES questionnaire was mailed to the participant. Upon discharge, 88 (75%) participants repeated the AES. Spearman rank correlation test findings revealed that perceived coercion scores were not significantly different from admission to discharge. PCS scores were considered generally stable over the course of admission, r=0.80 (p<0.001). Repeating identical scoring methods from admission, 75 participants (85%) fell into the same group of perceived coercion level at admission and discharge. Of the 88 participants completing the AES at discharge, seven (8%) switched from the low perceived coercion group to the high perceived coercion group and six

participants (7%) switched from the high perceived coercion group to the low perceived coercion group.

Engagement with mental health services at follow-up was used to measure treatment outcomes and was measured via several indicators. First, time out of contact, defined as the number of days between a planned contact being missed and contact being resumed. Second, the number of days for which the patient was readmitted to the hospital, expressed as a fraction of the total period of community follow-up. The third and fourth indicators were sought from the patient's key worker (defined as a nurse who had responsibility for the patient's care in the community prior to admission), if none, the member of the mental health team who had most recent contact with the patient. The key worker or other mental health professional rated the global compliance of the participant and provided the Health of the Nation Outcome Scales (HoNOS) for completion during the participants period of best functioning during the follow-up (Bindman et al., 2005).

Of the initial 100 participants, follow-up information was obtained from 95. The average time at follow-up was 10.2 months. As determined by the use of multivariate analysis, perceived coercion was not found to be an independent predictor of any of the four measures of engagement with follow-up services. Bindman et al. (2005) revealed that over 25% of patients not formally coerced into treatment reported feeling highly coerced into treatment upon admission. Bindman et al. (2005) had hypothesized that a high level of perceived coercion would be associated with poor engagement with follow-up services however, this hypothesis was not supported by the findings of the study. Bindman (2005) concluded that level of perceived coercion at admission to inpatient mental health treatment did not significantly impact treatment

outcomes which was in agreement with the findings of Rain et al., (2003) as discussed

previously.

Strengths of the Bindman et al., (2003) study included: a high response rate exceeding

80% at baseline and follow-up and timely distribution, 77% within 72 hours, of the PCS. A

weakness of this study was the use of un-validated scales for key workers to rate the compliance

of participants. Bindman et al., (2003) reported that a limitation of this study was the possibility

that participants inaccurately believed that their answers about the admission process could affect

their hospitalization and thus refrained from sharing negative views. Study authors concluded

that the factors affecting level of perceived coercion are complex and not fully understood.

Outpatient studies: general mental health. In 2003 Rain, Steadman, and Robbins

conducted a prospective, observational study aiming to investigate the relationship between

perceived coercion at admission to outpatient mental health treatment and treatment outcomes.

Rain et al.(2003) recruited participants from a larger study conducted by Steadman et al.

in 2001, *Assessing the New York City Involuntary Outpatient Commitment Pilot Program.*

Steadman et al. (2001) recruited participants from outpatient commitment programming at

Bellevue Hospital in New York City from 1996 – 1998. According to the law, eligibility for

outpatient commitment required that a person be 18 years of age or older and have at least 2

involuntary hospitalizations in the past 18 months due to non-compliance with treatment.

Additionally, participants considered for outpatient commitment were also considered unlikely to

comply with services after discharge and were in need of involuntary treatment to prevent

relapse. Of the 576 participants referred to the outpatient program, 142 (24%) participants

enrolled in the study. By random assignment 78 (55%) participants received court ordered

treatment with enhanced services, called the experimental group, and 64 (45%) participants received only enhanced services, called the control group. Participants assigned to court ordered treatment had their treatment plan formalized in court with judicial orders. All participants received enhanced services including inpatient assessment, a comprehensive post discharge treatment plan created with the participant, arrangements for ongoing case management, and continued coordination of care by the outpatient treatment team. Study authors indicated that of importance was the lack of pick-up order for the experimental group. Pick –up orders would have enabled local police to transport non-compliant participants to the treatment center. It is also important to note that persons with a history of violence were excluded from this program. All participants of the study signed a consent form indicating their willingness to participate in the study, thus none were considered formally coerced.

The two groups did not differ significantly with regards to gender, age, race, or median length of stay. The demographics of the experimental group: 54 (69%) men, 25 (32%) Caucasian, 30 (39%) African American, 16 (21%) Latino, average age of 41 years, and average length of stay 53 days. The demographics of the control group: 40 (62%) men, 27 (42%) Caucasian, 23 (36%) African American, 9 (14%) Latino, average age of 41 years, and average length of stay of 51 days. The two groups differed on likelihood of being homeless at the time of admission, 10% of the experimental group vs. 33% of the control group.

Study participants completed interviews at admission and at follow-up one, five and 11 months post discharge. Interviews assessed participants' perceptions of illness severity and susceptibility, the benefits and barriers to treatment, and cues to actions related to compliance. Current functioning, symptomology, quality of life, perceived coercion, social supports and

recent life experiences were also assessed. Follow-up interviews were completed with 57-68% of study participants.

At admission each participant's level of perceived coercion was measured using the PCS. PCS scores ranging from zero to two were classified as "low coercion" while PCS scores ranging from three to five were classified as "high coercion" (Rain et al., 2003). PCS scoring and classification methods are consistent with those used by Rain et al., (2003) and Bindman et al., (2005). At initial interview, 54 (72%) participants in the court ordered group and 38 (63%) participants in the enhanced services group scored within the high coercion classification (Steadman et al. 2001). Participants classified in the high perceived coercion group at admission to hospitalization were found to be significantly different from the participants classified in the low coercion group in that they were more likely to be female, have more years of education, and be of white ethnicity. There were no significant differences between the perceived coercion groups when compared for age, Global Assessment of Functioning score, number of previous hospitalizations, marital status or employment status.

This study measured treatment outcomes via three different methods. First, treatment session adherence via participant self-report which was calculated as a ratio of treatment sessions prescribed to treatment sessions attended. Participants who reported no post discharge prescribed treatment sessions were excluded. The second outcome was measured as adherence to injected medication and oral medication via participant self-report. The last measure of treatment adherence involved treatment providers ranking participant compliance with supervision of living arrangements, case management, day programs, individual and group therapy, and alcohol and drug treatment.

Follow-up participants were asked to use the PCS to rate their perceived coercion as related to clinical treatment and medication. Of the 142 participants, 117 (82%) completed the initial interview and one month follow-up interview.

Results of the Rain et al. (2003) study found significant bi-variate correlations only between perceived coercion and adherence to injected medication at one month follow-up (r = 0.620, p= not available) however, significant correlations were not found at subsequent follow-up sessions. Significant correlations were not found between perceived coercion and oral medication, outpatient treatment or provider rating of adherence. Study authors concluded that the results of this study were ambiguous based on two findings. First, perceived coercion via patient self-report was significantly associated with treatment adherence at only the first and second follow-up. These ambiguous findings prevented the authors from making the conclusion that there is a positive relationship between perceived coercion and treatment outcomes. However, this study provided no evidence that greater levels of perceived coercion result in treatment non-adherence. Due to this lack of evidence, study authors concluded that the findings of this study parallel the findings of the MacArthur Study that perceived coercion is incidental to treatment adherence.

Strengths of the Rain et al. (2003) study included the use of the service provider ranking system to measure treatment adherence and measuring perceived coercion data at admission and follow-up via the PCS. Weaknesses included the heavy reliance on self-report for treatment session and medication compliance. This study is limited by the impossible task of eliminating or accounting for all the factors that affect a participant's perception of coercion.

The relationship between perceived coercion and treatment outcomes has been explored in the general mental health populations by Rain et al., (2003), Bindman et al., (2003) and Rain, Steadman, and Robbins (2003). All three aforementioned studies found that level of perceived coercion at admission did not significantly impact treatment outcomes. The final study that will be discussed explored perceived coercion in the eating disorder population.

Inpatient studies: eating disorders. In the only study on perceived coercion in people diagnosed with an eating disorders, Guarda, Pinto, Coughlin, Hussain, Haug, and Heinberg (2007) explored several factors, including perceived coercion, contributing to participant perceptions of the admission process, including perceived coercion. Participants were recruited between 2000 and 2003 from all admissions to the inpatient and partial hospitalization programs at a Johns Hopkins Treatment Program.

Of the 299 potential participants,139 (46%) met inclusion criteria and at admission and again 2 weeks into hospitalization completed a 13 item questionnaire derived from the AES, a 30 minute structured interview, and a question regarding perceived need for hospitalization. Questionnaires were used to measure perceived coercion, perceived need for hospitalization and impressions regarding the admission process. Of the 139 study participants, 136(98%) were female, 128 (92%) were Caucasian, and 35 (25%) were under 18 years of age. All adult patients were admitted with voluntary legal status. Patients under 18 years of age were admitted by a parent. Participants had a mean age of 25.2 years and one of the following eating disorder diagnoses: AN (55%), BN (30%) and ED-NOS (15%). Trained clinicians used the Structured Clinical Interview from DSM-IV-TR for diagnoses. The majority of participants (98%) were initially admitted to the inpatient unit and then transitioned to the partial hospital eating disorder program. Only 2% of participants were admitted directly into partial hospital eating disorder

programming. Behaviorally based treatment with a focus on intensive group therapy utilizing

principles of both CBT and DBT were provided to all participants of the study. Family therapy

and parent training were provided for those participants under 18 years of age (Guarda et al.,

2007). All participants were classified into one of two groups for statistical analysis: broadly

defined anorexia (N=96) and broadly defined bulimia (N=43).

A total of 74 patients were excluded from the study due to non-completion of the self-

report questionnaire at one of the two required time points. Excluded patients were found to have

a greater mean Body Mass Index (BMI) and a shorter hospitalization length of stay as compared

to study participants. Another 86 patients refused to participate or did not complete self-report

measures; these patients had a shorter inpatient stay than participants but did not differ

significantly by age, BMI at admission, or eating disorder diagnosis compared to participants.

The self –report questionnaire assessed the patient's perceptions on three subscales:

perceived coercion regarding the decision to be admitted, pressure to be hospitalized placed on

the patient by others, and procedural justice, which reflects how the patient feels he or she was

treated during the admission process. The questionnaire also included a question addressing the

patient's belief in need for hospitalization. The questionnaire was scored on a five point scale

within each subscale. Higher scores were indicative of more perceived coercion, more pressure

and a greater sense of procedural justice. Additionally, participants ranked their perceived need

for hospitalization on a five point scale by answering the question "Do you believe you need to

be in the hospital?" Belief in need for hospitalization scores were then categorized such that

scores of zero to three indicated not endorsing a need for hospitalization and scores of four to

five indicated endorsing the need for hospitalization.

Results indicated the relationship between perceived coercion score and diagnosis, age and belief in need for hospitalization. Perceived coercion score for the broadly defined anorexia nervosa group was 11.8 +/- 5.3 and the broadly defined bulimia nervosa group averaged 7.9 +/- 3.7 with univariate tests of main effects for diagnosis revealing that broadly defined anorexia nervosa patients reported more perceived coercion than broadly defined bulimia nervosa patients (p < 0.001). Univariate tests for main effects of age revealed significance only for perceived coercion. Minors perceived coercion scores (14.2 +/- 4.8) were higher than those of legal adults (9.4 +/- 4.7, p< 0.001). Of the 139 study participants, 93 subjects were categorized as endorsing the need for hospitalization while the remaining 46 subjects were categorized as not endorsing the need for hospitalization. A one-way MANOVA was conducted to evaluate the potential difference between perceived coercion in those participants categorized as endorsing the need for hospitalization and those participants categorized as not endorsing the need for hospitalization. The MANOVA revealed a significant multivariate effect for perceived coercion and belief in need for hospitalization. Participants categorized as endorsing hospitalization had a significantly lower perceived coercion score compared to participants categorized as not endorsing hospitalization(8.9 +/- 4.4 vs. 14.0 +/- 5.0, p<0.001) . Chi-square analyses revealed no relationship between diagnosis or age and perceived need for hospitalization scores.

Belief in need for hospitalization was reassessed two weeks after initial assessment to determine short-term reliability. Of the 46 participants initially categorized as not endorsing a need for treatment, 20 (43%) converted to endorsing a need for treatment at the two week reassessment. Of the 20 participants that converted there were no significant differences in conversion status across the diagnostic categories. A repeated measures ANOVA revealed a main effect of time on endorsing or not endorsing the need for hospitalization. Participants more

strongly endorsed a need for treatment at two week reassessment as compared to endorsement at admission (4.1 +/- 1.2 vs. 3.9 +/- 1.2, p=0.008). Participants endorsed a greater belief in the need for treatment at the two week reassessment, however perceived coercion scores were found to be stable between admission and two week reassessment.

Study authors were able to make multiple conclusions from the findings of this study. First, perceived need for hospitalization was associated with less perceived coercion. Second, belief in perceived need for hospitalization changed over time while perceived coercion levels did not. Due to the second finding, study authors hypothesized that a conversion from not endorsing a need for treatment to endorsing a need for treatment will increase over time hospitalized. Additionally, study authors believed that conversion rates would be even higher at discharge and post-discharge follow-up. Guarda et al., (2007) referenced a 1999 Gardner et al., study which found that patients who did not believe they needed hospitalization reported high levels of perceived coercion suggesting the possibility of a relationship between belief in need for hospitalization and perceived coercion. The findings of the Gardner et al., (1999) study align with those findings from the Guarda el al., (2007) study regarding the relationship between perceived need for hospitalization and perceived coercion. In addition to perceived need for hospitalization, the presence of impaired judgment and treatment resistance especially common in AN may influence perceived coercion. Based on the above findings, authors concluded that there is a role for coercive pressure in the treatment of eating disorders.

A strength of this study was the use of the questions from the AES to measure level of perceived coercion. One of two study weaknesses was the lack of consideration regarding BMI and legal status during the two week reassessment period. Guarda et al.,(2007) suspected that the lack of adult patients admitted with involuntary legal status altered the results of the study. The

other weakness was the self-reported nature of the data. Limitations include the possibility that

participants may have been affected by the belief that their responses would affect their

discharge or displease their treatment team as well as the fact that other potentially confounding

variables that may have affected perceived coercion were not controlled for. Lastly, and

unfortunately, Guarda et al., (2007) did not examine the relationship between perceived coercion

and treatment outcomes.

Summary

The impact and effect of perceived coercion on persons receiving care in the mental

health community is an issue requiring further research. This review explored the implications of

perceived coercion on general mental health treatment outcomes and how coercion may play a

role in the treatment of eating disorders.

Tan et al., (2010) aimed to better understand how people with AN view compulsory

treatment, treatment decision making and competence and concluded that the participant's

perceptions of coercion were complex and multifaceted. Katsakou et.al (2010) confirmed that it

is possible for a participant to feel coerced into treatment even in the absence of coercive

methods. Participants of the Tan et al., (2010) study agreed that in regarding to eating disorders,

perceived view of whether or not treatment is coerced should not prevent compulsory treatment,

especially in life-threatening situations. Tan et al., (2010) provided initial evidence that AN

suffers themselves believe that eating disorder treatment participation achieved by coercion is

acceptable and necessary if the illness is life-threatening.

Studies conducted by Rain et al., (2003), Bindman et al., (2005) and Rain, Steadman and

Robbins (2003) investigated the relationship between perceived coercion and treatment outcomes

in the general mental health population. Guarda et al.,(2007), investigated the short term

stability of perceived coercion and perceived need for hospitalization in the eating disorder

population. The primary diagnosis of the participants was one distinguishing factor separating

the Rain et al., (2003), Bindman et al., (2005) and Rain, Steadman and Robbins (2003) studies

from the Guarda et al., (2007) study. There is significant likelihood of mental health populations

presenting with secondary eating disorder diagnoses and vice versa which implies that eating

disorder diagnoses were very likely included in the general mental health populations of the first

three studies. Individuals with eating disorders, including those in the Guarda et al. study, were

more likely to carry a secondary mental health diagnosis such as depression or anxiety as

compared to an individual without any mental health concerns.

Age was another difference between participants of the four studies; some studies

included minors while others excluded them. Rain et al., (2003) and Rain, Steadman and

Robbins (2003) excluded minors, Guarda et al.,(2007) included minors and Bindman et al.,

(2005) did not specify. Guarda et al., (2007) found that age had a significant effect on level of

perceived coercion. Minors of the Guarda et al., (2007) study were more likely to indicate

higher perceived coercion than their adult counterparts.

Rain et al., (2003), Bindman et al., (2005), Rain, Steadman and Robbins (2003) and

Guarda et al., (2007) all utilized the MPCS self report questions to measure perceived coercion.

Rain et al., (2003), Bindman et al., (2005) and Rain, Steadman and Robbins (2003) all

investigated the impact of perceived coercion on treatment outcomes but did not use the same

indicators to measure treatment outcomes. Rain et al., (2003) relied on participant self-report of

medication compliance and outpatient treatment session attendance as a measure of treatment

outcomes. Bindman et al., (2003) used time out of contact, time in hospital, compliance as rated

by the participants' key worker, and HoNOS as a measure of treatment outcomes. Rain, Steadman and Robbins (2003) used self-reported medication compliance, self-reported treatment session attendance and a service provider interview as a measure of treatment outcomes. Both Bindman et al., (2003) and Rain, Steadman and Robbins (2003) used at least one non -self-report measure to quantify treatment outcome, which offers higher reliability than the self-report only measures used by Rain et al., (2003). Guarda et al., (2007) unfortunately did not measure treatment outcomes.

Results of the Rain et al., (2003), Bindman et al., (2005), and Rain, Steadman, and Robbins (2003) studies provided evidence that level of perceived coercion at admission did not impact treatment outcomes. The aim of the Guarda et al.,(2007) study was very different than that of the Rain et al., (2003), Bindman et al., (2005), and Rain, Steadman, and Robbins (2003) studies in that Guarda et al., (2007) did not provide any information about the impact of perceived coercion on treatment outcomes. However, Guarda et al., (2007) provided important evidence regarding perceived coercion and perceived need for hospitalization. A lack of perceived need for treatment was associated with higher levels of perceived coercion at admission. Perceived need for hospitalization was shown to change over time with a significant proportion of participants converting to perceived need for hospitalization after two weeks. This finding suggesting that there is a possibility of providing treatment ethically even in the presence of perceived coercion and lack of perceived need for hospitalization at admission. What remains unknown is how perceived coercion at admission affects the efficacy of eating disorder treatment.

There remains a knowledge gap in understanding the impact of perceived coercion on eating disorder treatment outcomes. Research investigating the relationship between eating

disorders treatment outcomes and perceived coercion has the potential to assist in understanding if the presence of perceived coercion is a significant barrier to successful eating disorder treatment. This research could alter the belief that treatment should not be provided against the wishes of an individual who is critically ill. If research can show that an individual's level of perceived coercion at admission does not negatively impact treatment outcomes, more individuals might receive treatment and thus more lives might be saved from eating disorder fatalities. Clinicians may be able to assure patients and their families that eating disorder treatment has effective outcomes despite the patient's initial resistance. Having this evidence is especially important in AN where ambivalence and treatment resistance are inherent to the disorder.

In order to provide patients and families with this reassuring knowledge evidence must show that the treatment provided, even if initially perceived as coerced, is equally as effective as treatment not perceived as coerced. The danger in avoiding treatment due to the potential of perceived coercion is best summarized by Angela S. Guarda, author of the 2007 study *Perceived Coercion and Change in Perceived Need for Admission in Patients Hospitalized for Eating Disorders Treatment* "Many patients with anorexia nervosa remain untreated because no one pressured them into seeking treatment, and a significant proportion of them die. The rest often lead isolated and very impaired lives" (Brower, 2007). Thus, the potential advantages of providing treatment even in the presence of perceived coercion may significantly outweigh the potential disadvantages, although more studies to confirm this are needed. This study intends to examine the relationship between perceived coercion at admission to eating disorder treatment and treatment outcomes post discharge.

Chapter 3: Methodology

A prospective, observational study was conducted to determine the relationship between perceived coercion and treatment outcome for eating disorders. The study was approved by the Rogers Memorial Hospital Human Subjects Committee and the Internal Review Board at Mount Mary College.

Subjects

Study participants were recruited from consecutive, adult admissions to the residential level of care known as the Eating Disorders Center (EDC) at Rogers Memorial Hospital (RMH) beginning March 2012 and ending in June 2013 as part of the ongoing RMH Outcome Study. Participants were provided with a questionnaire entitled the Admission Experience Survey (AES) and Eating Disorder Examination Questionnaire (EDE-Q) within 72 hours of admission. The RMH outcomes study is a continual data collection process prepared and analyzed by the RMH outcomes study department. Various RMH staff members provided participants with a brief description of this study, informed consent and consent for follow-up within 72 hours of admission. Study inclusion criteria included age of 18 years or older at the time of admission and an eating disorder diagnosis recognized by the DSM-IV-TR as identified by an RMH psychiatrist. Exclusion criteria was non-completion of the AES at admission. Participants meeting the exclusion criterion were analyzed to reveal possible trends at study completion. The identity of the individual participants of this study was kept confidential via numbered coding of patient identifiers throughout the duration of the study.

Statistical Analysis

Assuming 100% study participation, estimations based on average length of stay and census of the EDC revealed the potential for a study population of 194 - 260 participants. This researcher predicted a 50% loss of participants due to refusal to participate and/or attrition at follow-up. This estimation reduced the study population by 97-130 participants leaving the calculated study population at 97 - 130 subjects. To obtain a confidence level of 95% and a significance level of 5 % for survey results, the estimated goal sample size was 85 - 109 participants (http://www.surveysystem.com/sscalc.htm). Data collection was set to transpire in June of 2013 based on the time limitations of the researcher.

Data Collection

Study participants were asked to complete the AES at admission and discharge and the EDE-Q at admission, discharge and follow-up. The AES contained a total of six questions, five of the six questions were taken directly from the PCS which is designed to measure level of perceived coercion at a given point in time (Gardner et al., 1993). The PCS was issued as public domain and has been shown to be psychometrically sound in that it is closely related with lengthier interview-based measures of perceived coercion and is stable over time (Monahan et al., 2003). The sixth question on the AES was designed by RMH staff and intended to capture a participant's length of illness by asking the participant to quantify the amount of time spent struggling with eating disorder symptoms over their lifetime. This question was not a major objective of this study.

The five AES questions taken from the PCS were assigned a Likert scale score of 1-4 with the following corresponding values: 1 = strongly agree, 2 = agree, 3 = disagree, and 4 =

strongly disagree. Scoring of the AES in this study followed an example of PCS scoring from a

2003 Monahan et al. study. Scoring allowed for totals ranging from 5 to 20 with higher scores

indicating a higher level of perceived coercion. The sixth question on the AES regarding

estimated length of illness was analyzed separately from the other five AES questions. Total time

required for participants to complete the six questions on the AES was estimated at 2-3 minutes.

The EDE-Q measures the frequency of eating disorder symptoms experienced by an

individual over the previous 28 days (Keel & McCormick, 2010). It contains 36 questions based

on a seven-point forced-choice rating scheme. Scoring provides data on 4 individual subscales

and the mean of the subscales provides an EDE-Q global score. EDE-Q global scores range from

0 to 6 with higher scores indicating a higher frequency of eating disorder behaviors and scores of

4-6 indicating clinical significance of symptom frequency (Keel & McCormick, 2010).   This

study used the global score to analyze trends for eating disorder symptoms between admission,

discharge and one year post discharge. Presumably, EDE-Q scores improve throughout the

course of eating disorder treatment and continue to improve after discharge. For this reason, the

EDE-Q can be used to measure treatment outcomes and to reflect the effectiveness of the

treatment provided. Participants were contacted for the one year follow-up via telephone and/or

email on no more than four occasions. If the participant did not respond by completing the EDE-

Q after four attempted contacts the participant was considered lost to attrition and all attempts at

further contact expired.

In addition to the AES and the EDE-Q, demographic data including age, gender, length of

stay and eating disorder diagnoses were collected according to standard protocol at RMH and

were available to this researcher.

Data Analysis

AES, EDE-Q and demographic data were entered into the RMH outcomes study database by an RMH outcomes study employee and provided to this researcher via secured, de-identified, RMH email. Data from this study were analyzed utilizing Microsoft Excel 2007, 2010, and 2013.

The relationships between perceived coercion and EDE-Q score and the potential confounding variables of age and length of stay were analyzed via linear regression. The relationships between level of perceived coercion at admission and discharge and EDE-Q scores at admission, discharge, and follow-up were also analyzed using linear regression. The relationship between EDE-Q score and perceived coercion and the potential confounding variable of gender was analyzed using T-test for Unequal Variances. The relationship between EDE-Q score, perceived coercion and the potentially confounding variable of diagnosis was analyzed by one-way ANOVA. Potential differences in age, length of stay and EDE-Q score at admission between participants and non-participants were also analyzed using one-way ANOVA.

A significant barrier to successful study completion was the high rate of attrition during the follow-up portion of the study. Statistically significant differences between participants and non-participants were evaluated. Potential differences in diagnosis and gender between participants and non-participants were analyzed using chi square tests. Demographic data from participants lost to attrition was analyzed for potential trends. Additionally, demographic data from participants refusing to participate in this study were identified and analyzed for trends.

Chapter 4: Results

Participant Characteristics

Of 157 admissions to the EDC, 112 participants met inclusion criteria and were included in final data analysis while the remaining 45 (28.6%) participants were excluded due to non-completion of the Admission Experience Survey (AES) at admission. Of the 112 study participants 82 (73.3%) were female, 47 (41.9%) were diagnosed with AN, 37 (33.0%) were diagnosed with BN, and 28 (25.1%) were diagnosed with ED-NOS. Average participant age was 24.85 years (SD +/- 8.1), and average length of stay was 52.7 days (SD +/- 29.9). Average EDE-Q global score at admission was 4.0 (SD +/- 1.4), average EDE-Q global score at discharge was 2.1 (SD +/ 1.2), and average EDE-Q global score at follow-up was 2.8 (SD +/- 1.8). EDE-Q global scores range from 0 -6 with higher scores indicating more frequent engagement in eating disorder behaviors over the past 28 days with scores of 4-6 being designated as clinically significant. Average perceived coercion score at admission was 10.3 (SD +/- 3.7) and average perceived coercion score at discharge was 10.3 (SD +/- 4.3). Perceived coercion scores had a possible range of 5-20 with higher scores indicating more perceived coercion.

Per inclusion criteria all 112 participants completed the AES at admission. Of the 112 study participants 60 (53.5%) completed the AES at both admission and discharge. Of the 112 study participants 111 completed the EDE-Q at admission, 78 (69.6%) completed the EDE-Q at admission and discharge, and 7 (6%) completed the EDE-Q at admission, discharge and follow-up. Of the 112 study participants 5 (4%) completed the AES at admission and discharge and the EDE-Q at admission, discharge and follow-up.

Of the 78 participants completing both the EDE-Q at admission and discharge 70 had EDE-Q scores that improved from admission to discharge by an average of 2.2 points (SD +/- 1.1) and 8 participants had scores that worsened from admission to discharge by an average of 0.91 points (SD +/-0.7). Six participants completed the EDE-Q at admission and follow-up. Five of the six participants had EDE-Q scores which improved from admission to follow-up by an average of 1.2 points (SD +/- 0.8).

Of the 60 participants that completed the AES at admission and discharge, 18 participants' Admission Experience Survey scores increased from admission to discharge by an average of 4.1 points, indicating increased perceived coercion over the course of admission (SD +/- 4.8), 31 participants' AES scores decreased from admission to discharge by an average of 3.4, indicating decreased perceived coercion over the course of admission (SD+/- 2.4), and the remaining 11 participants Admission Experience Survey scores did not change from admission to discharge, indicating no change in perceived coercion over the course of admission. Overall, there was no significant difference between perceived coercion scores at admission (10.3 +/- 3.7) and perceived coercion scores at discharge (10.4 +/- 4.3).

The 45 participants excluded from this study due to non-completion of the AES at admission were examined for possible demographic trends as shown in Table 1:

Table 1

Demographics of Participants vs. Non-Participants

	Participants	**Non-Participants**
Gender		
Male	30 (26.7	12 (26.7%)
Female	82 (73.3%)	33 (73.3%)
Diagnosis		
AN	47 (41.9%)	23 (51.1%)
BN	37 (33.0%)	12 (26.7%)
EDNOS	28 (25.1%)	10 (22.2%)
Age (years)	24.85	26.28
LOS (days)	52.7	52.3

There were no significant differences between participants and non-participants for age, length of stay, diagnosis or gender.

Potential Confounding Variables

Undoubtedly, there are several factors that influence level of perceived coercion and status of eating disorder. Different variables were explored to identify factors that may have impacted scores on the AES and EDE-Q in this study, to determine whether subjects needed to be stratified by these factors for further analysis.

Age. Relationships between age and perceived coercion scores at admission and discharge and EDE scores at admission, discharge and follow-up were examined. A significant, but weak relationship was found between age and perceived coercion at discharge (R^2= .0043, p= 0.132). Perceived coercion score at discharge was found to decrease with increased participant age.
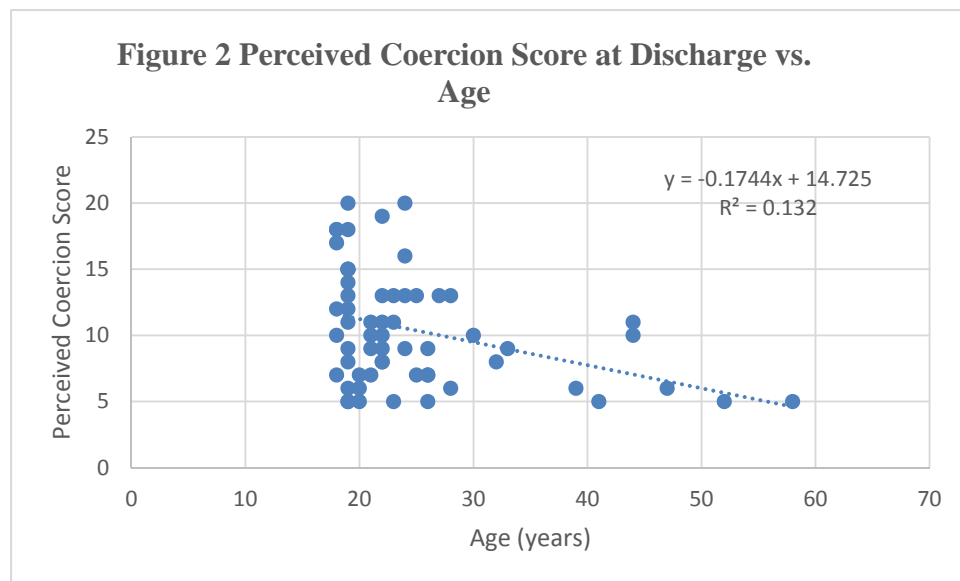
Figure 2. Perceived Coercion at Discharge versus Age. This figure illustrates the relationship between perceived coercion score at discharge and age .

This finding suggests that the older a participant is at the time of discharge from ED treatment the less coercion they perceived. No other significant relationships between age, perceived coercion and EDE-Q scores were found.

Gender. Relationships between gender and perceived coercion scores at admission and discharge and EDE-Q scores at admission, discharge and follow-up were examined. Significant relationships were found between gender and EDE-Q score at admission and discharge. EDE-Q scores at admission were significantly higher for females than males (4.3 +/- 1.6 vs. 3.2 +/- 2.4,

respectively; p=0.0021). EDE-Q scores at discharge remained significantly higher for females

than males (2.4 +/- 1.3 vs. 1.2 +/- 0.8, respectively; p = 0.00001). No significant relationships

were found between gender and perceived coercion scores.

Length of Stay.   Relationships between length of stay and perceived coercion scores at

admission and discharge and EDE-Q scores at admission, discharge and follow-up were

examined to look for possible confounding variables. No significant relationships were

identified.

Diagnosis. Relationships between diagnosis and perceived coercion scores at admission

and discharge and EDE-Q scores at admission, discharge and follow-up were examined to look

for possible confounding variables. A significant relationship was found between diagnosis and

perceived coercion score at discharge (p = 0.0098). The mean perceived coercion scores at

discharge of participants diagnosed with BN (7.9 +/- 6.9) were significantly lower than those of

participants diagnosed with AN (11.5 +/- 18.8) and EDNOS (11.3 +/- 21.6) (p=.009).

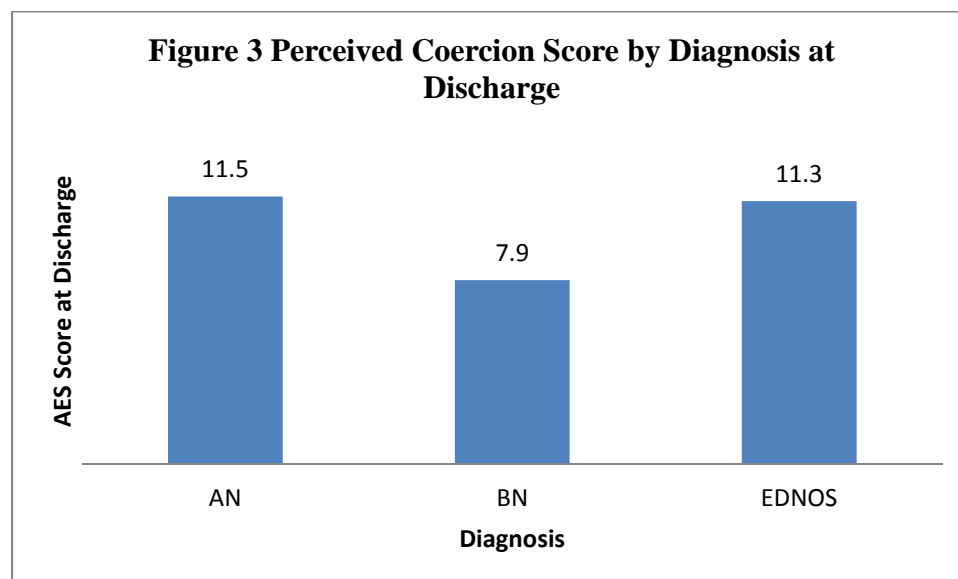**Figure 3 Perceived Coercion Score by Diagnosis at Discharge**

Figure 3. Perceived Coercion at Discharge. This figure illustrates average perceived coercion score for each eating disorder at discharge from treatment.

This finding suggests that at admission to treatment participants diagnosed with AN, BN and EDNOS all experienced a similar amount of perceived coercion but at discharge from ED treatment, those persons diagnosed with BN perceived significantly less coercion that those with AN or EDNOS.

Perceived Coercion and Treatment Outcomes

The relationships between perceived coercion at admission were compared to changes in EDE-Q score from admission to discharge, discharge to follow-up and admission to follow-up. No significant relationships were found (Figure 4).

Figure 4 Perceived Coercion vs. Treatment Outcomes

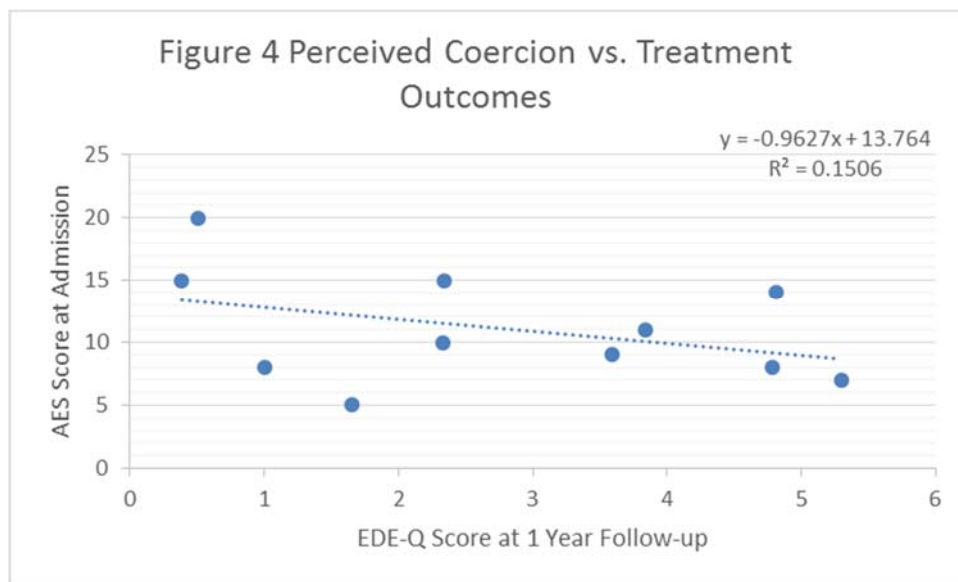$y = -0.9627x + 13.764$
$R^2 = 0.1506$

Figure 4. Perceived Coercion vs. Treatment Outcomes. This figure illustrates the relationship between perceived coercion score at admission at EDE-Q score at one year follow-up.

To further explore possible relationships between perceived coercion at admission and treatment outcomes two groups were created for each change in EDE-Q score category: scores that improved over time and scores that worsened over time. No significant differences were found between perceived coercion at admission and EDE-Q scores even when the scores were separated by those that worsened and those that improved.

Perceived coercion scores at discharge were compared to change in EDE-Q scores from admission to discharge, discharge to follow-up and admission to follow-up. A very weak but significant relationship was found between perceived coercion at discharge and change in EDE-Q score from admission to discharge ($R^2 = 0.18$, p=0.0007) specifically, the trend was for perceived coercion scores to decrease as EDE-Q scores improved from admission to discharge . Follow-up tests revealed a significant difference between the perceived coercion scores when comparing those participants whose EDE-Q score worsened from admission to discharge (n = 4) vs. those participants whose EDE-Q scores improved from admission to discharge (n=55)(18.8 +/- 0.6 vs. 9.8 +/- 1.1, P<0.001). Participants whose EDE-Q scores improved from admission to discharge reported significantly less perceived coercion at discharge as compared to those participants whose EDE-Q scores worsened from admission to discharge.   This finding potentially suggests that success over the course of treatment may positively influence a person's perception of coercion.

To account for any possible relationship between level of perceived coercion at admission and treatment outcomes, change in perceived coercion score from admission to discharge was compared to change in EDE-Q score from admission to discharge and discharge to follow-up. No significant relationships were found. Additionally, perceived coercion score at

admission and EDE-Q score at admission, discharge and follow-up were explored for any

possible relationships. No significant relationships were found.

Chapter 5: Discussion

To the best of our knowledge, this is the first study that examined the relationship between perceived coercion at admission to treatment and treatment outcomes in the eating disorder population. Our findings suggest that level of perceived coercion at admission to treatment is not related to treatment outcomes. Guarda et al., (2007) were the first researchers to examine the role of perceived coercion in eating disorder treatment. Result of the Guarda et al., (2007) study revealed that participants diagnosed with AN reported higher levels of perceived coercion at admission as compared to participants diagnosed with BN, however the difference was not significant. Similarly, our study found that, on average, those participants diagnosed with AN reported a higher level of perceived coercion as compared to those participants diagnosed with BN but the difference was not significant either. However, Guarda et al., (2007) excluded participants diagnosed with BED and EDNOS diagnoses were incorporated into AN and BN diagnostic categories. The current study did not exclude BED diagnoses and EDNOS participants were examined as a separate diagnostic category. We found that at admission, participants diagnosed with AN or EDNOS reported very similar levels of perceived coercion. Additionally, both Guarda et al., (2007) and our study found that perceived coercion scores were stable between admission and the follow-up measurement. Guarda et al., (2007) followed up at two weeks into treatment whereas this study followed up at discharge from treatment, which was a variable length of time averaging approximately 53 days. Our findings suggest that perceived coercion may be a fixed variable that is not affected by the experience of receiving treatment or improvements or declines in illness severity as measured by treatment outcomes.

While Guarda et al., (2007) measured perceived coercion they did not examine the relationship of perceived coercion to treatment outcomes. This study builds on the Guarda et al.,

(2007) study by examining the relationship between perceived coercion and eating disorder

treatment outcomes at follow-up approximately one year post discharge. This study found no

relationship between level of perceived coercion at admission and treatment outcomes one year

later. This finding suggests that patients who feel coerced into eating disorder treatment are

equally likely to succeed or fail in recovery as compared to those patients who do not feel

coerced into eating disorder treatment. The results of this study are also in agreement with the

findings of Rain et al., (2003) and Bindman et al., (2005) who examined level of perceived

coercion at admission to general mental health treatment and treatment outcomes. Rain et al.,

(2003) and Bindman et al., (2005) both concluded that level of perceived coercion at admission

to treatment did not affect the outcome of that treatment.

There are several limitations to our study. First, the high rate of attrition at follow-up

certainly affected the potential of this study and results may have differed with a larger sample

size at follow-up. Second, a very minimal number of study participants completed the AES and

EDE-Q at all the requested times making it difficult to track changes in data for the entire study

population. Third, all study participants were admitted on a legally voluntary basis and thus the

involuntary status population is not represented making it impossible to exclude the possibility

that legal status may affect level of perceived coercion. However, as mentioned previously, legal

status is not directly related to level of perceived coercion making legal status at admission a

non-critical variable when exploring perceived coercion. Fourth, this study focused on only those

participants admitted to the residential level of treatment excluded those persons admitted to the

inpatient at partial hospitalization levels of care, which may have an effect on perceived coercion

at admission. Lastly, participants and non-participants did not differ in any measured

demographics but it is not possible to exclude the possibility that non-participants perceived

greater coercion at admission. Financial incentives to increase participation were considered but ultimately dismissed due to the potential to introduce further biases.

Understanding how perceived coercion at admission to eating disorder treatment may affect treatment outcomes is important due to the presence of treatment refusal and recovery ambivalence in eating disorders. Identifying whether perceptions of coercion may negatively influence treatment outcomes is helpful in facilitating the decision regarding whether to admit for treatment when perceived coercion is present. Currently two main beliefs exist regarding coercion and treatment outcomes. The first belief is that coerced treatment is not effective because it induces a feeling of alienation and makes patients superficially compliant with treatment guidelines to end treatment as quickly as possible. The second and opposing belief is that coerced eating disorder treatment can be effective due to the nature of the disorder and the changes that effective treatment causes in an individual (Guarda et al, 2007). The findings of this study, that treatment perceived as coerced is just as effective as treatment perceived as non-coerced, are in alignment with the second belief which states that coerced eating disorder treatment can be effective.

In conclusion, the results of this study reflect the belief that coerced eating disorder treatment can lead to effective treatment outcomes. Those participants who felt more coerced into eating disorder treatment did not have outcomes that differed from those participants who did not feel as coerced into treatment. Additionally, these finding suggest that self-reported level of perceived coercion upon admission to eating disorder treatment cannot be used to accurately predict future treatment outcomes.

Future research studies should continue to examine the relationship between perceived coercion and eating disorder treatment outcomes in larger populations and within the different levels of care available for eating disorder treatment. Future research should also focus on examining the relationship between perceived coercion and treatment outcomes in those persons admitted to eating disorder treatment on a legally involuntary basis.

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Appendix A

ADMISSION EXPERIENCE INFORMED CONSENT

ADMISSION EXPERIENCE SURVEY

Please answer the following six questions about your experience coming to Rogers Memorial Hospital. The total time to complete the survey is estimated at less than two minutes. Your response to this survey is very valuable as it will be used to help Rogers Memorial Hospital gain a better understanding of, and potentially improve, patient treatment.

Your answers will be used by your treatment team, but will also be used for research aimed at improving our treatment programs. In addition to filling out this survey at admission and at discharge, we would like to contact you 3 months after your discharge. This will help us better understand how to support future Rogers Memorial Hospital patients in recovering from illness.

In order to contact you after discharge, we need your permission. If you agree, please list your contact information below. Only include phone numbers where we may leave a message for you. Email contact will be through secure (encrypted) email sent from directly from Rogers Memorial Hospital. Please put a **STAR (*)** in the left hand column to indicate your preferred way of being contacted.

___ Primary phone number: _____

___ Secondary phone number: _____

___ E-mail: _____

___ Other (parent or friend phone number):_____

___ Postal: Home/Permanent Address: _____

                                        _____

Patient Signature _____Date_____

Patient name (print) _____

Parent/Guardian signature (if patient is a minor) _____

Parent/Guardian name (print)_____

Date:_____

If you have any questions or concerns about this research or your responses, please contact your therapist or counselor and he/she will put you in contact with the Medical Director of the Rogers Memorial

Eating Disorder Center (**Dr. Ted Weltzin**), or the principal investigator of this study (**Ms. Ashley Barnes, R.D.,C.D**.). If you are under 21, your parents will also have to sign below.

Appendix B

Admission Experience Survey

Directions: Statement number one is about the length of your illness. Please rate the length of your illness by checking the box that is most accurate for you.

	Less than 6 months	6 months to 1 year	1 year to 5 years	Longer than 5 years
The amount of time that I have been struggling eating disorder symptoms.	❑	❑	❑	❑

Directions: Statements two – six are about your experience in coming to Rogers Memorial Hospital (RMH) for treatment. Please rate how strongly you agree or disagree with each statement by checking the box that is most accurate for you. Try to answer each question individually, no matter how similar it may sound to another.

	Strongly Agree	Agree	Disagree	Strongly Disagree
I felt free to do what I wanted about coming into RMH.	❑	❑	❑	❑
I chose to come into RMH.	❑	❑	❑	❑
It was my idea to come into RMH.	❑	❑	❑	❑
I had a lot of control over whether I went into RMH.	❑	❑	❑	❑

	Strongly Agree	Agree	Disagree	Strongly Disagree
I had more influence than anyone else on whether I came into RMH.	❑	❑	❑	❑

Appendix C

Thesis Proposal: The Effect of Perceived Coercion on Eating Disorder Treatment Outcomes

Master of Science in Dietetics, Counseling Concentration

Ashley Barnes RD, CD

The use of coercive pressure to provide effective care remains controversial in the mental health field. The use of coercive pressure by a person's family, friends and/or clinicians has the potential to influence that persons perceived level of coercion upon admission to mental health treatment. Coughlin et al. (2007) defined perceived coercion as how much a person feels forced, pushed or intimidated into treatment.

The primary aim of this master's degree thesis is to investigate the relationship between level of perceived coercion upon admission to eating disorder hospitalization and treatment outcomes three months post discharge. The effect of perceived coercion on eating disorder treatment outcome is unknown at the current time. This study hypothesizes there is no relationship between perceived coercion upon admission and treatment outcomes, demonstrating that eating disorder treatment can be effective even when patients feel coerced to participate. This finding would support the utility of coercive methods when attempting to provide eating disorder treatment.

All patients aged 18 years and older, admitted to Rogers Memorial Hospital (RMH) eating disorder residential programs, will be invited to participate in this study. The identity of individual subjects will be kept confidential. Subject identifiers will be replaced with coded numbers on all documents and will not be disclosed in any published results. Study data will be kept in a locked cabinet with access restricted to this researcher.

It will take 6-12 months to recruit the final goal sample size of 114 subjects. Assuming an estimated 20% loss to follow-up, a final sample size of 95 subjects will allow for a confidence level of 95% and a confidence interval of 10%.

Level of perceived coercion upon admission to eating disorder hospitalization will be measured via five Likert scale questions from the MacArthur Admission Experience Interview and will be provided in the admission outcome studies packet. Treatment outcomes will be measured via the Eating Disorder Examination Questionnaire (EDE-Q) provided at admission, discharge and three months post discharge. EDE-Q questionnaires at admission and discharge will be provided to patients via outcome studies packet. EDE-Q questionnaires will be provided at the three-month follow-up via lettered mail, electronic mail or telephone. Using the Pearson Moment Correlation EDE-Q scores will be compared to the level of perceived coercion at admission. This analysis will determine the presence or absence of a relationship between level of perceived coercion upon admission to eating disorder hospitalization and treatment outcomes. Estimated data collection completion has been set for February 2013 with a goal of thesis completion occurring December 2013.

Potential resources needed to complete this master's thesis include the cost of mailing follow-up surveys and any time spent with RMH outcome studies personnel for data calculations. Any fiscal requirements necessary to complete this thesis may potentially be obtained via a graduate assistantship at Mount Mary College or via an American Dietetic Association scholarship.