IMPACT OF PATIENT AND PARTNER INSIGHT INTO ANOREXIA NERVOSA ON TREATMENT OUTCOME

Kimberly Zoe Pentel

A thesis submitted to the faculty of the University of North Carolina at Chapel Hill in partial fulfillment of the requirements for the degree of Master of Arts in the Department of Psychology and Neuroscience

Chapel Hill
2016

Approved By:

Donald H. Baucom

Thomas J. Raney

Jonathan S. Abramowitz

ABSTRACT

Kimberly Zoe Pentel: Impact of Patient and Partner Insight into Anorexia Nervosa on Treatment Outcome
(Under the direction of Donald H. Baucom)

Across disorders, increased insight is associated with better treatment outcome. Among patients with AN, limited insight is common yet understudied, and romantic partners develop their own understanding of the disorder. In this study, an observational coding system was developed to assess patient and partner insight into AN. Coders assessed pre-treatment couple conversations for 22 couples in which one individual had AN. Codes were used to predict patient outcome following cognitive-behavioral couple-based AN treatment. The proposed model posited that increased insight would predict better patient outcomes, mediated by relationship functioning. Results indicated that increased insight was associated with lower end-treatment patient symptom severity. Strikingly, partner insight predicted patient's outcome better than the patient's own insight. However, relationship functioning did not mediate the association between insight and outcome. These pilot findings underscore the pivotal role of partners in the recovery process and suggest that harnessing partner insight may help maximize treatment gains.

TABLE OF CONTENTS

LIST OF TABLES

Table

LIST OF FIGURES

Figure

CHAPTER 1: INTRODUCTION

Definition of Insight into Psychopathology

The concept of insight into one's problems has been discussed for decades in the psychotherapy literature. Long before current concepts of insight in cognitive-behavioral therapy (CBT) emerged, insight had early roots in classical psychoanalytic theory. Classical psychoanalysis can also be called insight-oriented therapy due to the emphasis on insight as the central curative mechanism. The psychoanalytic notion of insight refers to an awareness of the etiology of one's unresolved issues, often stemming from childhood, that have been pushed into the unconscious yet still cause the patient significant distress (Wolitzky, 2005). Gaining an understanding of those etiological factors is viewed as the primary curative agent; a patient recovers by building an awareness of the issues that they have repressed by bringing it into consciousness and working through it.

In contrast, the cognitive-behavioral definition of insight focuses on the patient's present understanding of their disorder. Insight in a CBT framework is defined as an awareness and understanding that one has a disorder. Here insight is not considered the curative agent as it is in psychoanalytic psychotherapy but instead is seen as facilitating the patient's readiness to change. For example, a patient who does not recognize that he or she has a disorder, let alone its personal and interpersonal consequences, would have little reason to change or seek treatment. This is particularly true of individuals with

anorexia nervosa (AN) who, as a group, appear to have low levels of insight and commonly hold a perception of themselves and their illness that is contrary to reality. Rather than seeing themselves as underweight, some individuals may see themselves as globally overweight or be preoccupied with perceived areas of fat on their bodies (American Psychiatric Association, 2013). In summary, in the CBT framework, insight into psychopathology involves having a realistic perspective of one's disorder and its impact on oneself and others.

Insight may manifest in different ways across disorders, and these different manifestations of insight are often referred to as "dimensions" of insight. For example, in the psychosis literature, compliance with treatment and the ability to attribute psychotic experiences to the disorder are seen as indicators of insight (Henriksen & Parnas, 2014). In the eating disorders literature, additional suggested dimensions of insight include an awareness of psychological changes in the patient due to the disorder, recognizing the need for physical or psychological treatment, and understanding the psychosocial consequences of the disorder (Konstantakopoulos, Tchanturia, Surguladze, & David, 2011).

Whereas psychoanalytic and CBT perspectives have not yet converged on an operational definition of insight into psychopathology, there are common themes. In both models, insightful patients view their disorder as "ego-dystonic" or maladaptive. When individuals have low insight into their psychopathology, they may identify closely with the disorder and see it as a part of themselves that they do not want to lose. Patients with eating disorders may identify especially closely with their disorder and be hesitant to give up this part of their identity.

Insight into Anorexia Nervosa

Impaired insight is recognized as a clinically important and common feature in eating disorders, yet it remains understudied (Konstantakopoulos et al., 2011). Patients with AN often are unaware of their actual degree of thinness, refusing therapy or denying that they have a disorder (Greenfeld, Anyan, Hobart, Quinlan, & Plantes, 1991). This is especially dangerous given that AN has the highest mortality rate of all psychological disorders (Papadopoulos, Ekbom, Brandt, & Ekselius, 2009; Sullivan, 1995), and the evidence base for efficacious treatments for adults with AN remains limited (Dare, Eisler, Russell, Treasure, & Dodge, 2001; National Institute for Clinical Excellence, 2004).

It is unclear if all individuals with AN have generally equally low levels of insight or if levels of insight may somehow vary systematically among individuals with AN. A study of 25 women with AN found that not all AN patients have equally poor insight (Konstantakopoulos et al., 2011). Overall, only a subset of the patients with AN (24%) displayed severe impairment in insight, and an examination of the subtypes of AN indicated that the restricting subtype (AN-R) had overall lower insight into the disorder than individuals with the binge-purge (AN-B/P subtype). However, a study of 30 patients with AN (18 of whom had comorbid Bulimia Nervosa, BN) found no difference in insight between those patients with AN alone and those with AN and BN (Greenfeld et al., 1991). Thus, further research is needed to determine if there are differences in insight across subtypes of AN. Understanding how levels of insight vary within the AN population has potential implications for the treatment of AN and may help therapists target interventions to be sensitive to subgroups with overall lower insight into the disorder.

Role of Insight in Treatment Outcome

The impact of insight on naturalistic clinical and treatment outcomes for individuals with AN is not yet fully understood, although there are some initial findings. A study of 30 individuals who had been hospitalized for AN found that higher insight at follow-up was associated with better medical outcomes at follow-up, including higher BMI (Greenfeld et al., 1991). Findings from a sample of 25 individuals receiving inpatient treatment for AN, 16 with restricting subtype and 9 with binge-purge subtype, indicated a positive correlation between overall insight and body mass index (Konstantakopoulos et al., 2011).

Given the scarcity of empirical evidence on the impact of insight on patient outcomes in AN, research on insight into other disorders can shed light on the association between insightfulness and treatment outcomes. Poor insight has been associated with poorer treatment outcomes in obsessive-compulsive disorder (OCD) following group-based behavioral therapy for OCD (Himle, Van Etten, Janeck, & Fischer, 2006), poorer treatment outcomes in body dysmorphic disorder (BDD; Neziroglu, Stevens, McKay, & Yaryura-Tobias, 2001), and treatment delays and poorer long-term outcomes in psychosis (Brent, Giuliano, Zimmet, Keshavan, & Seidman, 2011a). In bipolar disorder, poor insight has additionally been associated with worse outcomes (Dell'Osso et al., 2002). In schizophrenia and schizoaffective disorders, low insight correlates with poorer quality of life (Hasson-Ohayon, Kravetz, Roe, David, & Weiser, 2006), lower psychosocial functioning (Amador, Flaum, Andreasen, & Strauss, 1994), higher symptom severity (Mintz, Dobson, & Romney, 2003), and worse prognosis (Amador, Strauss, Yale, & Gorman, 1991). Taken together, these findings highlight the detriment that low insight

can have on a patient's clinical and treatment outcomes. One limitation of this existing research is the sole emphasis on the patient. Given the interpersonal context of AN, there is a need for future research to examine whether a loved one's insight into the disorder may also impact treatment outcome.

Interpersonal Context of AN

Eating disorders occur in an interpersonal context, and loved ones who are closest to the patient, such as romantic partners, are often strongly affected as well (Baucom, Belus, Adelman, Fischer, & Paprocki, 2014). Contrary to popular belief, individuals with AN are frequently partnered and are in romantic relationships at similar rates to their non-AN peers (Maxwell et al., 2011). Moreover, these partners play an important role in the patient's recovery from AN. Individuals with AN cite having a supportive partner as a "driving force" in their recovery (Tozzi, Sullivan, Fear, McKenzie, & Bulik, 2003). Given that relationship stress and psychopathology have a reciprocal relationship, it also is important to consider the stress which partners of individuals with AN are experiencing (Baucom et al., 2014).

Partners of individuals with AN typically have high levels of caregiver stress, higher than for caregivers of individuals with bulimia nervosa (Santonastaso, Saccon, & Favaro, 1997) and schizophrenia (Treasure et al., 2001). The burdens experienced by the caregiver of an individual with AN may include financial and emotional costs, the strain of keeping the disorder secret, and dealing with stigma or social isolation (Padierna et al., 2013; Santonastaso et al., 1997; Treasure et al., 2001; Whitney et al., 2005). On a daily basis, partners may experience anger or resentment at the household responsibilities they have to assume and may develop a degree of learned helplessness in response to their

inability to help the patient recover despite their efforts (Doherty, 1981). Moreover, partners often cope with learning about the disorder on their own. The secretive nature of AN can compound this difficulty, leaving the partner in the dark about the patient's experience with the eating disorder and how to best help them (Roe & Kravetz, 2003).

As an illustrative example, an insightful partner dealing with a patient who lacks insight into the disorder may be in an especially distressing situation. The partner may see the patient behave in destructive ways and ask the patient to change, but if the patient believes nothing is wrong and fails to recognize the disorder, this can lead to distress for both individuals. Thus each partner's insight has the potential to impact the overall relationship health and, perhaps, treatment outcome.

In summary these findings suggest that insight is a clinically important construct to study in individuals with AN. Overall both patient and partner insight into the disorder may impact treatment outcomes. Findings in the insight literature across diagnoses, especially in populations with OCD and schizophrenia, broadly suggest that increased insight is beneficial and may lead to better patient outcomes. However, in order to study how patient and partner insight operate specifically in AN, we must first consider how it can be measured optimally. A review of the existing measures of insight can help us understand how the various dimensions that may comprise insight are assessed. A selective critique of existing measures of insight into psychopathology is presented next.

Measurement of Insight

Only one measure specifically designed to assess insight in eating disorders has been developed (SAI-ED; Konstantakopoulos et al., 2011), and no measures have been developed specifically for AN. In order to gain a broader understanding of the measures

for insight that currently exist, the current review of the literature was thus expanded to examine measures created for assessing insight in other psychiatric disorders as well.

Measurement of patient insight. Two studies have assessed patient insight into AN, but both employ measures that were originally developed for use in other clinical populations. One study assessed 30 women diagnosed with AN for insight into their disorder using a semi-structured clinician interview entitled the Schedule for Assessment of Insight into Illness (Greenfeld, Strauss, Bowers, & Mandelkern, 1989). However, this semi-structured clinical interview was originally developed for use in patients with psychosis.

The Schedule for Assessing Components of Insight also was developed decades ago for the assessment of insight into psychosis (David, 1990). In 2011, Konstantakopoulos and colleagues modified a more recent version, the Scale to Assess Insight (SAI-ED; David, Buchanan, Reed, & Almeida, 1992; Kemp & David, 1997), to become a brief, seven-item self-report measure to assess insight specifically into eating disorders (SAI-ED; Konstantakopoulos et al., 2011). The SAI-ED includes items asking separately about a patient's perceived need for physical/medical and psychological/mental health treatment, given that individuals may embrace one type of treatment but not the other. The SAI-ED was used to assess insight in a sample of 25 individuals with AN, 16 of which had the restricting subtype and 9 of which had the binge-purge subtype. A large effect size was observed for the difference between the restricting and binge-purge subtypes of AN on the SAI-ED total score, (Cohen's d=.77; small, medium, and large Cohen's d are 0.20, 0.50, and 0.80 respectively; Konstantakopoulos et al., 2011). One drawback of this questionnaire is that the questions

were posed in a dichotomous manner (e.g., “Do you think your condition amounts to a psychological/nervous disorder?”) with the answer choices of “yes”, “no”, or “unsure”, limiting the sensitivity of the scale to a broader, continuous range of insight.

Additional, more global measures of insight into psychopathology have been adapted for use across a wide array of disorders. The Scale to assess Unawareness of Mental Disorder (SUMD; Amador, Strauss, Yale, & Flaum, 1993) is a structured clinical interview probing both discreet and general dimensions of insight across a variety of possible disorders. The benefit of the SUMD is that it requires minimal training to be administered and has strong reliability (intra-class correlation coefficients ranging from .52 to .99) and convergent validity with other global measures of insight into mental illness (Amador et al., 1993). However, a drawback is that this measure was developed for use in patients with schizophrenia and schizoaffective disorder, and some of its items (e.g. awareness of the achieved effects of medication) may not be as relevant when assessing insight into other disorders.

There are multiple important findings from the development of the SUMD that can help enrich the field’s understanding of insight in eating disorders. First, the authors concluded that insight is not dichotomous; in other words, insight occurs on a continuum, and individuals can have partial insight. Additionally, individuals can have insight into some aspects of their disorder while lacking insight into other aspects. This distinction may be particularly relevant in AN where an individual may recognize one facet of their illness (e.g., notice that their AN makes mealtimes with their family a stressful experience for all) but fail to notice others (e.g., fail to notice the physical consequences of the AN on their body). Finally, the authors of the SUMD noted the importance of

accounting for patient exposure to information about their illness in assessing their insight. A patient who is able to repeat information about their disorder that they heard from a doctor is not necessarily insightful; insight requires a more organic and deeper understanding of the disorder and its consequences beyond repeating information heard elsewhere.

Another broad measure of insight is the Brown Assessment of Beliefs Scale (BABS; Eisen et al., 1998). It is a semi-structured clinical interview that was developed to assess both patient insight and degree of conviction into their beliefs, especially when dealing with delusions, obsessional thinking, and phobias. The BABS was developed for use across a wide variety of disorders and has been used to assess insight into OCD and BDD. Although its language is tailored towards OCD-related symptoms, the authors of the BABS make a distinction between obsessions and delusions. Obsessions are defined as ego-dystonic and intrusive cognitions about which the patient maintains insight. Delusions, however, are false beliefs, thoughts, fears, or concerns about which the patient is not insightful, meaning that they are unaware of the irrationality of the belief. In AN, an example of a delusional belief may be "I am fat." Clinicians using the BABS are to first identify the patient's core beliefs in the most specific terms possible, and then assess to what degree the patient is convinced that these must be true and that the belief is accurate.

The DSM-V notes that lack of insight into the disorder is a frequent diagnostic feature displayed by patients with AN and consequently the DSM-V highlights the utility of collecting collateral information from family members or other sources outside of the patient in order to understand the full extent and impact of the AN (American Psychiatric

Association, 2013). Despite this recognition, the diagnosis of AN lacks an insight "specifier," something which other disorders in the DSM provide (e.g., for a diagnosis of OCD, a clinician can specify if the patient has good or fair insight, poor insight, or absent insight into the disorder).

Measurement of partner insight. When considering how couples as a unit come to understand a patient's disorder, it is important to appreciate that the partner may have their own level of insight into the disorder. Significant others are in a unique position, seeing the patient's symptoms from an outsider's perspective but also contributing to the patient's home environment. Current methods to assess insight in a family member involve adaptation of measures meant for use in patients with inherent limitations that are addressed further below.

The SUMD-Caregiver Version was developed for use in caregivers of a patient with early psychosis; this measure adapted the question stems on the original SUMD intended for patients to instead probe the caregiver's insight into the patient's disorder (Brent, Giuliano, Zimmet, Keshavan, & Seidman, 2011b). One limitation of this method is that it presupposes that questions to probe insight in both individuals are overall the same, without providing acknowledgement of the different roles of patient and caregiver.

The Scale to Assess Unawareness of Mental Disorder (SUMD; Amador & Strauss, 1990) has been modified to assess insight into the disorder in significant others and family members of patients with schizophrenia spectrum disorders (Smith, Barzman, & Pristach, 1997). Smith and colleagues administered the SUMD to one or more family members of the patient and also administered it to a significant other if they were available for study participation. The SUMD was used to measure loved ones' awareness

of the disorder, attributions made about patient symptoms, and compliance with the patient's treatment. Results indicated that increased insight into the disorder by the patient or significant positively impacted treatment compliance (Smith et al., 1997). One fascinating finding was that participants whose partners failed to participate in the study interviews had lower insight into their disorder. Taken together, these findings suggest that, in schizophrenia, increased patient and partner insight may impact treatment compliance and other partner variables such as participation in treatment.

In summary, there are multiple measures of patient insight into one's own psychiatric disorder, and a small body of research has examined the assessment of a caregiver or loved one's insight into psychopathology. Research and theory suggest that an individual may embrace a constellation of beliefs that make up their insight "profile" and display greater insight into some aspects of their disorder than others. This may be true for the patient or their romantic partner, although there are no current measures that have been developed to probe both patient and partner insight into a disorder.

Limitations of existing measures. As noted above, a major drawback of nearly all of the aforementioned measures (except the SUMD-Caregiver version) is that they solely assess the patient's insight. Given the importance of a romantic partner in a patient's recovery from AN (Tozzi et al., 2003), studying only the patients provides an incomplete assessment of factors that may contribute to their recovery. Measuring the partner's insight into the disorder can facilitate the examination of the role of the partner in the couple's relationship functioning more broadly and how this impacts the patient's treatment outcome and recovery.

Second, many of the aforementioned measures were created without a specific disorder in mind and for cross-diagnostic use. Whereas this approach can contribute to the generalizability of findings, it may cause researchers to overlook discreet manifestations of insight that are specific to a given disorder. In the development of any such measure, it is necessary to consider that insight is widely believed to be multidimensional, including both general, cross-diagnostic elements of insight (e.g., broad recognition of having a disorder) and discreet elements which are specific to certain disorders and symptoms (Hartmann, Thomas, Wilson, & Wilhelm, 2013). Research using a broad, general measure of insight for a specific disorder may be probing dimensions that are not relevant to that disorder or failing to account for disorder-specific nuances. In addition many of the existing measures have been validated in non-eating disorder populations. It would be unwise to use measures validated in other populations for eating disorder patients. Given the appreciation for insight consisting of both general and discreet, disorder-specific elements, more work must be done to develop AN-specific insight measures.

A final limitation of existing measures is that they are overwhelmingly self-report. These measures are subject to social desirability biases, recall biases or the potential for individuals to forget certain events, and mood-dependent answers. When assessing individuals who have low insight into the disorder, self-report may be especially problematic. Specifically, there may be a "mental illness awareness paradox" meaning that the cause of the person's disorder (whether neurological, biological, or social) may also simultaneously underlie their lack of awareness of these symptoms (Roe & Kravetz, 2003). In short, the nature of certain psychological disorders may contribute to it being

inherently difficult for individuals to reflect on and objectively rate their level of insight into the disorder. This may make patients (or partners who are also immersed in the disorder) unreliable reporters and could lead to self-report measures being untrustworthy. While semi-structured clinical interviews may address this shortcoming, the existing clinical interviews do not take into account a romantic partner's insight and are not disorder specific.

As opposed to relying on the individuals to self-report or disclose in an interview, which may inherently presuppose some level of awareness, an alternative method to assess insight may be via observationally coding couple interactions. Couple conversations provide a rich sample of data about the couple's interactions around the disorder. Observational coding allows for more naturalistic and objective assessment of insight into the disorder by a coder who is outside of the couple, reducing self-report biases. Thus, a disorder-specific coding system may prove valuable to address the methodological shortcomings of existing measures. Given that insight is comprised of a number of potential dimensions, both general and disorder-specific facets of insight become relevant when developing a measure for a specific population.

Current Investigation

The current study built upon existing literature on the interpersonal context of AN and the measurement and role of insight into psychopathology. Accordingly, the first aim was to develop a cohesive measure of the construct of insight into AN by increasing disorder specificity and building in sensitivity to the unique dynamics of romantic dyads in coping with an individual partner with AN. Second, this study pilot tested this measure in a sample of adult couples where one member has AN in order to examine hypotheses

regarding whether patient and partner insight impact the patient's end-treatment outcomes (as measured by body mass index and eating disorder symptom severity) following a couple-based treatment for AN. Given the limited research available on individuals with AN, insight into AN, and the role of romantic partners, the current study's hypotheses are based on theory and prior literature. Results from this pilot study should be considered preliminary and interpreted with caution.

For the remainder of the document, for ease of differentiating between the two individuals in a couple, the use of the term *patient* will refer to the individual who is receiving treatment for AN. The use of the term *partner* will refer to the romantic partner of the identified patient.

Hypotheses

The overall model (see Figure 5) proposed that either partner's increased understanding and awareness of the AN leads directly to better patient treatment outcomes but also has an indirect effect on patient treatment outcomes by impacting the romantic relationship milieu. Specifically, the hypotheses were:

Hypothesis 1 (H1). Increased insight in either partner will be associated with better patient treatment outcomes. Prior literature suggests that increased patient insight is associated with better treatment outcomes in samples with OCD and schizophrenia, suggesting that having an increased understanding and awareness of one's disorder may positively impact one's treatment trajectory or help patients benefit more from treatment compared to patients with poorer insight into the disorder. Thus, this finding would corroborate prior research and provide initial data suggesting that patient insight into AN operates similarly to patient insight in other disorders. In addition, it is predicted that

patients with insightful partners will experience better treatment outcomes. Insightful partners may understand the patient's behaviors in a situational rather than dispositional way (e.g., "It was your disorder speaking when you snapped at me at dinner, because your AN makes you anxious at mealtimes") and, consequently, be less critical and hostile, contributing to better patient outcomes. This finding would provide initial evidence that partner insight into AN operates similarly to caregiver insight such that increased insight by a loved one is associated with a better broad environment for recovery for the patient.

The second and third hypotheses focus upon the mechanisms by which insight contributes to improved patient treatment outcome. Both hypotheses 2 and 3 propose that, to some extent, insight contributes to better patient outcomes through the impact of insight on relationship functioning, which in turn leads to better treatment outcome.

Hypothesis 2 (H2). The second hypothesis focuses specifically on a patient's own insight. While patient insight may directly impact treatment outcome, there will also be an indirect effect in which patient insight impacts the couple's relationship functioning. This broader relationship environment is expected to be conducive or detrimental to supporting patient recovery, in turn impacting patient treatment outcomes. This hypothesis focuses upon three metrics of the couple's broader relationship functioning: patient self-reported relationship adjustment, partner self-reported relationship adjustment, and partner self-reported caregiver stress.

Furthermore, after accounting for the three relationship functioning variables, more insightful patients are expected still to display better treatment outcomes than less insightful patients (see Figures 1 and 2). In other words, it is hypothesized that the impact

of patient insight on treatment outcome is not solely via impacting the couple's relationship functioning. Insightful patients may broadly engage in behaviors conducive to recovery in ways that may not affect the relationship, per se. Related sub-hypotheses are detailed below:

a) First, all three relationship functioning measures, *taken together*, will partially mediate or provide the paths through which patient insight leads to improved treatment outcome.

b) Next, each of the three relationship functioning measures, *taken individually*, will mediate the association between patient insight and treatment outcome in the following ways:

b1) The association between patient insight and treatment outcome will be significantly and positively mediated by *patient relationship adjustment* (see Figures 1 and 2) A patient low in insight may consider themselves as being in more of a relationship with their disorder than with their romantic partner, negatively impacting their relationship adjustment. The couples literature has broad evidence that relationship distress acts as a chronic stressor which can exacerbate a variety of psychological symptoms (Whisman, 2007). Accordingly, it is hypothesized that patients with low relationship adjustment will experience worse treatment outcomes.

b2) Similarly, the association between patient insight and treatment outcomes will be mediated by *partner relationship adjustment* (see Figures 1 and 2). One facet of insight into AN may be an awareness of the interpersonal consequences of the disorder. Insightful patients will have an increased understanding of the impact of their disorder on their partner and may subsequently act more supportively towards their partner, creating

an overall positive relationship environment. Accordingly, partners may be more relationally satisfied when they live with a patient who is more fully aware of the extent and impact of their disorder on themselves and others. Consequently, if a partner is satisfied in their relationship, they may help to create an overall positive environment and be responsive to the patient's AN-related needs. Thus, having a partner with high relationship adjustment may be associated with better patient treatment outcomes.

b3) Third, the association between patient insight and outcomes will be significantly mediated by *caregiver stress* (see Figures 1 and 2). Specifically, partners will experience less caregiver stress as patient insight increases, possibly because patients high on insight may be more aware of the impact that their disorder has on their partner and act in ways to acknowledge or decrease caregiver stress. Next, patients will experience better treatment outcomes if their partner has low levels of caregiver stress. The burdens experienced by the caregiver of an individual with AN may be numerous as outlined in the introduction. Studies examining caregiving by romantic partners are lacking (Bulik, Baucom, Kirby, & Pisetsky, 2011), and there is also a paucity of evidence on the association between caregiver stress and patient outcomes. This hypothesis will address this gap in knowledge.

Hypothesis 3 (H3). The third hypothesis focuses on partner insight and posits that the association between the partner's insight and patient treatment outcomes is mediated by relationship functioning. In addition to this meditational relationship, a partner's insightfulness may also directly influence patient treatment outcomes (see Figures 3 and 4). Specifically, mirroring H2, the sub-hypotheses were:

a) All three relationship functioning measures, *taken together*, will mediate the association between partner insight and treatment outcome.

b) Each of the three relationship functioning measures *taken individually* will mediate the association between partner insight and treatment outcome. Specifically:

b1) The association between partner insight and treatment outcome will be mediated by *patient relationship adjustment*. Insightful partners may be more supportive towards the patient, expressing an understanding and appreciation of the impact that the disorder has on the patient and leading the patient to report higher satisfaction in the relationship. Subsequently, patients who are more satisfied in their romantic relationships will experience better treatment outcomes.

b2) Similarly, the association between partner insight and patient outcomes will be mediated by *partner relationship adjustment.* Specifically, an insightful partner will be less hostile and more understanding when the patient engages in maladaptive behavior, creating a less negative relational environment and contributing to increased relationship satisfaction. Additionally, if the partner feels in control and has information and knowledge about the disorder they are more likely to be forgiving of maladaptive patient behaviors and consequently may feel less relationally distressed.

b3) Next, the association between partner insight and treatment outcomes will be significantly mediated by *caregiver stress.* That is, partner insight and caregiver stress will have a negative association such that partners with low insight will experience higher caregiver stress. This specific association has not yet been examined in previous investigations and is based on clinical observations and theory. Living with a loved one with AN may be a negative, confusing experience for the romantic partner, and partners

without insight are likely to find the experience more stressful. Partners experiencing prolonged caregiver stress are expected to be of less assistance to the patient in addressing the disorder, subsequently contributing to poorer treatment outcomes.

CHAPTER 2: METHODS

Participants

Couples in which one individual has a primary diagnosis of AN were recruited for two studies. First, a pilot study investigated the efficacy and feasibility of a couple-based cognitive behavioral psychotherapy for adult patients with AN and their romantic partners called Uniting Couples (in the treatment of) Anorexia Nervosa (UCAN). The UCAN protocol was developed to target both AN-specific and general relationship problems, and the program engages the partner as an active resource for the patient (Bulik, Baucom, & Kirby, 2012; Bulik et al., 2011).

In this pilot study, all patients received a couple-based psychotherapy. Due to the high risk physical and psychological nature of AN as well as the lack of any one gold-standard treatment, all patients in the pilot study also received a set of core interventions including medical management with a psychiatrist, nutritional counseling with a dietician, and a base level of individual cognitive behavioral therapy (CBT).

A larger randomized controlled trial (RCT) currently is in progress to examine the relative efficacy of UCAN compared to individual psychotherapy. As part of the RCT, all patients receive the same set of core interventions as detailed above, including medication management, nutritional counseling, and individual CBT. Beyond this, patients are randomized either to (a) UCAN couple-based psychotherapy or (b) a higher dose of individual CBT.

In both studies, inclusion and exclusion criteria were assessed in a screening interview. All participants were adults aged 18 and over who were involved in a committed romantic relationship of any sexual orientation. There was no relationship length requirement in the pilot study, but a requirement of the couple being in a committed relationship of at least 6 months in the RCT. In both studies, both individuals in the couple were required to be willing to participate. All patients met DSM-IV criteria for AN, restricting or binge/purge subtype, with a BMI over 16.0. Individuals with a BMI under 16.0 were not included due to individuals with this low of body weight requiring inpatient treatment for acute re-feeding. Amenorrhea was not required since it carries no diagnostic validity for AN. Patients with alcohol or drug dependence in the past year, any psychosis, schizophrenia, bipolar 1, severe depression, current significant suicidal ideation, or developmental disability that would impair receipt of the therapy were excluded.

Due to the similarity in the nature of the treatment between the pilot study and the couple condition of the RCT as well as the similar inclusion and exclusion criteria, a selection of couples from both studies were included in the current investigation. As part of both studies, 10 minute long videotaped interactions were collected from the couples at pre-treatment. Only those couples with a functioning pre-treatment assessment video and who had completed the subset of measures of interest at pre-treatment and end-treatment were included in the current study. Although 20 couples participated in the completed pilot study, only 18 had a functioning pre-treatment video. From the ongoing RCT, only those patients who were assigned to the couple condition and had completed end-treatment assessment at the time of the data analyses were included in order to ensure

similar treatment to the couples from the pilot study. When the current study's data analyses began, 8 couples in the RCT had been randomized into the couple therapy condition. Of these, 6 couples had progressed through end-treatment assessment allowing examination of the patient's treatment outcome. In summary, the current study's sample included 18 couples from the pilot study and 6 couples from the larger, ongoing RCT yielding a total sample size of 24 couples.

Measures

Only data from the pre-treatment and end-treatment assessment time point were used. Additional assessment time points were administered in the larger pilot study and ongoing clinical trial but were not part of the current investigation.

Insight into the AN (patient and partner). A macro-analytic observational coding system was developed by the author (see Appendix) to assess patient and partner insight into the AN, and this coding system was pilot tested in the current study. Coders watched videotapes of couple interactions and rated the patient's and partner's insight into the AN based on the entire conversation. For the current study, these videotaped interactions were collected at pre-treatment assessment as part of the UCAN pilot study or larger UCAN clinical trial. At the start of the videotaped conversation, the couple was instructed to identify a moderate-level intensity topic related to the AN and share thoughts and feelings with each other about the topic (not problem-solving or making a decision) for ten minutes.

In this coding system, insight into the disorder was broadly defined as the individual's awareness and understanding of the patient's AN. Specifically, coders rated the patient and partner based on three key dimensions of insight: (dimension 1), a broad,

global awareness that the patient has AN and that the patient's symptoms taken together qualify as a disorder; (dimension 2), an awareness of the consequences (positive or negative, personal or interpersonal) of the AN; and (dimension 3), an understanding that the patient warrants professional treatment for this disorder. These three dimensions were highly represented in the insight into psychopathology literature and chosen based on a review of current measures in the field, finding that most questions fit into these three categories and that these dimensions of insight conceptually fit best with the symptomatology of AN. All items were rated on a Likert-type scale from 1-5. Although the specific anchors for each question vary, all questions were worded such that 1 indicated very poor insight on that topic; 3 indicated moderate insight on that topic, and 5 indicated strong insight. In order to facilitate full use of the Likert-type scale and ensure that coders were rating insight relative to an appropriate norm group, coders were instructed to rate the individual relative to their respective peer group- specifically, other patients with AN or other romantic partners (see Appendix for more information).

Within each dimension, there were a number of individual, specific items that the coder rated. For example, within dimension 1 (broad awareness of the patient having AN), specific items probe awareness of: the patient's low body weight, society's view of the patient's body weight, development of the AN, the patient's body image distortion, society's view of body image distortion, patient's eating behaviors, society's view of patient's eating behaviors, and patient fear of gaining weight. Within dimension 2 (awareness of consequences of the AN), items assess awareness of negative patient health consequences, negative consequences for the partner and the romantic relationship, positive benefits for the patient, and negative impact on the patient's broader

interpersonal relationships. Dimension 3 (awareness that patient warrants treatment) contains one item that probes recognition that treatment is warranted. There also was a dimension summary item as the final item within each dimension, asking the coder to step back and create an overall rating for that individual across that dimension.

As a final insight-related item, coders provided a global insight rating for the target individual. The global insight item required the coder to assign an overall score to that individual taking into account the three dimension summary scores as guidance. This global insight score for each individual was used in the current study during hypothesis testing.

All items outlined above result in 16 insight-related items coded for the patient and 16 for the partner. While the wording was very similar across the items for patient and partner, distinct examples pertaining to the target individual's role (either as patient or significant other) were incorporated into items as appropriate.

In addition to these items to assess insight, coders also rated the global quality of communication for both patient and partner by examining to what degree the target individual expressed their viewpoint and feelings subjectively and non-combatively, respected their partner's viewpoint, attempted to understand their partner's subjective experience better, and did not engage in criticism, hostility, or withdrawal (Epstein & Baucom, 2002). The global communication item was asked once for patient and once for partner, and the language for this item as well as its coding guidelines were drawn from a coding manual by Fischer and Baucom (2011). Global communication ratings were collected to ensure that coders did not conflate quality of communication with insight

into the disorder. Other verbal and nonverbal cues such as tone of voice, body language, and eye contact were considered when making this rating.

Lastly, the coders rated one item on the focus of the conversation, capturing how much time the couple spent talking about AN-related versus AN-unrelated topics,. All combined, including the 16 insight items each for patient and partner, a global communication item each for patient and partner, and a single item on the focus of the conversation, coders completed 35 ratings per video.

Coders were asked to view the video a minimum of three times and complete the ratings in the following order. During the first viewing, the coder rated all insight-related items pertaining to the patient. During the second viewing, the coder rated all insight-related items pertaining to the partner. During the third viewing, the coder completed global quality of communication ratings for both the patient and partner as well as the focus of the conversation rating, and verified all previous ratings.

Caregiver stress (partner). The Caregiver Stress Scale (CSS; Kyriacou, Treasure, & Schmidt, 2008) was administered to partners at pre-treatment assessment as part of both the pilot study and the RCT. Pearlin, Mullan, Semple, and Skaff (1990) originally developed the scale to assess sense of burden among caregivers of individuals with Alzheimer's. Kyriacou, Treasure, and Schmidt adapted this scale for use with caregivers of patients with AN (2008). Although the CSS contains multiple subscales, some are not focused on the caregiver and patient's relationship. For the present study, only items that assess the partner's experience directly related to the patient and the AN were included in analyses. These items represents a subset of the scales that were combined into a "self-related strains" score in Kyriacou and colleagues' study (2008)

which explained 31% of the distress (anxiety and depression) in parents of patients with AN. These items demonstrated adequate internal consistency (Cronbach's $\alpha = .89$).

For the current investigation, four subscales were used: Personal Gain (four items, e.g., "How much have you become aware of your inner strengths"), Loss of Self (two items, e.g., "How much have you lost a sense of who you are"), Caregiving Competence (two items, e.g., "How much do you believe you've learned how to deal with a very difficult situation"), and Role Captivity (three items, e.g., "How much do you feel trapped by your relative's illness"). One item from the Overload subscale ("You work hard as a caregiver but never seem to make any progress") was included, as well as scores from the Caregiving Competence and Personal Gain scales. The response option for each item is a four point Likert-type scale, and higher scores indicate increased caregiver distress. The item scores from the 12 items outlined above were summed to create a total score of caregiver distress.

Relationship adjustment (patient and partner). The four-item self-report Dyadic Adjustment Scale (DAS-4; Sabourin, Valois, & Lussier, 2005) was used to measure patient and partner relationship adjustment. The DAS-4 is an abbreviated version of the original 32-item DAS (Spanier, 1976) which is a widely used, valid, and reliable measure of relationship satisfaction. Scores range from 0 to 21. Lower scores indicate more relationship distress, and a score of less than 13 suggests clinically significant relationship distress. For the current study, DAS-4 scores previously calculated for the pilot study were used. For those participants from the RCT where a longer version of the measure (DAS-32) was administered, scores were re-calculated to sum the four items that comprised the DAS-4. Total DAS-4 scores for patient and partner

at pre-treatment were used in the current study as a metric of relationship adjustment.

Symptom severity of AN (patient). Multiple indices of AN symptom severity were collected at pre-treatment and end-treatment. One index of symptom severity used in the current study was the patient's body mass index (BMI) assessed prior to treatment and at the end of treatment. Additionally, at pre-treatment and end-treatment, the patient's AN symptom severity was assessed with the Eating Disorders Examination (EDE; Fairburn & Cooper, 1993; Fairburn, Cooper, & O'Connor, 2008), a reliable and valid semi-structured interview administered by trained clinicians to assess current AN symptoms. The EDE assesses both cognitive and behavioral aspects of an eating disorder including frequency of engaging in certain eating disordered behaviors over the past 3 and 6 months. The EDE is considered to be the preeminent method of assessing eating disorder (ED) symptomatology (Berg, Peterson, Frazier, & Crow, 2011). The interview takes approximately 45 minutes and is administered by a trained interviewer. Scores range from 0 to 6 and higher scores reflect increased eating disorder symptomatology. For the present study, the end-treatment EDE score was used as a metric of patient treatment outcome and recovery from AN after controlling for pre-treatment EDE score.

Demographics (patient and partner). A demographics questionnaire was given to both patient and partner at the pre-treatment assessment for both the pilot study and RCT. The questionnaire asks about basic demographic variables such as racial/ethnic identity, relationship history, income, and education.

Procedure

As is outlined above in further detail, the data used for the current study consisted of selected measures from the pre-treatment assessment of couples participating in a

competed pilot study and ongoing treatment outcome study for AN (see Bulik et al., 2012; Bulik et al., 2011). All couples underwent the pre-treatment assessment with a clinician who was blind to treatment condition. This assessment included self-report measures, clinician-administered interviews and assessments, and the completion of a videotaped couple communication sample. Informed consent was obtained prior to the assessment; both partners completed the self-report questionnaires independently, and vital signs (including height and weight) were collected from the patient. The clinician-administered interview (EDE) was conducted with only the patient present. To collect the videotaped conversation, the couple was briefed on the communication sample task and were told to share their thoughts and feelings on an issue of moderate concern related to the AN. A research assistant remained in the room until a topic had been selected and then left the room for the duration of the communication task (10 minutes). The Biomedical Institutional Review Board of the University of North Carolina Hospitals approved all study procedures for both the pilot study and RCT.

CHAPTER 3: RESULTS

Given that the findings of this study rely on a novel coding system, an examination of the observational coding system and its psychometric properties is presented first. Next, descriptive statistics and preliminary analyses to characterize the study sample are presented followed by results for the substantive hypotheses regarding whether the impact of patient and partner insight on treatment outcome is mediated by relationship functioning variables. Finally, in order to address inherent limitations of the analytic method used for hypothesis testing, I present the results of exploratory follow-up analyses to further examine the associations between patient and partner insight and patient end-treatment outcomes.

Coding System

Three individuals who were undergraduates or recent college graduates were recruited to code the videos of the 10-minute couple interactions. Coders underwent four months of training including watching and coding videos of couples not included in the current study. Throughout training, inter-rater agreement was monitored and assessed informally.

For the current study, each videotaped interaction was rated by two of the three coders as determined by random assignment. As is detailed above in the methods section, coders rated each video on 35 total items (17 items for patient, 17 items for partner, and 1 item for the conversation as a whole). The ratings for each individual included a "global insight" item which represented each individual's overall level of rated insight into the

AN; the score from this item was used in hypothesis testing. Ratings for any given item ranged from 1 to 5 (1 indicating lowest insight, 5 indicating highest insight into that concept) or items could be coded as not applicable (N/A) if the content or topic to be coded did not arise in the couple's conversation. In assessing inter-rater agreement, a "hit" was defined as two coders giving an item the same score or a score within 1 point. A "miss" was defined as one coder giving an N/A rating while another coder gave a numbered score or the two coders' scores being 2 or more points apart.

Overall, across all coders and all items, there was a 21.07% miss rate. Of the misses, 64.54% were instances where one coder scored an N/A and the other coder scored a number, whereas 34.46% of the misses were between two numerical ratings. Examining only the patient global insight item, the percentage of misses was 20.83%. However, the percentage of misses on the partner global insight item was 8.33%. Possible reasons for this notably lower miss rate in partners are detailed further in the discussion.

In weekly group consensus meetings, the team of three coders met with the investigator to discuss, watch video clips, and reach agreement on a rating for each item that was originally a miss. These scores reached at consensus meetings, along with ratings that were originally consistent between the coders, became the scores ultimately used in hypothesis testing analyses. The three pairs of coders were approximately equivalent in their percentage of misses (coders 0 and 1 had a miss rate of 19.6%; coders 1 and 2 had a miss rate of 23.4%, and coders 0 and 2 had a miss rate of 19.6%). Descriptive statistics on item-by-item final scores are presented in Table 1 (for patient items) and Table 2 (for partner items).

Identifying outliers. The data were examined to identify any outliers, especially cases where an individual's data likely did not psychologically capture the variables of interest and thus should not be included in analyses. Markedly, one item in the observational coding system asked about the amount of time spent discussing anorexia-related topics on a scale of 1 to 5 (where 1= *the conversation was almost completely AN-unrelated*, 3= *half of the conversation was AN-related and half was off topic*, and 5= *almost completely AN-related*). Most couples (N=22) were rated a 4 or a 5 on this "focus of the conversation" item; however, one couple received a score of 3 and one couple received a score of 2.5. Given that this meant that half or less of the videotaped conversation was focused on AN in some way and that this would provide much less rich information for coders, these two videos were excluded from analyses, leaving a final sample size of N=22 couples. However, the calculation of inter-rater agreement (discussed further below) included all 24 couples in order to ensure that all items, including this "focus of the conversation item", were reliably coded.

In Tables 1 and 2, the column " *n* videos with numbered rating on item" indicates how many times a given video (out of N=22 total videos) was given a numbered score on that item and thus how that video's data is factoring into the descriptive statistics. Videos with a low *n* indicate that the content of these items rarely arose in a video with sufficient detail to warrant a rating, and this may suggest items that should be removed from or edited in future versions of the coding system. Tables 1 and 2 also include information on item-by-item inter-rater agreement (a) when both coders gave a numbered score (ICC; Hallgren, 2012) and (b) when both coders gave a rating of not applicable (Krippendorff's alpha; Hayes & Krippendorff, 2007; Krippendorff, 2007). These two pieces of data are

presented for the original sample size of 24 in order to examine inter-rater agreement (e.g., to ensure that the focus of the conversation item was coded consistently across coders, such that when deciding whether to exclude any couples based on outlying ratings, it is based on reliable coding). The two inter-rater agreement procedures are explained in further detail below.

Inter-rater agreement: Numbered scores. Intra-class correlation coefficients (ICCs; Hallgren, 2012) were calculated in SAS software to examine inter-rater agreement across pairs of coders on an item-by-item basis. Hallgren and colleagues (2012) recommend using ICCs to capture inter-rater agreement when using observational coding measures. An ICC value is the proportion of variance that is true (between-item) variance divided by the total variance (sum of between- and within-item variance). Higher ICC values suggest greater inter-rater agreement. ICC values range from 0 (chance) to 1 (perfect agreement). For the current study, the successful calculation of an ICC within any given coder pair and for a given item required at least two instances of that pair of coders both assigning numbered scores to that item. If one or both coders gave a given item a score of N/A, the ICC calculation could not utilize this information since one limitation of ICC is that it is unable to examine categorical data. As a result, instances of agreement where both coders scored a given item as N/A are reported in a separate procedure below (see "Inter-rater agreement: N/A scores" section).

Table 1.

Descriptive Statistics for Patient *Observational Variables (using consensus codes, N=22)*

	Patient					
Item	*n* videos with numbered rating on item	Mini-mum	Maxi-mum	Mean (*SD*)	ICC (N=24)	Krippendorff's Alpha (N=24)
Global quality of communication	22	1.50	5.00	3.45 (.72)	.28[3]	
Focus of the conversation (one rating per video)	22	3.00	5.00	4.68 (.50)	.36[3]	
1) Awareness of low body weight	7	1.00	4.00	2.50 (1.32)	.92[1]	.12[3]
2) Awareness of society's view of body weight	2	1.50	3.00	2.25 (1.06)		.27[2]
3) Awareness of development of the AN	2	2.00	2.00	2.0		-.07[2]
4) Awareness of patient's body image distortion	6	1.00	5.00	3.50 (1.41)	.17[2]	.58[3]
5) Awareness of society's view of body image distortion	1	2.50	2.50	2.5		.35[1]
6) Awareness of patient's eating behaviors	19	1.00	4.50	3.12 (.85)	.51[3]	.52[3]
7) Awareness of society's view of patient's eating behaviors	17	1.00	5.00	3.00 (1.02)	.10[3]	.13[3]
8) Awareness of far of gaining weight	11	1.00	4.50	3.14 (1.12)	.52[3]	.57[3]
9) Dimension 1 Summary Score	22	1.50	5.00	3.43 (.86)	.45[3]	-.04[2]
10) Awareness of negative patient health consequences	20	1.50	5.00	3.48 (1.14)	.47[3]	.19[3]
11) Awareness of negative consequences for non-	17	1.50	5.00	3.29 (.88)	.68[3]	.33[3]

AN partner or romantic relationship						
12) Awareness of negative impact on patient's broader interpersonal relationships	7	2.00	5.00	3.71 (.91)	.10[2]	.73[3]
13) Awareness of positive benefits for patient	8	2.00	5.00	3.56 (1.15)	.73[2]	.75[3]
14) Dimension 2 Summary Score	22	1.50	5.00	3.34 (.86)	.49[3]	0[1]
15) Dimension 3 Summary Score- Warranting treatment	18	2.00	4.00	2.67 (.59)	.16[3]	.31[3]
16) Global Insight into AN	22	1.50	5.00	3.11 (.87)	.47[3]	

Note. If no ICC or Krippendorff's alpha is reported, there were an insufficient number of cases where the two coders within a pair agreed (for ICC: both coders giving a number, and for Krippendorff's alpha: both coders giving an N/A score) in order for the statistic to be calculated.

[1] The superscript indicates how many pairs of coders' data fed into this calculation out of a possible 3 pairs.

Table 2.

Descriptive Statistics for Partner *Observational Variables (using consensus codes, N=22)*

	Partner					
Item	*n* videos with numbered rating on item	Mini-mum	Maxi-mum	Mean (*SD*)	ICC (N=24)	Krippendorff's Alpha (N=24)
Global quality of communication	22	2.00	5.00	3.60 (.50)	.11[3]	
Focus of the conversation (one rating per video)	5	3.50	4.00	4.00 (.61)	.36[3]	.31[3]
1) Awareness of low body weight	1	5.00	5.00		.88[1]	1[1]
2) Awareness of society's view of body weight	3	2.00	2.00	2.00		-.05[3]
3) Awareness of development of the AN	6	1.50	5.00	3.50 (1.18)		.57[2]
4) Awareness of patient's body image distortion	1	5.00	5.0	5.00	.44[2]	0
5) Awareness of society's view of body image distortion	19	1.50	5.00	3.60 (.89)		.52[3]
6) Awareness of patient's eating behaviors	4	3.50	4.00	3.88 (.25)	.48[3]	.42[3]
7) Awareness of society's view of patient's eating behaviors	6	1.00	5.00	2.67 (1.37)	.06[1]	.11[3]
8) Awareness of fear of gaining weight	22	2.00	5.00	3.59 (.77)		.31[2]

9) Dimension 1 Summary Score	17	2.00	5.00	3.53 (.90)	.52[3]	.50[3]
10) Awareness of negative patient health consequences	20	2.00	5.00	3.97 (.90)	0.72[3]	-.07[1]
11) Awareness of negative consequences for non-AN partner or romantic relationship	2.0	2.00	5.00	4.10 (1.02)	.60[3]	.73[3]
12) Awareness of negative impact on patient's broader interpersonal relationships	5	2.00	4.00	3.30 (.83)		.22[3]
13) Awareness of positive benefits for patient	22	2.00	5.00	3.75 (.75)		0[1]
14) Dimension 2 Summary Score	18	1.00	4.00	2.86 (.70)	0.41[3]	.32[3]
15) Dimension 3 Summary Score- Warranting treatment	22	1.50	5.00	3.52 (.81)	0.001[3]	
16) Global Insight into AN	22	2.00	5.00	3.60 (.50)	.48[3]	

Note. If no ICC or Krippendorff's alpha is reported, there were an insufficient number of cases where the two coders within a pair agreed (for ICC: both coders giving a number, and for Krippendorff's alpha: both coders giving an N/A score) in order for the statistic to be calculated.

[1] The superscript indicates how many pairs of coders' data fed into this calculation out of a possible 3 pairs.

ICCs were calculated using the original codes that coders assigned each video prior to the consensus meeting. First, an ICC was generated for each item, across all videos, by pair of coders. For example, for item 1 there was a separate ICC generated for (a) coder pair 0 and 1 across all videos, (b) coder pair 1 and 2 across all videos, and (c) coder pair 0 and 2 across all videos. Since the ICC value is a proportion of variance, the next step involved combining (averaging) the ICCs across all three pairs of coders for a given item to get the overall ICC for that item as a way to summarize this data into one digestible piece of information, although this is a non-standard way of summarizing this information. These values are presented in Table 1 (for patient ratings) and Table 2 (for partner ratings), along with a specification of whether that value was based on 1, 2, or 3 coder pair's available data on that item. Thus, each ICC value in the table can be interpreted as inter-rater agreement on that item across applicable coders, for instances when both coders gave a numbered score on that item. Using qualitative cutoffs provided by Cicchetti (1994), the ICCs pertaining to items rated for *patients* in the current study ranged from poor (.10) to excellent agreement (.92), with the average ICC across all patient items indicating fair agreement (.43). The ICCs pertaining to *partner* items ranged from poor (.001) to excellent agreement (.88), with the average ICC across all partner items indicating fair agreement (.42). Focusing solely the "Global Insight into AN" item (see item 16 in Tables 1 and 2), the ICC for the patient item was .47 and for the partner item was .48.

Inter-rater agreement: N/A scores*:* Krippendorff's alpha (Hayes & Krippendorff, 2007; Krippendorff, 2007) was used to examine inter-rater agreement when coders gave a pre-consensus meeting rating of N/A. By converting the dataset to be

dichotomous such that "0" indicated a numbered rating given and "1" indicated rating of N/A, coder agreement could be examined for assigning ratings of N/A. Krippendorff's alpha value is calculated as 1-(observed disagreement/expected disagreement given randomness). Higher values indicate better agreement. Krippendorff's alpha was calculated in SAS item-by-item separately for each pair of coders. Similarly to the ICC table, the averaged alpha values across all three pairs of coders on a given item were calculated to yield an overall value for each item, and these values are presented in Tables 1 and 2. In the current data set, Krippendorff's alpha values ranged from 0 to 1, with an average value of .32 (see Tables 1 and 2). This suggests that across the pairs of coders, some items had strong agreement while others had poor agreement regarding whether the item should be coded N/A. Overall, agreement on scores of N/A was not uniform.

Internal consistency of the coding system. Sample size restrictions precluded performing factor analyses on the three dimensions of insight (overall awareness of having a disorder, recognizing that the AN warrants professional treatment, and understanding the consequences of the disorder) proposed in the observational coding system. Due to the coding system allowing for ratings of N/A, there was an inadequate amount of numbered codes in order to calculate Cronbach's alpha to examine the internal consistency of dimensions 1 and 2 (since dimension 3 was just one item) as well as the coding system as a whole. Thus, given the design of this coding system and the small sample, internal consistency cannot be calculated or reported.

Demographics and Preliminary Analyses

Demographics were calculated on the final sample of N=22 couples. All couples were comprised of one male and one female partner. Most of the patients were female (n=21), with one male patient. The average age of patients was 33.59 years old (range 21-57 years old, *SD*=10.24). Patients were predominantly Caucasian (n=19) with the exception of two individuals who identified as Black or African American, one as Asian, and one as Hispanic. Most patients were highly educated; twelve were college graduates, five had some college, three had a post-graduate degree, and two had a GED or high school diploma. The average age of the non-AN partners was 35.80 years old (*SD*= 10.86, range 22-59 years old). Partners were also predominantly Caucasian (n=20), and one partner identified as Black/African American. Eight partners had graduated college, eight had completed some college or technical school, four had their GED/graduated high school, and two had a post-graduate degree.

Patients and partners both reported on a number of additional socioeconomic and relationship demographics, and at times their report differed. For the purposes of choosing one reporter, patient report was used for the following demographics. The majority of the sample was married (n=13, 59.1%), and among those couples, the average marriage length was 12.43 years (*SD*=10.01). The overall length of the couple's relationships ranged from 1 year to 35 years, with an average length of 10.98 years (*SD*=9.11).

Descriptive statistics for the nine main study variables of interest are presented in Table 3, including patient global insight (hereafter "patient insight"), partner global insight (hereafter "partner insight"), patient relationship adjustment, partner relationship

adjustment, partner caregiver stress, patient BMI pre-treatment, patient BMI end-treatment, patient EDE pre-treatment, and patient EDE end-treatment. The average patient insight was moderate (3.11, *SD*=.87; rated a scale from 1 to 5 where 1= *minimal insight*, 3= *moderate insight*, and 5= *high insight*). Across all partners, the average insight was higher, 3.52 (*SD*=.81). A paired sample t-test indicated that partner insight was statistically significantly higher than patient insight (t=-2.32, p=.030).

At pre-treatment, the average patient BMI was 18.35 (*SD*=1.92), in the clinical range for AN, and average EDE score was 2.66 (*SD*=1.49), indicating moderate AN symptom severity. Patients at end-treatment had an average BMI of 19.87 (*SD*= 2.26), no longer in the clinical range for AN, and an EDE score of 2.06 (*SD*=1.53) indicating low to moderate AN symptom severity. Although EDE scores decreased over treatment, indicating a trend towards less symptom severity, a paired samples t-test indicated that pre-treatment and end-treatment EDE scores did not statistically significantly differ (t=1.88, p=.081). A paired samples t-test on BMI scores indicated that BMI did significantly increase from pre-treatment to end-treatment (t=-3.85, p=.001).

Patients reported slightly higher levels of relationship adjustment at pre-treatment than partners, with an average DAS-4 score of 14.41 (*SD*=3.0), just above the clinical relationship distress cutoff of 13); the average partner DAS-4 score fell in the distressed range (12.77, *SD*=3.75). Partners were experiencing moderate levels of caregiver stress at pre-treatment, as indicated by an average CSS score of 24.64 (*SD*=6.45).

Bivariate correlations were calculated between the study variables of interest (see Table 4 and Table 5). Patient and partner insight were positively correlated (Pearson's r=.52), confirming the conceptualization of patient and partner insight as related but

distinct and non-redundant variables. A patient's pre-treatment BMI was significantly and positively correlated with his or her end-treatment BMI (Pearson's r=.68), and similarly a patient's pre-treatment EDE was significantly positively correlated with end-treatment EDE (Pearson's r=.55). Examining the relationship functioning variables more closely, partners with higher relationship adjustment experienced less caregiver stress (r=-.59, p=.004). This finding is explored further in the discussion section.

Finally, an independent-samples t-test was conducted to examine whether levels of patient insight significantly differed between patients diagnosed with the restricting subtype of AN and those with binge-purge subtype. There was no significant difference in insight levels between patients with the restricting (M=3.10, *SD*=.84) and binge-purge subtypes (M=3.13, *SD*=.93); t(20)=-.06, p=.95.

Hypothesis Testing

Multiple mediation was conducted, as opposed to single meditational models, given that it allows for the testing of the mediation of the association between an independent variable (e.g., insight) and a dependent variable (e.g., BMI or EDE) via all mediators of interest (e.g., relationship functioning variables) simultaneously or taken individually. The final sample size of N=22 necessitated including as few variables in the model as possible in order for the analyses to be conducted successfully. Thus, the two independent variables (patient and partner insight) were tested in separate models, and the two outcomes of interest (BMI and EDE) were tested in separate models. This yielded a total of four multiple mediation models (see Figures 1 through 4) tested in Mplus (Muthén, 2007), each of which included all three relationship functioning variables as mediators. Due to one patient missing data on both pre-treatment and end-treatment BMI,

the models contained a sample size of 21 to 22 couples.

The first two multiple mediation models examined how the three relationship functioning variables mediate the association between a *patient's* insight and BMI (testing model 1, see Figure 1) or EDE (testing model 2, see Figure 2). The final two models are similarly constructed, examining how the three relationship functioning variables mediate the association between the *partner's* insight and BMI (model 3, see Figure 3) or EDE (model 4, see Figure 4). Hypothesis 1 is addressed in all models; hypothesis 2 is tested via Models 1 and 2, and hypothesis 3 is tested via Models 3 and 4. All models had good fit as per a chi square test of fit.

Because an individual's improvement in treatment may be best understood in terms of how well that individual improved from pre-treatment, each of the models controlled for a patient's pre-treatment scores on EDE or BMI as appropriate. Standardized results are presented below, including: (a) the total effect of an individual's insight on the treatment outcome of interest, (b) the total indirect effect of all three relationship functioning mediators taken together, (c) the direct effect, which examines whether the impact of insight on treatment outcome after the mediators are parsed out is significant. In addition, if the total indirect effect is significant, then the specific indirect effect of each mediator taken individually is interpreted. If the total indirect effect is insignificant, it suggests that there is not statistically significant mediation, and it is inappropriate to interpret the impact of each mediator individually.

Hypothesis 1. H1 predicted that, overall, increased insight in either partner would lead to improved patient treatment outcomes. In multiple mediation, this is termed the total effect and is calculated as the sum of the direct effect (the impact of a predictor on

an outcome when parsing out the impact of the mediators) plus indirect effect (the impact of all mediators taken together). Consistent with H1, both patient (β =-.330, p=.047; tested in model 2) and partner insight (β =-.521, p=.001; tested in model 4) had a significant and negative total effect on EDE such that increased insight was associated with lower EDE scores at end-treatment. Contrary to the hypothesis, neither patient insight (β =-.096, p=.548, from model 1) nor partner's insight (β=-.228, p=.153, from Model 3) had a significant total effect on BMI. Thus, when examining patient and partner insight in separate models, both individuals' insight predicted patient end-treatment EDE, but neither individual's insight predicted patient end-treatment BMI.

Hypothesis 2. H2 predicted that the association between patient insight and treatment outcome would be mediated by the three relationship functioning variables (patient relationships satisfaction, partner relationship adjustment, and caregiver stress). The three relationship functioning variables taken together did not mediate the association between patient insight and EDE (β =.014, p=.860; model 2). Thus, the significant total effect (described in H1) was mainly attributable to the direct effect of patient insight on EDE after parsing out the three mediators (β=-.529, p=.029). In addition, when predicting BMI from patient insight, there was no significant mediation by the three relationship functioning variables taken together (β =-.019, p=.791). Given this finding, the specific indirect effects of each relationship functioning mediator were non-interpretable. Taken together, these findings suggest that patient insight has a positive, direct association with better treatment outcome, but there is no indirect association via altering relationship functioning.

Table 3

Descriptive Statistics for Study Variables

Variable	Mean (*SD*)	Minimum	Maximum	N
Patient Global Insight	3.11 (.87)	1.5	5.0	22
Partner Global Insight	3.52 (.81)	1.5	5.0	22
Patient DAS4	14.41 (3.9)	8	20	22
Partner DAS4	12.77 (3.75)	6	20	22
Partner's caregiver stress	24.64 (6.45)	14	37	22
BMI Pre-treatment	18.35 (1.92)	15.98	23.30	21
BMI End-treatment	19.87 (2.26)	17.35	24.98	19
EDE Pre-treatment	2.66 (1.49)	.46	5.35	22
EDE End-treatment	2.06 (1.53)	.15	5.03	15

Note. EDE scores can range 0-6 with higher scores indicating higher eating disorder symptomatology. For BMI scores higher BMI indicates a higher body weight in comparison to one's height, and a BMI of 18.5 is considered the lower limit of normal body weight (American Psychiatric Association, 2013; Centers for Disease Control and Prevention, 2015). DAS scores can range from 0-21 and scores <13 suggest clinically significant relationship distress. CSS scores range from 4-48 and higher scores indicate more caregiver stress.

Table 4

Bivariate Correlations (and Covariances) for Insight and Outcomes

Variable	Patient Global Insight	Partner Global Insight	BMI Pre-Treatment	BMI End-Treatment	EDE Pre-Treatment	EDE End-Treatment
Patient Global Insight	1	.52 (.37)	-.71 (-.11)	-.15 (-.30)	-.01 (-.02)	-.37 (-.59)
Partner Global Insight		1	-.18 (-.29)	-.38 (-.74)	.06 (.07)	-.41 (-.47)
BMI Pre-treatment			1	.68** (2.92)	.40 (1.14)	.37 (1.20)
BMI End-treatment				1	.37 (1.25)	.12 (.41)
EDE Pre-treatment					1	.55* (.03)
EDE End-treatment						1

*$p < .05$ (one-tailed). **$p < .01$ (one-tailed).

Table 5

Bivariate Correlations (and Covariances) for Relationship Functioning Variables

	Patient DAS	Partner DAS	Partner CSS
Patient DAS	1	.20 (2.95)	-.21 (-5.39)
Partner DAS		1	-.59** (-14.35)
Partner CSS			1

*$p < .05$ (one-tailed). **$p < .01$ (one-tailed).

Hypothesis 3. The third hypothesis focused on partner insight, and similar to H2, posited that the association between partner insight and patient treatment outcome would be mediated by relationship functioning. There was an insignificant indirect effect, indicating that impact of all three relationship functioning variables taken together did not mediate the association between partner insight and EDE (β =-.031, p=.719, Model 4). Thus, the observed total effect (from H1) of partner insight on EDE is explained by the direct effect of partner insight on EDE (β=-.490, p=.005). Similarly, the relationship functioning variables also did not mediate the association between partner insight and BMI (β =.002, p=.981). Given this insignificant overall mediation, the specific indirect effects were non-interpretable.

In summary, H1 was partially confirmed. When patient and partner insight were examined in separate models, both had a significant total effect on EDE with increased insight predicting lower EDE scores (less symptomatology) at end-treatment. However, neither individual's insight predicted end-treatment BMI. H2 (examining patient insight) and H3 (examining partner insight) were not supported, indicating that the impact of patient and partner insight on treatment outcome was not via impacting relationship functioning that had been hypothesized.

Follow-up Analyses

These multiple meditational analyses paired with the small sample size yielded multiple statistical limitations and highlighted remaining question to be addressed. For example, multiple mediation may underestimate the effect of a given single mediator if the impact of the other two related mediators is parsed out, especially if the mediators are potentially psychologically overlapping or closely related. In addition, due to sample size

restrictions, patient and partner insight were not included in the same multiple meditational models.

Exploratory follow-up analyses were conducted to explore two possibilities: (a) that each relationship functioning variable (patient relationship adjustment, partner relationship adjustment, and caregiver stress) taken individually uniquely impacted the association between insight and outcome, and (b) that when patient and partner insight are included in the same model, one individual's insight has an impact on treatment outcome (additional predictive power) above and beyond the other individual's insight. Analyzing models with just one mediator in the model at a time allowed patient and partner insight to be included simultaneously in the model as predictors.

Thus, six follow-up single mediational models were conducted: three with BMI as the outcome of interest and three with EDE as the outcome of interest. All models included both patient and partner insight as predictors, one relationship functioning variable, and one outcome of interest (EDE or BMI). In order to maximize sample size, these follow-up models used the Full Information Maximum Likelihood method (FIML) within Mplus to estimate missing data (Division of Statistics and Scientific Computation, 2012; Muthén, 2007). All models controlled for pre-treatment BMI or EDE as appropriate, and all models had good fit per chi square analyses. Follow-up models 1, 2, and 3 had significant R^2 values (follow up model 1: R^2=.52, p=001; follow up model 2: R^2=.51, p=.001; follow up model 3: R^2=.53, p=.001) indicating that each model explained a significant proportion of the variance in BMI scores.

Our first three models examined BMI as the treatment outcome of interest. Follow-up model 1 found that caregiver stress did not individually mediate the

association between patient insight (β=-.045, p=.539) or partner insight (β=.050, p=.534) and BMI. Examining patient and partner insight together in the same model, neither had an additive effect above and beyond the other's insight, and overall neither partner insight (β=-.293, p=.135) nor patient insight (β=.071, p=.708) predicted end-treatment BMI. These findings were consistent with the multiple meditational results. Examining the bivariate associations, more insightful partners experienced significantly more caregiver stress (β=.452, p=.035), contrary to the hypothesis that more insightful partners would experience alleviation of caregiver stress. This finding is explored further in the discussion section.

Follow-up model 2 examined whether both partner's insight predicted BMI via patient relationship adjustment. Results indicated that patient relationship adjustment did not mediate the association between either patient insight (β=-.041, p=.709) or partner insight (β=.040, p=.709) and BMI, consistent with the multiple mediation results but contrary to the hypothesis. Moreover, neither patient (β=.067, p=.747) nor partner (β=-.285, p=.175) insight had an additional impact in predicting BMI after controlling for the other individual's insight. Examining bivariate relationships, as partner insight increased so did the partner's relationship distress (β =-.556, p=.004); however, as patient insight increased, partners became less relationally distressed (β =.562, p=.004).

The third single mediation model examined whether the partner's relationship adjustment individually mediated the relationship between insight and BMI. Results indicated that partner relationship adjustment did not mediate the association between either patient insight (β=-.043, p=.477) or partner insight (β=.012, p=.740) and BMI, consistent with the multiple mediation results but contrary to hypotheses. Examining the

impact of both individual's insight, patient insight did not have an impact on BMI above and beyond partner insight (β=.068, p=.707) nor did partner insight after controlling for patient insight (β=-.255 p=.163).

The findings from these three follow-up models predicting end-treatment BMI are consistent with the multiple mediation results, indicating that when both individual's insight are included in the model and relationship functioning variables are examined individually, relationship functioning does not mediate the association between insight and BMI. The final three follow-up models focus on predicting end-treatment EDE. All three of these models (follow up model 4, R^2=.62, p<.0001, follow up model 5, R^2=.61, p<.0001, and follow up model 6, R^2=.61, p<.0001) had significant R^2 values, indicating that the model explained a significant proportion of the variance in EDE scores.

Follow-up model 4 examined whether caregiver stress mediated the association between insight and EDE. Results indicated that caregiver stress did not individually mediate the association between patient insight (β =.009, p=.911) or partner insight (β =-.011, p=.911) and end-treatment EDE. Notably, a cross-partner effect was observed such that after patient insight was accounted for, increased partner insight still predicted less patient symptom severity on the EDE (β =-.460 p=.047). However, patient insight did not have a significant effect on end-treatment EDE above and beyond partner insight (β=-.069, p=.724). Consistent with findings from the multiple meditational models, the bivariate association between partner insight and caregiver stress was in the opposite direction to what was hypothesized, such that more insightful partners experienced significantly more caregiver stress (β =.438, p=.041). This finding is interpreted further in the discussion section.

The fifth follow-up model examined whether partner relationship adjustment individually mediated the association between insight and EDE. Results indicated that partner's relationship adjustment did not mediate the relationship between patient insight (β=-.014, p=.755) or partner insight (β=.004, p=.825) and EDE. As in follow-up model 4, a cross-partner effect was observed with partner insight predicting patient end-treatment EDE above and beyond the patient's own insight (β=-.457, p=.047). However, patient insight had no added predictive value above and beyond partner insight in gauging end-treatment EDE (β=-.069, p=.725).

The sixth follow-up model examined whether a patient's relationship adjustment individually mediated the association between insight and EDE. Consistent with the multiple meditational model results, patient relationship adjustment did not mediate the association between patient insight (β=.025, p=.771) or partner insight (β=-.029, p=.770). A marginal cross-partner effect was observed consistent with the prior follow-up model such that partner insight had predictive power above and beyond patient insight. Specifically, more insightful partners were associated with a trend in less patient symptom severity on the EDE (β=-.436 p=.081). However, patient insight did not have a direct effect on EDE above and beyond partner insight (β=-.092, p=.669) in this model.

In summary, the main multiple mediation results suggested that the three relationship functioning variables taken together do not mediate the association between patient or partner insight and end-treatment BMI or EDE. The follow-up models examining each relationship functioning variable individually supported this conclusion that there is no significant mediation. Thus, the major findings of interest are regarding insight directly predicting patient treatment outcome. In the multiple mediation models,

patient and partner insight individually predict end-treatment EDE. Notably, when including both individuals' insight in the same model, the impact of patient insight on EDE diminishes and a cross-partner effect is observed with partner insight predicting patient end-treatment EDE above and beyond a patient's own insight. However, neither patient nor partner insight predict end-treatment BMI. Thus, knowing a patient's pre-treatment insight does not provide additional information regarding predicting end-treatment EDE compared to knowing partner insight, whereas knowing partner insight has added predictive value.

CHAPTER 4: DISCUSSION

Prior research and clinical findings highlight that limited insight into their disorder is a clinically important yet understudied feature among individuals with AN. Importantly, eating disorders occur in an interpersonal context, and loved ones who are closest to the patient, such as romantic partners, often are strongly affected and develop their own understanding of the disorder. Overall, this study sought to clarify the impact of both patient and partner insight into AN on the patient's treatment outcomes. The major findings outlined below highlight the importance of a romantic partner in the recovery process for an individual with AN and address the mechanism by which insight predicts treatment outcome.

Perhaps the major finding from this investigation was that insight into AN is important overall in predicting how well a patient responds to a couple-based treatment for AN. Specifically, increased insight in either the patient or partner at pre-treatment was associated with lower AN symptom severity at end-treatment. First, this finding affirms that patient insight into AN may function similarly to the insight of patients with other disorders such that increased insight is important for treatment outcome across disorders. Importantly, the current findings highlight that *partner* insight into AN also predicts patient treatment outcome. It is notable that the level of insight into AN held by the romantic partner, who does not have AN, can predict his or her partner's treatment outcome.

This finding can be best understood in the context of couple research and theory. Individuals experience their own subjective cognitions and interpretations of the world around them, and these cognitions influence their emotional reactions and how they respond behaviorally to the actions of their loved ones. Insight into the AN can be conceptualized as a set of individual cognitions and attributions about the patient's behavior and the impact of the AN on the patient and the partner. For a patient, an increased awareness of AN means they can more objectively evaluate the impact that the disorder has on them (e.g., emotionally, medically, interpersonally), perhaps providing the patient with a greater sense of agency in adapting and changing these behaviors to address the disorder. Whereas this is only one interpretation of how a patient's insight might contribute to their eventual recovery, it is not surprising that it is beneficial for a patient to have a realistic understanding of their disorder in order to respond to it adaptively.

Likewise, a romantic partner's understanding of the AN may impact their own appraisals of the patient's AN-related behaviors. For example, a partner lacking insight into the disorder may make dispositional rather than situational attributions for the patient's disordered eating or other AN-related behaviors, in essence interpreting the patient's behaviors as fully under the patient's control and driven by a desire to behave in that manner rather than driven by an external influence such as the AN. For example, a partner lacking insight into the AN may observe the patient restricting portion sizes at mealtime and think, "She is just being difficult and stubborn." As a result of interpreting this behavior as purposeful by the patient, the partner may react with criticism, contempt, or hostility. Alternatively, a partner with a stronger understanding of the impact of the

AN may observe the patient restricting at mealtime and think, "Her eating behaviors are a result of the disorder." According to the couples and attribution literature (e.g., Fincham, Beach, & Nelson, 1987), loved ones who correctly recognize when a disorder is fueling maladaptive patient behaviors may not place as much blame on the patient. A partner with increased insight into the AN may more accurately and adaptively appraise patient behaviors and react to them more warmly or compassionately. In this way, increased partner insight can become a powerful resource in assisting in the patient's recovery and creating a home environment to facilitate success in treatment.

Examining the first major finding more closely, patient and partner insight positively predicted patient treatment outcome on one of the outcome measures, the clinician-administered Eating Disorders Examination (EDE; Fairburn & Cooper, 1993; Fairburn et al., 2008) but not on body mass index (BMI). This partially confirmed the first hypothesis. A closer examination of these two metrics of recovery perhaps sheds light on why insight predicts EDE but not BMI. Although the ED field has not universally agreed upon a definition of recovery, recent theory, clinical, and research findings converge in concluding that full recovery involves physical/medical, psychological, and behavioral components as well as psychosocial adjustment (Bardone-Cone et al., 2010). Insight implies a cognitive understanding of the disorder, and the finding that patient and partner insight both predict EDE score may be due to the EDE assessing psychological, cognitive, and behavioral changes that underlie recovery, whereas BMI only captures weight restoration.

It is important to consider that the patient and partner insight scores used to generate these findings were gathered from videotaped couple conversations. In these 10-

minute long conversations, the assessor or therapist stepped out of the room, and patient and partner discussed a topic related to the anorexia and their relationship. In such a couple conversation, the two partners inherently build off of and respond to language and information that the other provides. For example, speaking with a romantic partner may help the patient periodically imagine their partner's perspective. The patient may respond to partner prompts, subtleties in language, or "reality checks" that the partner provides due to the partner's outside perspective on the disorder. This may lead the patient in that moment, or throughout the duration of the conversation, to think about the AN in a more flexible and multifaceted manner than they would if they were giving a solo interview about the AN. On the other hand, if the partner makes the patient highly anxious, the patient might come across as less insightful during the conversation. Thus, something about speaking with one's romantic partner may alter the patient's cognitive process in the moment, altering patient insight into the AN, possibly in a temporary or transitory way.

Clinical anecdotes from the UCAN team support this notion, as evidenced by individual providers and couple-based therapists receiving differing impressions of a patient's understanding of the disorder in individual therapy versus couple-based therapy settings. However, the romantic partner's insight anecdotally appears less altered across individual or couple contexts. Rather than patients purposefully altering their awareness and understanding of the disorder, its consequences, and its need for professional treatment based on the provider they are seeing, it may be that patients are fundamentally thinking about the disorder differently in an individual context as opposed to when they are engaging with their partner. Future research could empirically examine this

phenomenon to shed light on whether a patient's insight into a disorder can be altered based on individual, couple, or group context, and what underlies this phenomenon.

A second major finding from this investigation was not predicted but highlighted the importance of partner insight per se. More specifically, partner insight predicted patient treatment outcome above and beyond the patient's own insight. This is notable, suggesting that a romantic partner's level of insight into the AN has added value compared to the patient's own insight in predicting patient AN symptom severity at the end of treatment; however patient insight did not predict outcome once partner insight was taken into account. This emphasizes the pivotal role of romantic partners in the AN recovery process especially given that patients often keep the disorder secretive. Although additional research would be needed to confirm this notion, it might be particularly difficult for patients to recover if they hide the disorder and the partner has little insight into what is happening.

How might a partner's insight be instrumental in recovery? First it must be remembered that the partner insight is being assessed within the context of a subsequent, couple-based intervention where the partner might play a central role in recovery. As noted above, partners have a more objective or outsider view of the AN compared to patients, yet they are central in the patient's day-to-day experiences and behaviors. In a disorder where a patient may feel stuck or where the course of the disorder is often chronic and long term, having a close loved one who both cares for the patient and understands the gravity of the illness might be a pivotal ingredient in patient recovery. While insight is not necessarily congruent with treatment compliance, having an insightful partner involved in treatment can create a pillar of support for the patient where

the partner can help observe, motivate, keep the patient focused on central goals and behaviors, and understand the gravity of the disorder if symptoms worsen.

Given that insight is important in predicting treatment outcome, the next step was to try to understand the mechanisms by which insight impacts treatment outcome. The general set of predictions was predicated on the belief that, in part, insight within the context of a couple-based treatment would operate through the relationship. Contrary to the proposed multiple meditational model (see Figure 5), results indicated that none of the three relationship functioning variables mediated the association between either the patient's or partner's insight and patient treatment outcome. In other words, the couple's relationship functioning as measured in this investigation does not factor into this process. An individual's relationship with a romantic partner is based upon much more than the disorder, and a couple's relationship satisfaction and enjoyment of each other might not be contingent upon (or may not necessarily co-occur with) having a strong understanding of the AN. Thus, the proposed model could be fundamentally incorrect, and insight operates in some other fashion than through the relationship in predicting response to treatment.

Alternatively, the relationship might be important but the wrong relationship variables were selected for inclusion in the model. As noted above, relationship satisfaction is a broad construct and might not be central to insight and treatment outcome. Instead there might be relationship variables that are more closely tied to insight that should be focused upon. Notably, a large body of research speaks to the importance of attributions in relationship functioning and behavior change (e.g., Fincham, 1985; Fincham et al., 1987), and as suggested above, insight might have major

impact on the attributions that partners make for patient behavior. Similarly, the expressed emotion literature notes the importance of criticism and hostility from family members toward patients in predicting patient outcome (e.g., Butzlaff & Hooley, 1998; Tarrier, Sommerfield, & Pilgrim, 1999). Thus it might be important to assess relationship variables that are more specific and proximal to the patient's disorder in order to understand the role of insight and relationships in patient outcome.

The aforementioned results provide an understanding of how insight operates according to the proposed model. In addition to these findings, there were a number of other associations in the current study that help build a broader perspective about how insight may operate in an interpersonal context. Some of these findings were counterintuitive. For example, insight typically appears to provide individuals a sense of control over the disorder and lower distress, and in this regard, one might deduce that increasingly insightful romantic partners would experience less caregiver stress. However, to the contrary, increased partner insight appears to come at a cost to the partner in terms of increased caregiver stress and lower relationship satisfaction. It may be that having a stronger understanding of the disorder makes a partner more aware of the true severity and consequences of the AN. As a result, a partner may feel an increasing need to manage the consequences of the disorder. This could be a psychologically and emotionally draining experience for a partner, even though it might contribute to good outcomes for the patient. Thus, for loved ones of an individual with AN, it may be that "ignorance is bliss" from a short term perspective, and not understanding the gravity of the disorder causes less of a sense of burden and concern for the patient's wellbeing. However, although increased partner insight is associated with increased caregiver stress

in the short term (given that caregiver stress was also measured at pre-treatment along with insight), in the long term this distress may be a necessary and help to motivate a patient to make changes and achieve significantly lower AN symptom severity over time.

In addition to the above-mentioned association, other findings were purely descriptive and provide additional understanding of the levels of insight among patients and partners. One might anticipate that partners who see the AN from an outsider's perspective may have a more realistic understanding of the disorder, while among patients the AN itself may impair a patient's cognitive functioning and limit their ability to meta-cognitively evaluate their disorder and its seriousness. The current study's findings were consistent with these notions, indicating that partners have statistically significantly higher insight into AN than patients. Given that patient insight is comparatively low relative to the partner's, and considering that the DSM-V suggests that low insight is a clinically significant feature of AN (American Psychiatric Association, 2013), one might anticipate that insight would be uniformly low among individuals with AN. By contrast, the current study found a fair amount of variability in patient insight scores (ranging from 1.5 to 5 on the 1-5 Likert-type scale where 1= lowest insight and 5= highest). In addition to assuming that patients generally lack insight, prior research has proposed that a patient's level of insightfulness varies as a function of his or her subtype of AN such that the restricting subtype has overall lower insight into the disorder than individuals with the binge-purge subtype (e.g., Konstantakopoulos et al., 2011). However, no difference was observed in the current study in insight across subtypes of AN. This finding suggests that subtype of AN does not explain the observed heterogeneity in levels of insight. Further research is needed to identify predictors or

correlates of insight to clarify this within-group variability. In summary, not only is patient insight significantly lower than partner insight, there is wide variability which has not been fully appreciated in prior literature, and this variability does not appear to be best explained by subtype of AN.

In addition, other findings shed light on what contexts may be associated with increased caregiver stress in the romantic partner. Interestingly, partners with higher relationship adjustment experienced less caregiver stress. Romantic relationship distress is a chronic and diffuse stressor that can exacerbates other challenges in the couple's life, and, conversely, feeling satisfied in one's relationship might make caring for a partner with AN feel less burdensome and stressful. In other words, partners who feel that their romantic relationship is going well and are confiding in their partner (concepts probed by items on the DAS) may have a protective buffer against caregiver stress. Of course, these findings are cross sectional, so cause and effect cannot be determined.

Whereas the above findings provide some initial basis for continuing research in this domain, several aspects of the study limit the generalizability of these findings. First, all patients except one were female. Emerging research suggests gender differences in the predictors of outcome, presentation, willingness to seek treatment, and course of AN (Crisp et al., 2006; Jones & Morgan, 2010; Lewinsohn, Seeley, Moerk, & Striegel-Moore, 2002), and males and females may also approach and experience their role as a caretaker of their partner with AN differently (Kyriacou et al., 2008; Whitney et al., 2005). Second, the couples in the current study were all seeking treatment. Considering that one dimension of insight in the current coding system is an awareness that the patient needs professional treatment, it is possible that this sample had increased insight into the

necessity of treatment. Further research is needed to clarify whether insight differs between non-treatment seeking and treatment seeking couples. Finally, due to the pilot nature of this study, insight was only measured at pre-treatment. This precluded an examination of how insight in either partner may fluctuate over the course of treatment or beyond the treatment end date and whether changes in insight are integral to the recovery process.

In order to explore the substantive hypotheses in this investigation, an observational coding system was developed for use in the current study to measure insight into AN. This measure had a number of strengths when compared to existing measures of patient and caregiver insight into psychopathology. First, the language of this coding system built in sensitivity to the unique dynamics of romantic dyads, creating the first measure to assess both patient and romantic partner insight into psychopathology. Each individual's insight into AN was assessed using similarly worded items, allowing researchers to compare and contrast each individual's level of insight into different aspects of the disorder. The content of the measure also contained interpersonally focused items, (e.g., item 11 assessing to what degree the AN is impacting the non-AN partner and romantic relationship). A second benefit of this observational coding measure is its disorder-specificity. Insight into a disorder is necessarily rooted in having an understanding of the diagnostic, cognitive, and behavioral phenomena that comprise that disorder, and this measure was the first to assess insight into AN rather than into eating disorders more broadly. Third, the observational coding format hopefully allowed for more valid capturing of patient and partner's true insight than self-report would allow;

that is, it might be quite difficult for uninsightful individuals to be aware of their lack of insight.

Although coders provided ratings on 16 distinct insight-related items for patient and partner respectively, only one item (the "global insight score"), was used in analyses. While there are drawbacks to using one numeric score to represent each individual's level of insight, in the context of this pilot study, the benefits outweigh the limitations. The purpose of the more detailed codes were to direct coders to keep in mind key dimensions of insight (e.g., an awareness of diagnostic criteria, interpersonal consequences, and warranting treatment) when assigning a global insight score. Given the pilot nature of this coding system, the use of a global insight item helped simplify a potentially complex construct to test the current study's hypotheses.

However, the key drawback of using one score to capture an individual's insight is that it simplifies a multi-dimensional construct into a uni-dimensional score, ignoring intra-individual discrepancies. Prior research suggests that an individual may not simply fall on a single spectrum of low to high insight. Instead, individuals may be highly insightful into certain aspects of the disorder (e.g., recognizing that their eating behaviors are negatively impacting their social life, impeding on quality time with family and friends) while lacking insight into other aspects (e.g., that their body weight is at an unhealthy low level). Future research could compare an individual's dimension 1, 2, and 3 scores to allow for a more nuanced understanding of that individual's idiosyncratic areas of high versus low insight, in essence, his or her insight "profile." This would allow researchers to examine whether there are differences across various aspects of insight within one individual in addition to differences between individuals. Moreover, future

studies could examine whether there is an interaction between a patient's insight "profile" and the romantic partner's. For example, discrepancies between a patient and partner's insight may be a source of stress for both individual and romantic relationship well-being as one partner is frustrated that the other partner does not "get it." In the current study, small sample size prevented the examination of these questions.

Examining the "global insight item" more closely, the percentage of "misses" (instances where coders were 1 or more point apart in their numeric ratings) was 20.83% for the patient global insight item and 8.33% on the partner global insight item. Informal and clinical observations of the videotaped couple interactions indicated that a partner's insight into the disorder was more consistent, easier for coders to agree upon, and more clearly conveyed in the partner's language. Conversely, patients frequently displayed high insight into one aspect of the disorder, contrasted by a statement soon after denying or rejecting a clear consequence of the AN. Thus, when stepping back at the end of the videotaped conversation to consider the ratings to give the patient, coders tended to interpret the seemingly inconsistent and sometimes vague information that patients provided differently. Moreover, within a given couple, patient scores often varied widely on individual insight items while partners were more consistent. Thus, an individual with moderate overall insight into the AN on the "global insight into AN" item may capture two different instances- one of large intra-individual discrepancy and one of an individual with consistently moderate insight into all aspects of the AN. The impact of these intra-individual discrepancies is not yet well understood and an area for future research.

Overall, however, it might well be that differences in coders' ratings of patients' insight reflect the inconsistency and vagueness with which patients discuss their disorder.

Thus, what we label as lack of rater agreement might, in this instance, reflect a meaningful phenomenon that merits additional investigation. For example, in making ratings from the adult attachment interview (George, Kaplan, & Main, 1985), the coder actually rates the degree to which the participant presents a clear and consistent narrative regarding early attachments, and this is viewed as a central aspect of the person's attachment. Similarly, inconsistent or vague statements regarding insight might be an important aspect of insight, reflecting the patient's confusion or ambivalence about their disorder rather than reflecting coder lack of agreement. Such an interpretation is consistent with the finding that partners were easier to code in their statements reflecting insight.

Some conceptual challenges were highlighted during the process of training coders, highlighting the difficulty inherent in assessing an abstract concept such as insight as opposed to a concrete, observable behavior. A key point of clarification to make with trained coders was that they were assessing insight into a concept (e.g., a patient's awareness that they are at an unhealthy low weight), not the concept itself (e.g., how low weight they are). One limitation of writing items as they were (e.g., "To what degree does this person have insight into [a given symptom, problem, or challenge]") is that the items presume a certain baseline level of pathology, for example, that the patient has an unhealthy low weight at the time of the couple's conversation. If a patient is weight restored prior to treatment or at post-test (depending on when the couple conversation occurs), this was not as relevant to assess.

Relatedly, inter-rater agreement was difficult to establish. In consensus meetings, conversations between coders would often center around how to tell if a person was

genuinely insightful or simply parroting back information that a medical professional had told them about the disorder. In summary, these coding challenges may have contributed to the overall moderate inter-rater agreement between the two coders within any given coder pair.

A few key revisions for future iterations of the coding measure can be recommended based on this evaluation and pilot use of the measure. Some phenomenon (items) did not appear often in videos, resulting in frequent ratings of "not applicable" and preventing the inclusion of this item in calculating statistics of internal consistency within subscales or the measure as a whole. In future iterations of the coding system, it would be wise to exclude these items or examine how to word them more broadly so as to assess insight-related phenomenon that more often occur within a 10-minute conversation. In addition, this coding system was applied to a conversation that originally was not intended for coding insight. Thus, the instructions or topic for discussion could be altered to make it more central to assessing insight.

With continued evaluation and improvements, the coding system has the potential to serve as a template for the development of other disorder-specific observational coding systems to assess patient and partner insight. The three dimensions captured in the coding manual (an awareness of diagnostic criteria, interpersonal consequences, and warranting treatment) are strongly informed by existing research and theory on insight into psychopathology and are likely dimensions of insight that are relevant to a wide range of disorders. However, the wording of individual items would require significant alteration in order to ensure they are capturing insight into that disorder's specific diagnostic criteria, interpersonal consequences, and the need for treatment. The three dimensions in

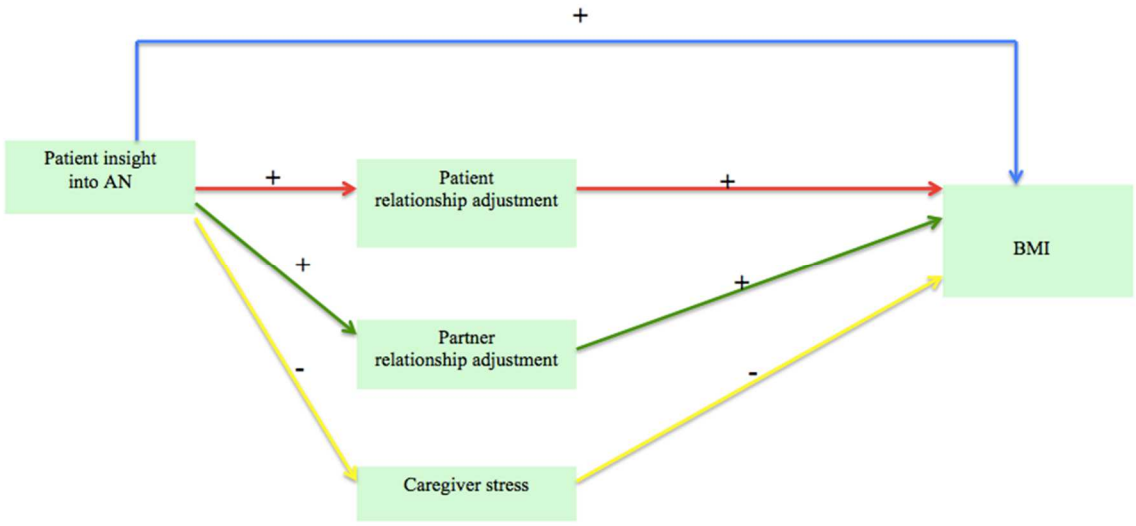
the current coding system may not be sufficient to adequately capture insight into other disorders, so additional research should explore how to build in disorder specificity when assessing patient and partner insight into psychopathology.

Conclusions

In summary, the current study's findings build on the current understanding of the interpersonal context of both AN and insight into psychopathology in the following ways. First, one mechanism that underlies the effectiveness of couple-based treatment for AN as opposed to individual treatments may be that couple-based therapy utilizes the partner's stronger understanding of the disorder to provide additional leverage when patient insight may be low or inconsistent. Although for partners being insightful into the AN may not be a uniformly positive experience given that it is associated with increased caregiver stress, this may be a necessary part of the recovery process whereby long term growth and recovery requires this short term discomfort. Thus, involving an insightful romantic partner in treatment might serve a pivotal role in reducing patient AN symptom severity over time. In addition to these substantive findings, at a descriptive level the range of insightfulness among patients with AN is broader than typically assumed and a direct comparison of each individual's insight confirms that partners have an overall more realistic and consistent understanding of the AN than patients. Finally, this study serves as initial validation of a new disorder-specific observational coding system which provides a method to assess insight into AN in both patients and partners and contains multiple methodological strengths and benefits compared to existing methods to assess insight into psychopathology. With adaptations and continued study, this coding system may serve as a basis for future couple-based and disorder-specific coding systems for

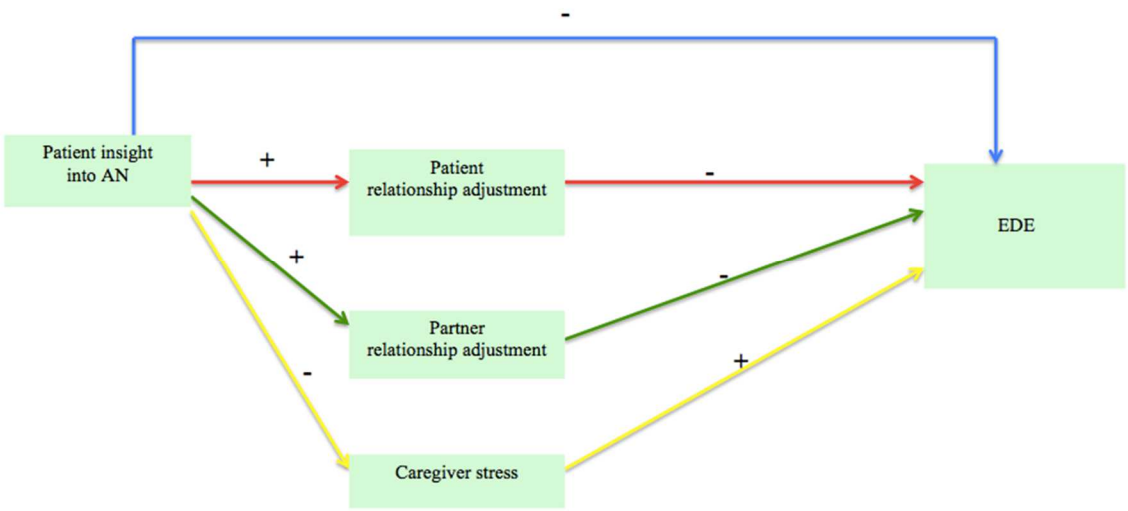
insight into psychopathology. Through the development and pilot use of this coding system, this study not only builds on the field's understanding of insight into psychopathology as a construct and how it operates in an interpersonal context, but it also provides some initial perspective on how one might use both partners' insight in developing effective treatments. As novel treatments for difficult-to-treat disorders like AN continue to be developed, researchers and clinicians should consider how romantic partners can most effectively be involved in treatment and brainstorm how to harness a romantic partner's understanding of the disorder to help the patient maximize treatment gains.

Figure 1. First multiple mediation model



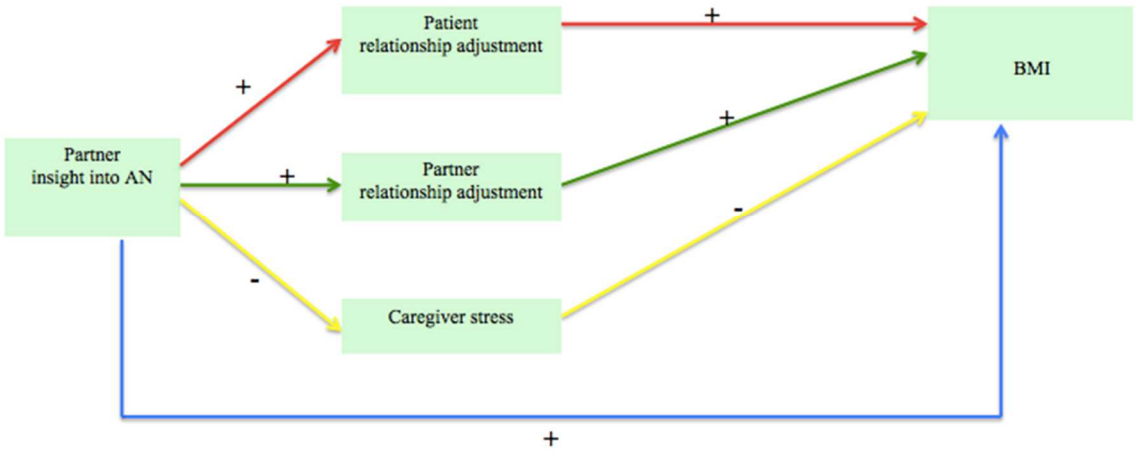
Note. Higher BMI indicates better treatment outcome (more weight per the person's height).

Figure 2. Second multiple mediation model



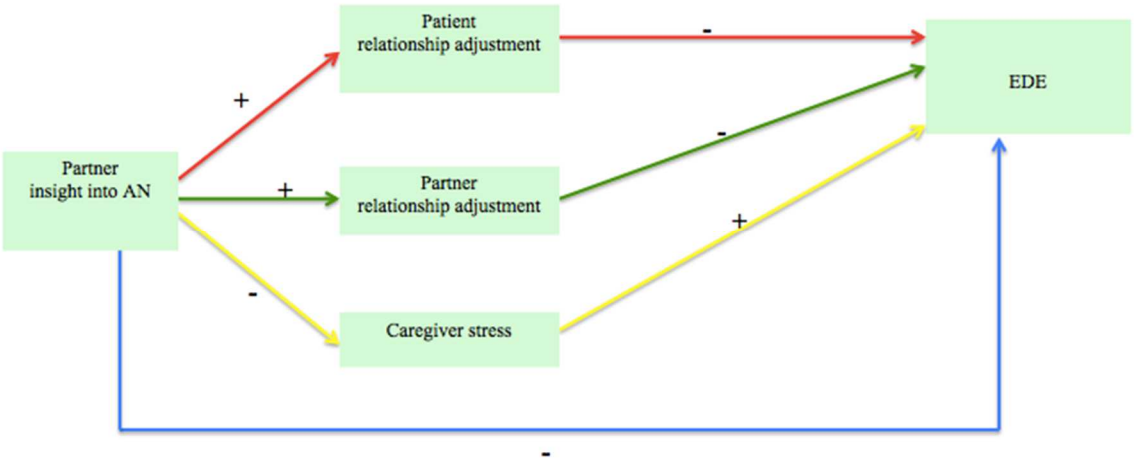
Note. Lower EDE scores indicate better treatment outcome (less eating disorder symptom severity).

Figure 3. Third multiple mediation model



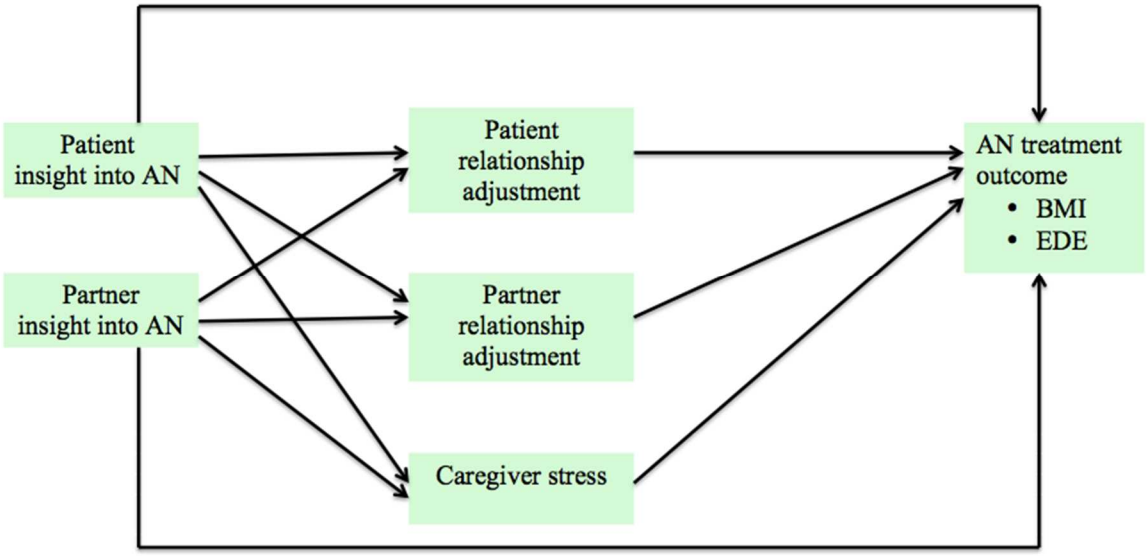
Note. Higher BMI indicates better treatment outcome (more weight per the person's height).

Figure 4. Fourth multiple mediation model



Note. Lower EDE scores indicate better treatment outcome (less eating disorder symptom severity).

Figure 5. Overall diagram of hypotheses



Note. The two predictors (patient insight, partner insight) and the two outcome variables (BMI, EDE) if multiplied together (2x2) lead to the four distinct multiple mediation models seen individually in Figures 1-4.

APPENDIX: PATIENT AND PARTNER INSIGHT INTO ANOREXIA NERVOSA OBSERVATIONAL CODING MANUAL

Kimberly Z. Pentel and Donald H. Baucom
February 2016

Overview

This observational coding system is designed for use in couples where one partner has anorexia nervosa (AN). This system assesses both patient's and partner's individual insight into the patient's anorexia nervosa (AN). **Insight into the disorder is broadly defined as an awareness and understanding that the patient has the disorder, that it warrants treatment, and that the disorder has various individual and interpersonal consequences.** Individuals high in insight are not only aware of the symptoms that the patient is experiencing, but are able to attribute the symptoms to the disorder and can draw a causal link between disorder-driven behaviors and the consequences they may cause the patient and others.

AN is an eating disorder with serious medical and psychological consequences. Patients experience an extreme drive to be thin, a distorted perception of their body weight and shape, and a debilitating fear of gaining weight. Subsequently, individuals with AN engage in behaviors to rigidly control their food intake, including restricting or refusing to eat, engaging in excessive exercise, or binge eating followed by purging behaviors (e.g., self-induced vomiting or use of laxatives). These behaviors all lead to extremely low body weight. Despite this low body weight, individuals with AN experience distorted body image, viewing themselves as overweight when they may be emaciated. In addition to significant mental health consequences, the medical consequences of emaciation and malnutrition can be marked, including the highest mortality rate of any psychological disorder.

Although there is no insight specifier in the DSM-V criteria for Anorexia Nervosa, patients may exhibit a broad range in their level of awareness into the disorder and its consequences. Similarly, romantic partners of individuals with AN may continually be learning information about the disorder and how the patient experiences it. In turn, partners develop their own level of insight into the patient's disorder. For example, as partners learn about the symptoms of AN through various health providers and observe the patient on a daily basis, they might build a realistic understanding the gravity of the disorder that surpasses the patient's insight. Thus, patients and romantic partners may have discrepant levels of insight into the disorder at a given time.

The goal of this coding system is to assess patient and partner insight into the AN. This is a macro-analytic coding system, where 35 ratings are assigned based on the whole conversation between romantic partners, in which one member of the dyad has AN. The coder will assign 16 ratings to the patient and 16 ratings to the partner based on each individual's level of insight into the AN.

Also, one rating will be assigned to each individual for their global quality of communication. An additional rating is completed once for the conversation as a whole to rate amount of time that the couple spends talking about the AN versus other topics. The communication sample used for this coding system is a videotaped conversation in which the couple is asked to share their thoughts and feelings (and not problem solve or make a decision) about an issue related to the AN that is of moderate-level intensity.

The sections below are as follows:

I. Summary of Dimensions and Guidelines
II. Coding Tips
III. Items to code
    1. Patient Insight
    2. Patient Quality of Communication
    3. Partner Insight
    4. Partner Quality of Communication
    5. Overall focus of the conversation
VIII. Coding Examples

I. Summary of Dimensions and Guidelines

Coders will be asked to rate the individual of interest based on three key dimensions of insight.

Dimension 1: A broad, global awareness that the patient has AN

Dimension 2: An awareness of specific consequences of the AN for the patient and others

Dimension 3: An understanding that, when symptomatic, the patient warrants professional treatment for the AN

Coders observe a videotaped couple conversation that typically is 10 minutes in length, and then provide ratings to the individual items based on the entire conversation. Although the specific anchors for each item vary, all items will be rated on a Likert-type scale from 1-5 with all items worded such that 1 indicates very poor insight on that topic and 5 indicates very good insight.

The coder must rate an individual's insight relative to the amount of insight displayed by an appropriate norm group. In this instance, in order to facilitate full use of the Likert-type scale, the coder should rate the individual *relative to their respective peer group-specifically, other patients with AN or their romantic partners*. In order to facilitate full use of the scales, the coder must have a sense of what is *typical* for both patient and partner in these kinds of interactions and rate an individual's insight as compared to his or her respective peers.

Within each of the three dimensions there are a number of specific codes that assess the target individual's degree of insight on multiple subtopics. Coders will be asked to rate each of these. Next, coders will complete a summary code for each dimension, noting the degree to which the individual displayed insight across the whole dimension. The questions that comprise each dimension appear in the Patient Insight and Partner Insight sections of the manual, and examples responses for each question that constitute a given score are presented in the Coding Examples section.

Regarding the target individual's insight into AN, coders will be asked to provide one final, global insight code for the each individual. This final code requires the coder to assign an overall insight score to that individual, taking into account the three dimensional summary scores (one from each dimension) to help guide them. This global insight score will be considered the individual's overall score for insight into AN.

Finally, coders will complete one item for each individual's global quality of communication,. The purpose of this item is to ensure that coders are thinking separately about quality of communication and insight into the disorder, and not conflating one's ability to communicate effectively with their disorder-specific insight.

Lastly, coders rate one item for the conversation as a whole, assessing to what degree the couple focused the conversation on a topic related to the AN. The purpose of this item is to determine if the couple was on-topic regarding the conversation prompt (to talk about something AN-related for 10 minutes) and provide an indication of how much of the conversation may contain useful information about the couple's understanding of the disorder.

It is recommended that coders view the video a minimum of three times and complete the ratings in the following order:

First viewing:
The coder should complete all items pertaining to the *patient*'s insight. The coder may view the video more than once if necessary to conduct these patient ratings.

Second viewing:
The coder should complete all items pertaining to the *partner's* insight. The coder may view the video more than once if necessary to conduct these partner ratings.

Third viewing:
The coder should complete *Global Quality of Communication* ratings for both the patient and partner as well as the *Focus of the Conversation* rating and verify all previous ratings.

II. Additional Tips

These coding tips were discussed between the primary author and coding team during training and in weekly consensus meetings. As these topics arose, the coding team and primary author reached an agreement about how to best address them. The conclusions of these discussions are documented here.

Insight versus agreement

Acknowledgement and understanding of the AN by one individual does not necessitate that they agree with their partner and share a similar understanding of the AN. An individual's level of agreement with their partner should not factor in to rating that individual's insight into the AN.

Patients at varying points in treatment or recovery

Videotaped couple conversations may be taken at different points in a patient's treatment, and patients at given points in treatment may vary in symptom severity. For the sake of the current manual, coders should rate the patient and partner's insight into the AN regarding the time when the patient was most symptomatic, or experiencing the AN most severely. This may be the time that the videotaped conversation occurs, or the couple may reflect back on a time when the patient was more ill.

For patients who are further along in recovery at the time of the videotaped interaction, coders will need to listen carefully for information about when the patient's AN was the most severe, and rate the patient or partner's CURRENT insight into when the patient was most symptomatic. In other words, coders do not need to deduce someone's past insight, but should assess if they are able to reflect back on the past in an insightful and realistic manner. **In these cases, coder should avoid assessing insight into the patient's current AN because the symptoms may be subthreshold, and the questions presume a certain severity of symptoms (e.g., for question 1, that the patient's body weight is or was at an unhealthy low level).**

Some items assume certain symptoms exist in the patient, and this may not be the case for couples at end-treatment or follow-up time points. Couples further along in treatment may focus exclusively on the future in their conversation, in which case coders must determine if there is sufficient information (usually in the form of comparative words: "Things are better now with your eating, we'll want to watch out") or if we do not know enough about the time when the patient was most symptomatic.

Parsing out lifestyle choices from ED behaviors

Certain lifestyle choices such as competitive running/cycling, being vegan, or gardening for long periods of time may appear similar to rigid eating behaviors or excessive exercise. It especially difficult to parse out whether a given behavior is due to the eating disorder if the patient makes clear that they engaged in this activity before the onset of

the eating disorder. In most of these cases, the patient is being more rigid than a healthy athlete may be. Partners may more often point out that a healthy runner or vegan is flexible, doesn't spend too much of the day fixated on it, and reaches a stable state where their food and body weight are appropriate for their level of activity.

Dealing with comorbidities:

This coding manual focuses specifically on assessing insight into the patient's AN, not an individual's insight into other disorders or non-AN related challenges that the patient may be experiencing. The patient may have another comorbid disorder that may be brought up at some point in the videotaped conversation. However, the current coding system will focus solely on statements each partner makes which reflect their understanding of the patient's AN.

Naming the disorder as AN:

Patients (and partners) may more easily acknowledge that the patient is having problematic eating behaviors but not be able to or be ready to name it as AN. Thus, for items which refer to AN, patients and partners may still score highly if they are talking about an eating disorder more broadly and do not explicitly name the disorder as AN.

However, naming the disorder as AN might indicate a higher level of awareness and understanding indicative of a higher degree of insight into the disorder. This labeling may signify that the individual recognizes that the symptoms not only add up to an abstract eating disorder but to a disorder with a name, AN specifically. However, individuals should not be penalized because they do not have specific scientific knowledge about AN, per se.

This coding system is intended for use within couples where one member has AN, and the detailed coding examples we provide are often specific to AN. Thus, this coding system would require adaptation for use outside of the AN population.

Differentiating insight from quality of communication:

The patient and partner's global communication is important to measure to ensure that it is not being conflated with each individual's insight into the disorder. Although individual partners within a couple may show high quality communication skills including being able to speak clearly and constructively and listen well to their partner, this does not imply that they have a strong understanding of the AN or its consequences.

Thus, quality of communication does not equate insight. In order to probe this distinction, there is one item to assess each individual's overall quality of communication. The primary goal of including this item is to raise coders' awareness of the distinction between global communication and insight into the disorder.

Society:

For items that refer to one's awareness of *society's* beliefs, society is broadly defined as the media, societal norms, friends, and immediate or extended family members such as parents, in-laws, or children. Each item that refers to society's viewpoints will specify if society is inclusive or exclusive of the romantic partner. For the most part, the term society will be inclusive of partner, but exclusive of the patient.

Deciding between two scores:

If a coder cannot decide between two scores for a given item (for example, the coder cannot decide if they should rate a given item with a 2 or a 3 on the 1-5 Likert-type scale), the coder should re-watch the video in an attempt to pick up on any additional pieces of evidence to sway their decision. In the event that they are still stuck between two scores after deliberation and multiple viewings, the coder should assign the item the *more extreme score*, meaning the score that is furthest from 3. For example, if a coder cannot decide between a score of 2 or 3, the coder should rate the item as a 2. If the coder cannot decide between a rating of 3 or 4, the coder should rate the item as a 4, erring on the side of moving away from 3.

Addressing remittance in symptoms:

These items all presume that the patient is currently symptomatic, especially that they currently have an unhealthy low body weight and that they exhibit other symptoms of AN including a distorted sense of body image. If the patient is recently recovered or their symptoms are remitting (for example, if they just emerged from a partial hospitalization program so they are experiencing a certain level of recovery in various ED symptoms), be attentive while watching the video for instances where they describe a time when the patient *was symptomatic*. The coder may use information that the individual provides about that time period in order to complete the patient and partner insight ratings.

Following a partner's lead:

If one partner brings up a topic and the other partner passively agrees (e.g., nods in response, but does not overtly confirm or build on the comment) the coder typically should still provide a score for the individual who passively agreed. Usually, if an individual only passively agrees without personal elaboration, the individual who passively agrees will receive a lower insight score (e.g., no higher than 3) than the individual who brought up the topic (who may receive a score of 4 or 5 depending on the depth of understanding/awareness they indicated).

The coder may also want to note if the individual who did not address the topic in the moment returns to it at another point in the conversation, expressing their own awareness of the disorder in that topic area, in which case there may be more information on which to consider in lowering or raising that individual's scores.

Past insight

If the patient or partner only indicates awareness of the various items in the *past* (but not currently, for example, patient recognizes they excessively exercised in order to control weight in the past *but do not do recognize they currently still engage in that behavior*), the highest insight score that the individual can receive is a 3. In order to score higher than a 3, an individual must be aware of the *current* nature and consequences of the AN.

III. Patient Insight

Presented below are items to assess *patient* insight into the AN. Individual items are grouped into the three dimensions detailed above. Detailed explanations about what may constitute a score of a (1), (3), or (5) for each item are provided further below in the Coding Examples section.

<u>Dimension 1</u>:

Items within this dimension probe the patient's broad, global awareness that they have AN and that their symptoms qualify as an eating disorder.

1. Awareness of low body weight:
To what degree does the patient recognize that his or her own body weight or body mass index (BMI) is at a significantly and unhealthy low level or meets criteria for an eating disorder?
□ *N/A: Check here if this topic was not covered in the conversation.*

Does not recognize at all		Somewhat recognizes		Strongly recognizes
1	2	3	4	5

2. Society's view of body weight:
To what degree does the patient acknowledge that society or others (including their partner) consider their BMI or body weight to beat an unhealthy low level?
□ *N/A: Check here if this topic was not covered in the conversation.*

Does not acknowledge at all		Somewhat acknowledges		Strongly acknowledges
1	2	3	4	5

3. Development of the AN:
To what degree does the patient recognize that the AN developed at some point in time (i.e., the patient did not always have the AN) or that certain factors contributed to the etiology or development of the disorder (e.g., family of origin issues, attention from others, critical parents, media)?

□ *N/A: Check here if this topic was not covered in the conversation. This topic may not come up commonly since conversation topics are usually present-focused and this requires the couple to talk about the patient's past.*

Does not recognize at all		Somewhat recognizes		Strongly recognizes
1	2	3	4	5

4. Awareness of patient's body image distortion:
To what degree does the patient acknowledge that they have a distorted view of their body weight or shape (e.g., believe that they are broadly overweight, or believe that a specific body part such as stomach, arms, or legs are too fat) and acknowledge that this body image distortion is due to the AN?
□ *N/A: Check here if this topic was not covered in the conversation.*

Does not acknowledge at all		Somewhat acknowledges		Strongly acknowledges
1	2	3	4	5

5. Awareness of society's view of body image distortion:
To what degree does the patient recognize that society or others (including their partner) see the patient's body image as distorted?
□ *N/A: Check here if this topic was not covered in the conversation.*

Does not recognize at all		Somewhat recognizes		Strongly recognizes
1	2	3	4	5

6. Awareness of patient's eating behaviors:
To what degree does the patient acknowledge that they are engaging in restricted food intake, excessive exercise to counteract food intake, or more broadly persistent, problematic eating behaviors, and that these behaviors are due to the AN?
□ *N/A: Check here if this topic was not covered in the conversation.*

Does not acknowledge at all		Somewhat acknowledges		Strongly acknowledges
1	2	3	4	5

7. Awareness of society's view of patient's eating behaviors:
To what degree does the patient acknowledge that society (including the partner) recognizes that the patient is restricting their food intake, engaging in excessive exercise to counteract food intake, or more broadly engaging in persistent, problematic eating behaviors contributing to the maintenance of the AN?
□ *N/A: Check here if this topic was not covered in the conversation.*

Does not acknowledge at all		Somewhat acknowledges		Strongly acknowledges
1	2	3	4	5

8. Fear of gaining weight
To what degree does the patient recognize that they have a fear of gaining weight and that this fear is due to (or a symptom of) their AN?
□ *N/A: Check here if this topic was not covered in the conversation.*

Does not recognize at all		Somewhat recognizes		Strongly recognizes
1	2	3	4	5

9. Dimension 1 Summary Score:
Provide a summary code for the patient on Dimension 1, indicating the patient's overall understanding that their symptoms taken as a whole qualify as an eating disorder (AN). In making the rating, coders should take into account the subtopics within Dimension 1 that were coded above and reference the Coding Examples section further below.
□ *N/A: Check here if this entire dimension was not covered in the conversation.*

Poor Insight		Moderate Insight		High Insight
1	2	3	4	5

Dimension 2:

Items within this dimension measure the patient's awareness of specific consequences (positive or negative) of the AN on the patient and others.

10. Negative patient health consequences:
To what degree is the patient aware that the AN has created negative consequences for their personal mental or physical health (e.g., trouble concentrating, trouble sleeping, low bone density, exhaustion, anxiety or depressive symptoms stemming from the AN)?
□ *N/A: Check here if this topic was not covered in the conversation.*

Not at all aware		Somewhat aware		Extremely aware
1	2	3	4	5

11. Negative consequences for non-AN partner or romantic relationship:
To what degree is the patient aware that the AN has negatively impacted their partner (e.g., caused their partner distress, caregiver burden, or exhaustion from caring for patient or taking over household responsibilities) or romantic relationship (e.g., impacting sense of closeness or intimacy in the relationship, partner afraid to be intimate because patient appears frail, dinner date nights significantly impacted due to the patient's rigid meal time behaviors)?
□ *N/A: Check here if this topic was not covered in the conversation.*

Does not acknowledge at all		Somewhat acknowledges		Strongly acknowledges
1	2	3	4	5

12. Negative impact on patient's broader interpersonal relationships:
To what degree is the patient aware that the AN has (or could) negatively impact other individuals aside from their romantic partner such as their children (e.g., passing on eating disordered behaviors to their children), other family members (e.g., making family Thanksgiving tense due to patient being uncomfortable with feasting), or work relationships (e.g., making coworkers uncomfortable eating with them at lunch)?
□ *N/A: Check here if this topic was not covered in the conversation.*

Not at all aware		Somewhat aware		Extremely aware
1	2	3	4	5

13. Positive benefits for patient:
To what degree does the patient recognize positive benefits that they are personally gaining from their AN and that these perceived benefits may be maintaining their AN? For example, the patient may recognize that engaging in their AN behaviors gives them a sense of control or accomplishment, helps them regulate their emotions, helps them feel more attractive, or helps them avoid something aversive. The benefits need not be objectively positive, but simply viewed as positive or beneficial from the patient's point of view.
□ *N/A: Check here if this topic was not covered in the conversation.*

Does not recognize at all		Somewhat recognizes		Strongly recognizes
1	2	3	4	5

14. Dimension 2 Summary Score:
Provide a summary code for the patient on Dimension 2, indicating the patient's level of insight into the consequences (both positive and negative, personal and interpersonal) of the AN**.** In making this rating, coders should take into account the subtopics within Dimension 2 that were coded above, and reference the Coding Examples section further below.
□ *N/A: Check here if this entire dimension was not covered in the conversation.*

Poor Insight		Moderate Insight		High Insight
1	2	3	4	5

Dimension 3:

The item within this dimension assesses the patient's understanding that he or she warrants professional treatment for this disorder. This dimension contains only one item.

15. Dimension 3 Summary Score:
Provide a summary code for the patient on Dimension 3, indicating the overall strength of the patient's insight into the fact that, when symptomatic, they warrant professional medical or psychological treatment. In making this rating, consider that an individual with greater insight may be able to articular specific reasons that treatment is necessary (e.g., in order to get better, to make the AN less consuming in their daily life, to be a better parent or healthier role model for their children, to help get their weight back up to a healthy level) or articulate that the treatment must come from a professional versus self help or peers.
□ *N/A: Check here if this entire dimension was not covered in the conversation.*

Poor Insight		Moderate Insight		High Insight
1	2	3	4	5

16. Global Insight:
Provide a global insight score for the patient indicating his or her overall insight into the AN. Take into account the three dimension summary scores and reference the Coding Examples section further below for guidance.

Poor Insight		Moderate Insight		High Insight
1	2	3	4	5

IV. Patient Quality of Communication

[1]17. Global Quality of Communication:
Regardless of the topic discussed in the videotaped conversation, rate the patient's quality of communication across the whole conversation. See further guidelines on how to rate quality of communication in the Coding Examples section further below.

Very poor		Fair		Very good
1	2	3	4	5

V. Partner Insight

Presented below are items to assess partner insight into the AN. Individual items are grouped into the same three dimensions detailed above. Explanations regarding what may constitute a score of a (1), (3), or (5) are provided further below in the Coding Examples section.

[1]Item from: Fischer, M. S. & Baucom, D. H. (2011) Partner Behaviors in the Context of Anorexia Nervosa Coding System Manual.

<u>Dimension 1</u>:

Items within this dimension probe the partner's broad, global awareness that the patient has AN and that the patient's symptoms qualify as an eating disorder.

1. Awareness of low body weight:
To what degree does the partner recognize that the patient's body weight or body mass index (BMI) is at a significantly and unhealthy low level or meets criteria for an eating disorder?
□ *N/A: Check here if this topic was not covered in the conversation.*

Does not recognize at all		Somewhat recognizes		Strongly recognizes
1	2	3	4	5

2. Society's view of body weight:
To what degree does the partner acknowledge that society or others (excluding the patient) consider the patient's BMI or body weight to be at an unhealthy low level?
□ *N/A: Check here if this topic was not covered in the conversation.*

Does not acknowledge at all		Somewhat acknowledges		Strongly acknowledges
1	2	3	4	5

3. Development of the AN:
To what degree does the partner recognize that the patient's AN developed at some point in time (i.e. the patient did not always have AN) or that certain factors that contributed to the etiology or development of the disorder (e.g., family of origin issues, critical parents, media)?
□ *N/A: Check here if this topic was not covered in the conversation. This topic may not come up commonly since conversation topics are usually present-focused and this requires the couple to talk about the patient's past.*

Does not recognize at all		Somewhat recognizes		Strongly recognizes
1	2	3	4	5

4. Awareness of patient's body image distortion:
To what degree does the partner acknowledge that the patient has a distorted view of their body weight or shape (e.g., recognize that the patient believes they are broadly overweight or is preoccupation with a specific body part such as stomach, arms, or legs being too fat), <u>and</u> acknowledge that the patient's body image distortion is due to the AN?
□ *N/A: Check here if this topic was not covered in the conversation.*

Does not acknowledge at all		Somewhat acknowledges		Strongly acknowledges
1	2	3	4	5

5. Awareness of society's view of body image distortion:
To what degree does the partner recognize that society or others (excluding the patient) see the patient's body image as distorted?
□ *N/A: Check here if this topic was not covered in the conversation.*

Does not recognize at all		Somewhat recognizes		Strongly recognizes
1	2	3	4	5

6. Awareness of patient's eating behaviors:
To what degree does the partner acknowledge that the patient is engaging in restricted food intake, excessive exercise to counteract food intake, or more broadly persistent, problematic eating behaviors, and that these behaviors are due to the AN?
□ *N/A: Check here if this topic was not covered in the conversation.*

Does not acknowledge at all		Somewhat acknowledges		Strongly acknowledges
1	2	3	4	5

5

7. Awareness of society's view of the patient's eating behaviors:
To what degree does the partner acknowledge that society (excluding the patient) recognizes that the patient is restricting their food intake, engaging in excessive exercise to counteract food intake, or more broadly engaging in persistent, problematic eating behaviors contributing, and that this is due to the AN?
□ *N/A: Check here if this topic was not covered in the conversation.*

Does not acknowledge at all		Somewhat acknowledges		Strongly acknowledges
1	2	3	4	5

8. Fear of gaining weight
To what degree does the partner recognize that the patient has a fear of gaining weight, and that this fear is due to their AN?
□ *N/A: Check here if this topic was not covered in the conversation.*

Does not recognize at all		Somewhat recognizes		Strongly recognizes
1	2	3	4	5

9. Dimension 1 Summary Score:
Provide a summary code for the partner on Dimension 1 indicating the partner's overall understanding that the patient's symptoms, taken as a whole, qualify as an eating disorder (AN). In making the rating, coders should take into account the subtopics within Dimension 1 coded above and reference the Coding Examples section further below.
□ *N/A: Check here if this entire dimension was not covered in the conversation.*

Poor Insight		Moderate Insight		High Insight
1	2	3	4	5

<u>Dimension 2</u>:

Items within this dimension measure the partner's *awareness of specific consequences* (positive or negative) of the patient's AN on the patient and others

10. Negative patient health consequences:
To what degree does the partner acknowledge that the eating disorder has caused negative consequences to the patient's personal mental or physical health (e.g., observe that the patient has experienced trouble concentrating, trouble sleeping, low bone density, exhaustion)?
□ *N/A: Check here if this topic was not covered in the conversation.*

Does not acknowledge at all		Somewhat acknowledges		Strongly acknowledges
1	2	3	4	5

11. Negative consequences for non-AN partner or romantic relationship:
To what degree does the partner acknowledge that the AN has led to negative consequences to his or her own personal mental or physical health (e.g., increased caregiver stress, burden or exhaustion from caring for the patient or taking over household responsibilities), or led to negative consequences in the romantic relationship with the patient (e.g., impacting emotional closeness, partner afraid to be intimate because patient appears frail, dinner date nights significantly impacted due to the patient's rigid meal time behaviors)?
□ *N/A: Check here if this topic was not covered in the conversation.*

Does not acknowledge at all		Somewhat acknowledges		Strongly acknowledges
1	2	3	4	5

12. Negative impact on patient's broader interpersonal relationships:
To what degree is the partner aware that the patient's AN has (or could) negatively impact other individuals *outside of their romantic relationship*, such as their children (e.g., passing on eating disordered behaviors to their children), other family members (e.g., making family Thanksgiving tense due to patient uncomfortable with feasting), or

the patient's work relationships (e.g., making coworkers uncomfortable eating with them at lunch)?
□ *N/A: Check here if this topic was not covered in the conversation.*

Does not recognize at all		Somewhat recognizes		Strongly recognizes
1	2	3	4	5

13. Positive benefits for patient:
To what degree does the partner recognize positive benefits that the patient is gaining from their AN and that these perceived benefits may be maintaining their AN? For example, the partner may observe that the patient's AN behaviors give the patient a sense of control or accomplishment, help the patient regulate their emotions, help the patient feel more attractive, or help the patient avoid something aversive. The benefits observed need not be objectively positive, but should be viewed as factors that are maintaining the AN because they are viewed as gains or benefits from the patient's point of view.
□ *N/A: Check here if this topic was not covered in the conversation.*

Does not recognize at all		Somewhat recognizes		Strongly recognizes
1	2	3	4	5

14. Dimension 2 Summary Score:
Provide a summary code for the partner on Dimension 2, indicating the partner's level of insight into *the consequences*, both positive or negative, personal and interpersonal, of the patient's AN. In making the rating, coders should take into account the subtopics within Dimension 2 that were coded above, and reference the Coding Examples section further below.
□ *N/A: Check here if this entire dimension was not covered in the conversation.*

Poor Insight		Moderate Insight		High Insight
1	2	3	4	5

Dimension 3:

The item within this dimension assesses the partner's understanding that the patient warrants treatment for this disorder. This dimension contains only one item.

15. Dimension 3 Summary Score:
Provide a summary code for the partner on Dimension 3, indicating the overall strength of the patient's insight into the fact that, when symptomatic, they warrant medical or psychological treatment. In making this rating, consider that an individual with greater insight may be able to articular specific reasons that treatment is necessary (e.g., in order for the patient to get better, to make the AN less consuming in daily life, to help the patient a better parent, healthier role model for their children, or get their weight back up to a healthy level).

□ *N/A: Check here if this entire dimension was not covered in the conversation.*

Poor Insight		Moderate Insight		High Insight
1	2	3	4	5

16. Global Insight:
Provide a global insight score for the partner, taking into account the summary scores for the three dimensions and referencing the Coding Examples section further below.

Poor Insight		Moderate Insight		High Insight
1	2	3	4	5

VI. Partner Quality of Communication

[1]17. Global Quality of Communication:
Regardless of the topic discussed, rate the partner's quality of communication across the whole conversation. Reference more detailed guidelines on quality of communication presented in the Coding Examples section further below.

Very poor		Fair		Very good
1	2	3	4	5

VII. Focus of the conversation

After completing ratings for both partners, code the following item once per video:

[1]18. Focus of the conversation:
Rate how the focus of the conversation was distributed. That is, how much time did the couple spend talking about AN-related versus AN-unrelated topics?

Almost completely AN-related		About half/half		Almost completely AN un-related
1	2	3	4	5

[1]Item from: Fischer, M. S. & Baucom, D. H. (2011) Partner Behaviors in the Context of Anorexia Nervosa Coding System Manual.

VIII. Coding Examples

Examples of what constitutes a score of (1), (3), and (5) on each item are provided below. The same 16 insight-related items are used to assess patient and partner insight with slight changes in wording to account for the differing roles that patient and partner have in respect to the AN, specifically viewing the partner more as caretaker or observer and patient as the individual experiencing the AN. Thus, examples responses to each of the 16 items are provided once below, with distinctions within a certain item, when necessary, to specify how a certain score may manifest in a patient versus a partner. On certain items, the patient or partner's insight may manifest similarly, and the guideline may apply to either partner.

Insight Coding Examples

Overall across all items:

Code as 1: Refusal or denial when the main content or focus of that item is clearly present

Code as 3: Lack of examples for the content of the item, the individual does not tie the consequence/symptoms to AN, or there is moderate acknowledgement or understanding of other partner's experience

Code as 5: A strong, realistic, and objective understanding of the AN is provided, often including specific examples that indicate that the individual sees the symptoms and consequences as clearly tied back to the AN.

N/A: The code of N/A is given if the topic that the item assesses was not brought up in the course of the couple's conversation. Alternatively, if the topic is brought up so vaguely or with a lack of appraisal, judgment, or tying it back to the disorder, a code may be given N/A.

Note: Partners often have a more reality-based view of the disorder as an outside observer, so 1's for partners are more often due to dismissal or invalidation (e.g., indicating they would prefer to deny that a symptom exists or are not fully understanding the extent to which the AN takes an emotional or mental health toll on the patient).

Item 1: Awareness of low body weight

Code as 1: The individual denies that the patient's weight is at an unhealthily low point, and insist that patient can function at an extremely low weight. Patient example: "I will have energy, I want to prove to everyone that I can be fine at 80 pounds".

Code as 3: Partner example: "You need to get your weight back up, because it's contributing to medical challenges." Patient example: "I just keep seeing my weight go down…it's certainly not enjoyable to feel like a bag of bones."

Code as 5: Specifically note that the patient has been/is underweight, that the weight is unhealthy (using some kind of judgment, comparison, or evaluative word-- not just normal variation), and that it's tied to the AN. Example: "Historically you've [I've] been underweight. It's not healthy to be there."

Item 2: Society's view

Code as 1: The individual indicates they are unwilling or unable to accept what other people see. Patient example: "I want to prove everyone wrong, my weight is not unhealthy in how low it is at 80 pounds, I will not listen to what others say"

Code as 3: Answer may vaguely or moderately indicate that the person is aware of what society sees. Patient may talk about just how partner views their body weight, OR society, but likely not both.

Code as 5: The individual is fully aware of what society sees, but they do not have to agree- just fully acknowledge it. " I know you and others see me as super thin and that it's a medical problem, and I know that's the reality, but no matter how hard I try I can't see that". Could be a very clear example of partner OR society's views, or a strong example of both.

Item 3: Development of the AN

This item should not capture maintenance of the disorder, but focus instead on initial development and etiology of the AN. Vaguely hinting at development of one specific symptom (without being clear that it's related to the AN) is not specific enough to warrant a score.

Code as 1: Contextual information from the conversation indicates a discreet time when the AN developed but the patient indicates that the disorder has not/did not develop at all.

Code as 3: Patient or partner offer a time when the disorder or major symptoms (e.g., weight concerns, rigid/restricting eating behaviors) began and possibly hint at a reason why. Patient example: "I started eating the exact same thing in high school and college, and got a lot of attention for being the smallest person." Or "I have only had the AN the past couple of years".

Code as 5: Scores of 5 would clarify a specific time that the disorder developed, before which the person did not have AN. They would also list one or more clear factors that contributed to the development of the disorder.

Item 4: Awareness of patient's body image distortion

This question assumes that patient has a distorted body image, and hopefully that the partner or others' view of the patient's body will be more rooted in reality.

Code as 1: The individual may insist that the patient is overweight (i.e. that they look or feel huge, rather than an objective number on the scale) or be preoccupied with a specific body part, and insist that their view of their body is accurate despite it not being. Patient example: "I feel huge right now since I gained 2 pounds, I feel so large, everyone must see my flab right now". Partner: This is rare to code as 1 in a partner.

Code as 3: The individual expresses some hesitation that the patient's body image is rooted in reality. Patient example: "I can't stand the way I look right now. All I do is compare myself to when I was in top shape and now I'm

flabby. I'm not sure if that's right." Partners may still dismiss how unhealthy the body image is or fail to explicitly note that something about the patient's body image is not realistic. Partner example: "I know you see yourself as fat, but your problem areas- those are my favorite features."

Code as 5: Patient example: "I can't stand the way I look right now, all I do is compare myself to when I was in top shape and now I'm flabby. I know you guys see me differently, and I know that's the truth, but I just can't see it or believe it". The individual acknowledges the patient's subjective body image AND points out how it is not rooted in reality. Partner example: "Your physical appearance is unaltered with your 2 pound weight gain- your body image is different from the reality that everyone else sees."

Item 5: Awareness of society's view of body image distortion

This question required that someone outside of the partner (friends, family) know about the patient's body image, thus allowing the target individual to develop an understanding of what *others* think of the patient's body image. This item was rarely used, so there were insufficient examples to help generate coding examples.

Item 6: Awareness of patient's eating behaviors

This item requires that the couple discuss the patient's eating behaviors at some level (e.g., amounts or types of food consumed, eating in front of others).

Code as 1: The patient or partner actively denies that the patient's food intake is restrictive or problematic despite objectively describing restrictive eating behaviors. Patient example: "It won't be a problem at all to eat nothing all day long. I see nothing wrong with that."

Code as 3: The patient or partner may acknowledges that one small part of the patient's eating behavior is restrictive or problematic while insisting that another eating behavior (which objectively to the coder and according to AN conceptualization is not healthy) is healthy. Partner example: "You eat often but it's kind of grazing, very small amounts, not as much as a typical person would eat, but that's totally ok. We've gotten to a place where your eating is kind of limited and it's harder to eat in public."

Code as 5: Patient example: "I recognize that I'm not eating enough, I'm trying as hard as I can but just can't, and realize that it's unhealthy when I feel weak." Partner example: "What you eat for breakfast, lunch, or dinner is what I eat for a snack. That's not enough food to sustain you- that's problematic."

Item 7: Awareness of society's view of patient's eating behaviors

Note: "Society" includes the partner. Individuals should acknowledge how society sees it but don't have to like it or agree.

Code as 1: Patient example: "Your parents commented that I didn't eat anything at Christmas. That's true, I didn't. Or the day before. But my eating

behaviors are perfectly healthy, they're not problematic." A score of 1 was rare for partners unless they have an eating disorder themselves.

Code as 3: Patient example: "I see others comment on my eating when we go out and I just don't get it. It looks funny to others when I take one bite of something." Partner example: "It bugs me when you pick at my food and other people notice," no mention of the AN.

Code as 5: Patient example: "I'm fully aware that when we go out to eat and I don't eat anything it makes everyone at the table uncomfortable. I hear them mention to you that they're afraid it's my ED flaring up." Partner example: "You pick off my plate when we're on a double date in public, and don't even eat three forkfuls- so it's disruptive to me and the guests, and everyone notices that you're eating so little, they come up me afterwards and express their concern that your ED is flaring up."

Item 8: Fear of gaining weight

Code as 1: Patient example: "I'm just not going to eat. I really like being 90 pounds, losing weight is the best thing." Partner example: Partner may be very dismissive. "Why are you acting this way about gaining weight? That is nonsense. I can't even understand where you're coming from or how you feel—just do it."

Code as 3: Patient example: "I may have a fear of gaining weight, but it's hard to know for sure, I can't trust my own feelings". Partner example: "You're so in control of your weight, I don't blame you, but it needs to happen," (not fully acknowledging how strongly distressing it is to the patient).

Code as 5: Patient example: "My fear is of gaining weight, I'm terrified." Partner example: "I can see how incredibly scared it makes you to think of or go through gaining weight"

Item 9: Dimension 1 summary score

This is a chance to incorporate any other pieces of evidence that fall under Dimension 1 but weren't specifically captured by an item. This is also an opportunity to step back and broadly ask yourself how aware this individual is that that the patient has AN and that their symptoms are problematic and disordered.

Item 10: Negative patient health consequences

Code as 1: Patient example: "I will be 80 pounds, and I will do my physical labor heavy job and function fully. I'll prove to you all that this has no health consequences." Partner example: Rare.

Code as 3: An individual may list consequences of the AN with lack of detail or fail to attribute them to the AN. Patient example: "I'm exhausted, I have no energy, and I don't know if that's because of the lack of food or just something else." Partner example: "I've observed you're exhausted and have no energy, I'm also not sure where that's coming from."

Code as 5: The individual verbalizes clear mental health or physical health consequences of the AN for the patient. One clear in depth example can warrant a 5, or multiple examples may be given. Patient example: "My

functioning is so disturbed at all levels, I feel like something is wrong with me physically and emotionally. I feel weak, fragile, anxious, and sad." Partner example: "You express to me that you feel weak and tired. There seems to be physical deterioration along with mental, all due to the eating disorder."

Item 11: Negative consequences for non-AN partner or romantic relationship

Code as 1: Patient example: Despite indications throughout the video of relationship distress, a patient may deny that the AN has any negative consequences for the partner or relationship. "They say spouses can only take so much and then they give up. I don't think my AN impacts you at all—it's just my thing."

Code as 3: Patient example: "I know date nights aren't that fun any more for us, especially meal time." Partner example: "It's really annoying when you pick off my plate, it makes me not want to eat dinner with you anymore, and you didn't always do this."

Code as 5: The individual mentions the impact of the AN on the partner AND on the couple as a whole, though one in depth example is sufficient if they tie it back to the AN. The main message is that the ED has been prioritized over the partner or the relationship, or the patient recognizes the burden that the partner experiences. Patient example: "I'm choosing the AN over spending quality time with you, and I see how exhausted it makes you to monitor me." Partner example: "The ED has come between us, it makes date nights very stressful. I also feel the need to monitor you at meal times to make sure you eat, and that makes me really anxious."

Item 12: Negative impact on patient's broader interpersonal relationships

Code as 1: Patient example: "The kids don't get it, and they'll never notice. I'm not affecting them negatively." Partner example: Rare.

Code as 3: Patient example: "I don't eat with my coworkers, but I don't know what they think of that. I'm not sure if it's my personality or the eating disorder or what"

Code as 5: Patient example: "I'm missing out on life, choosing my AN over social events, and I know everyone at the party was asking about me and feeling like we don't get to hang out anymore." Partner may say something similar.

Item 13: Positive benefits for the patient

Code as 1: Patient: rare. Partner example: "I don't think you can get anything positive out of this" (despite patient expressing explicitly what they get out of it).

Code as 3: Patient example: "I feel better when I have some say over what I eat." Partner example: "There's got to be a reason you're doing this, something you get out of it, but I don't know what it is"

Code as 5: Patient example: "It's my safety. Controlling my eating behaviors is all I have, and it's a big accomplishment, and it helps me regulate my emotions." Partner example: "I feel like you use the eating disorder as a

harness, a safety net. And you've told me before how in control you feel when you're heavily restricting your eating."

Item 14: Dimension 2 Summary Score

Code as 1: One partner lists clear consequences that seem objectively true, and the other partner dismisses them or denies they are true.

Code as 3: Personal and interpersonal consequences of the AN are apparent but it is unclear if the patient or partner acknowledges them or can tell if they're related to the AN.

Code as 5: A score of 5 involves more attribution of the consequences to the disorder and an ability to say, "That's the eating disorder talking right now, not me." A score of 5 involves the ability to parse out what traits are innate to partner and which are driven by disorder.

Item 15: Dimension 3 summary score

Code as 1: Patient example: "I can do this alone, I don't need any help, I can take the reigns." Partner: Rare.

Code as 3: Individual has a vague recognition that the patient cannot recover from the AN on their own and that they need professional help. An individual may start to identify specific goals where they wanting help or skills that they don't have on their own. An individual may be convinced that peers or their partner are sufficient help for the patient to fully recover from AN.

Code as 5: The individual identifies sources of professional help that they want- like groups lead by a medical or mental health professional, individual therapy, or medication. They may articulate specific reasons treatment is needed and make it clear that this help must be professional and not just from family and friends.

Item 16: Global insight

This is a chance to take into account all of the dimensions and incorporate any pieces of evidence that appear important in capturing that individual's understanding of the AN but was not previously captured. Also, coders should compare patients to their peer patient groups, and partners to the peer partner group. This peer comparison step is key to ensure coders use the full scale, and can help as a guideline to bump someone up or down in a given score (away from the mean) if they displayed something notable compared to their peers.

Global Communication Coding Examples

This section is adapted from:
Fischer, M. S. & Baucom, D. H. (2011) Partner Behaviors in the Context of Anorexia Nervosa Coding System Manual.

The partner's and the patient's quality of communication will be assessed using the same guidelines. How well someone is able to communicate is determined by many different skills and behaviors. Capturing this in only one code necessarily omits detailed

information about specific behaviors. Therefore, while you should have a good understanding of what kind of behaviors are involved in good or poor quality of communication, your rating should be based on the overall impression of the person's communication. That is, how well was the person able to convey his/her thoughts and feelings in a clear and constructive fashion? Did he/she listen actively and showed that they understood what the other person said?

The couples are asked to discuss a problematic topic in their relationship. Thus, both partners and patients will likely have negative thoughts and feelings to express. It is important to note that this code is not to be confused with how "pleasant" the conversation was or how much positive affect the person displayed. On the contrary, appropriate expression of negative thoughts or feelings would indicate good communication.

The key to effective communication of negative thoughts or feelings is being able to express them in a way that the listener is likely able to hear. That means, statements should be phrased in a way that lowers the likelihood of the listener feeling attacked, blamed, or criticized, and subsequently to respond in a destructive manner. More specifically, good communication of the speaker would be characterized by presenting their subjective experience with clear, specific statements; if appropriate, the inclusion of positives, adequate self-disclosure, and present one's ideas and feelings in a way that is respectful to the listener. For example, if the partner says "You always give the kids such a terrible example for dealing with food, when is this going to stop?!" this would be fairly poor communication. It is a generalized, critical statement, and depending on the tone of voice, this might come across as hostile and attacking, and the patient is likely to feel the need to defend herself. On the contrary, a constructive expression of the same idea could be, "I think you are a great mom, and I know how difficult meal times are for you. I'm just so worried what effect it has on the kids if they see you skip meals every day." In this case, the statement is much more specific, the partner shows respect and understanding for the patient, but is able to express his own concerns at the same time. In another example, the patient might express her frustration with the partner frequently asking her about her meals in different ways. "Stop nagging me every day about my meals! This is none of your business!" would be poorer communication than "I know you're worried about what I eat. But if you ask me several times a day how much food I had, I feel like you don't trust me but treat me like a little child. That is very frustrating for me.".

In addition to the ability to convey thoughts and feelings constructively, active listening is also an important part of communication quality. This includes not interrupting the speaker, being attentive (includes nonverbals), asking open questions to clarify, etc. Nonverbal communication should also be taken into account. The tone of voice, how loud someone speaks, etc., will have an effect on how a statement comes across. In addition, good eye contact and a body posture that is oriented towards the other person are also part of good communication. Eye rolling, aggressive gesticulation, or withdrawn body posture are some examples for nonverbal indicators of poorer communication.

There are a number of key behaviors that lower the communication score for a person. Destructive criticism, hostility, accusations, and cynicism are some examples. In addition, withdrawal (disengaging from the conversation), stonewalling (rejecting all suggestions, giving only short or evasive answers, etc.), and defensiveness (denying a problem or one's own role in it, countering blaming directed at oneself by blaming one's partner, unwillingness to reconsider own position) are also signs of poor communication.

The ratings for Quality of Communication are made on a five-point scale from "Very Poor" to "Very Good." Take the information above into account when you observe the partner or patient, and come to a global rating of their communication skills throughout the conversation. Consider the following guidelines for the different scores:

5 – Very Good
This score should be assigned to a person who consistently shows good or very good communication throughout the conversations. The person should be able to convey both positive and negative thoughts and feelings in a constructive, skillful manner, be engaged in the conversation, listen actively and try to understand the other person's position.

3 – Fair
This score can be assigned in different scenarios. First, this might be a person who is fairly engaged in the conversation, and shows few behaviors that would be considered negative in terms of the communication quality, but also no remarkably skillful communication. Second, this might be a person who shows inconsistent communication in the conversation, who might communicate very constructively at some times but becomes critical or withdraws at other times.

1 – Very Poor
This is the lowest score that can be assigned for communication quality. To receive this score, the person might either be completely disengaged from the conversation, or show a high number of negative communication behaviors (or several extremely destructive behaviors).

Use scores of (2) and (4) to rate communication skills that fall in between the scores described above. For example, a rating of (4) could be assigned to a person who shows very good communication for most of the conversation, but deteriorates during a certain part of the conversation. Or, this might be a person who shows communication skills that would fall in the mid-range, but handles a difficult part of the conversations especially skillfully. Use a rating of (2) in a similar way for a quality of communication that lies between a (1) and a (3).

If one person says very little, especially if there would have been opportunities to speak, or dominates the entire conversation and rarely gives the other partner a chance to speak, the rating should be reduced. That is, a rating based on the content and manner of the person's communication should be assigned first, and then be reduced by one point if the person "hijacked" the conversation or barely said anything.

There may be conversations where the partner or the patient shows good communication skills during part of the conversation, but becomes critical, defensive, or cynical, for example, in another part of the conversation. In this case, you may decide to choose a score that would represent the "average" for the different parts of the conversation. However, there may be cases where the person's negative behavior could "trump" the rest of the conversation. This would be the case if the person becomes extremely hostile, attacking, withdraws completely, or the like, in a way that overshadows more skillful parts of the conversation. In such a case, you may decide to assign a lower score than just the "average" across the whole conversation. However, if a person is able to break the cycle of a negative escalation in the conversation and lead it back into a more constructive interaction, this would be a sign of good communication.

Focus of the Conversation Coding Examples

This section adapted from:
Fischer, M. S. & Baucom, D. H. (2011) Partner Behaviors in the Context of Anorexia Nervosa Coding System Manual.

This is a measure of how the focus of the conversation was distributed between AN-related topics and topics that are not related to the patient's AN. That is, how much time did the couple spend discussing AN-related versus AN-unrelated topics? The code will be assigned using a five-point scale.

1- Almost completely AN-unrelated
A score of (1) indicates that almost all of the conversation time was spent on the discussion of AN-unrelated topics.

3- About half/half
If the couple spent about half the time each on AN-related and AN-unrelated topics, assign a score of (3).

5- Almost completely AN-related
A score of (5) indicates the opposite, i.e., the couple focused on AN-related topics for almost all of the time.

Ratings of (2) or (4) should be made if the couple spend more time on one type of topic, but also spend some time on the other.

REFERENCES

Amador, X., & Strauss, D. (1990). The scale to assess unawareness of mental disorder. *New York: Columbia University and New York Psychiatric Institute*.

Amador, X. F., Flaum, M., Andreasen, N. C., & Strauss, D. H. (1994). Awareness of illness in schizophrenia and schizoaffective and mood disorders. *Archives of General Psychiatry, 51*(10), 826-836. doi: 10.1001/archpsyc.1994.03950100074007

Amador, X. F., Strauss, D. H., Yale, S. A., & Flaum, M. M. (1993). Assessment of insight in psychosis. *The American Journal of Psychiatry, 150*(6), 873-879.

Amador, X. F., Strauss, D. H., Yale, S. A., & Gorman, J. M. (1991). Awareness of illness in schizophrenia. *Schizophrenia Bulletin, 17*(1), 113-132.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.

Bardone-Cone, A. M., Harney, M. B., Maldonado, C. R., Lawson, M. A., Robinson, D. P., Smith, R., & Tosh, A. (2010). Defining recovery from an eating disorder: Conceptualization, validation, and examination of psychosocial functioning and psychiatric comorbidity. *Behaviour Research and Therapy, 48*(3), 194-202. doi: 10.1016/j.brat.2009.11.001

Baucom, D. H., Belus, J. M., Adelman, C. B., Fischer, M. S., & Paprocki, C. (2014). Couple‐based interventions for psychopathology: A renewed direction for the field. *Family Process*.

Berg, K. C., Peterson, C. B., Frazier, P., & Crow, S. J. (2011). Convergence of scores on the interview and questionnaire versions of the Eating Disorder Examination: A meta-analytic review. *Psychological Assessment, 23*(3), 714-724. doi: 10.1037/a0023246

Brent, B. K., Giuliano, A. J., Zimmet, S. V., Keshavan, M. S., & Seidman, L. J. (2011a). Insight into illness in patients and caregivers during early psychosis: A pilot study. *Schizophrenia Research, 127*(1-3), 100-106. doi: 10.1016/j.schres.2010.12.024

Brent, B. K., Giuliano, A. J., Zimmet, S. V., Keshavan, M. S., & Seidman, L. J. (2011b). Scale to Assess Unawareness of Mental Disorder--Caregiver Version.

Bulik, C. M., Baucom, D. H., & Kirby, J. S. (2012). Couples therapy for anorexia nervosa. In J. Alexander & J. Treasure (Eds.), *A collaborative approach to eating disorders.* (pp. 189-200). New York, NY US: Routledge/Taylor & Francis Group.

Bulik, C. M., Baucom, D. H., Kirby, J. S., & Pisetsky, E. (2011). Uniting Couples (in the treatment of) Anorexia Nervosa (UCAN). *International Journal of Eating Disorders, 44*(1), 19-28. doi: 10.1002/eat.20790

Butzlaff, R. L., & Hooley, J. M. (1998). Expressed emotion and psychiatric relapse: a meta-analysis. *Archives of General Psychiatry, 55*(6), 547-552.

Centers for Disease Control and Prevention. (2015). Assessing Your Weight. Retrieved January, 2016, from http://www.cdc.gov.libproxy.lib.unc.edu/healthyweight/assessing/index.html

Cicchetti, D. V. (1994). Guidelines, criteria, and rules of thumb for evaluating normed and standardized assessment instruments in psychology. *Psychological Assessment, 6*(4), 284.

Crisp, A., Gowers, S., Joughin, N., McClelland, L., Rooney, B., Nielsen, S., . . . Clifton, A. (2006). Anorexia Nervosa in Males: Similarities and Differences to Anorexia Nervosa in Females. *European Eating Disorders Review, 14*(3), 163-167. doi: 10.1002/erv.703

Dare, C., Eisler, I., Russell, G., Treasure, J., & Dodge, L. (2001). Psychological therapies for adults with anorexia nervosa: Randomised controlled trial of out-patient treatments. *The British Journal of Psychiatry, 178*, 216-221.

David, A., Buchanan, A., Reed, A., & Almeida, O. (1992). The assessment of insight in psychosis. *British Journal of Psychiatry, 161*, 599-602. doi: 10.1192/bjp.161.5.599

David, A. S. (1990). Insight and psychosis. *The British Journal of Psychiatry, 156*, 798-808.

Dell'Osso, L., Pini, S., Cassano, G. B., Mastrocinque, C., Seckinger, R. A., Saettoni, M., . . . Amador, X. F. (2002). Insight into illness in patients with mania, mixed mania, bipolar depression and major depression with psychotic features. *Bipolar Disorders, 4*(5), 315-322. doi: 10.1034/j.1399-5618.2002.01192.x

Division of Statistics and Scientific Computation. (2012). Mplus Tutorial. from https://stat.utexas.edu/images/SSC/Site/documents/MPlus_Tutorial.pdf

Doherty, W. J. (1981). Cognitive processes in intimate conflict: II. Efficacy and learned helplessness. *American Journal of Family Therapy, 9*(2), 35-44. doi: 10.1080/01926188108250395

Eisen, J. L., Phillips, K. A., Baer, L., Beer, D. A., Atala, K. D., & Rasmussen, S. A. (1998). The Brown assessment of beliefs scale: reliability and validity. *American Journal of Psychiatry, 155*(1), 102-108.

Epstein, N. B., & Baucom, D. H. (2002). *Enhanced cognitive-behavioral therapy for couples: A contextual approach*: American Psychological Association.

Fairburn, C. G., & Cooper, Z. (1993). The Eating Disorder Examination (twelfth edition). In C. G. Fairburn, G. T. Wilson & K. Schleimer (Eds.), *Binge eating: Nature, assessment, and treatment* (pp. 317-360). New York: Guilford Press

Fairburn, C. G., Cooper, Z., & O'Connor, M. (2008). Eating Disorder Examination (16.0D). In C. G. Fairburn (Ed.), *Cognitive behavior therapy and eating disorders*. New York: Guilford Press.

Fincham, F. D. (1985). Attribution processes in distressed and nondistressed couples: II. Responsibility for marital problems. . *Journal of Abnormal Psychology, 94*(2), 183.

Fincham, F. D., Beach, S., & Nelson, G. (1987). Attribution processes in distressed and nondistressed couples: 3. Causal and responsibility attributions for spouse behavior. . *Cognitive Therapy and Research, 11*(1), 71-86.

Fischer, M. S., & Baucom, D. H. (2011). *Partner behaviors in the context of anorexia nervosa: Coding system manual*. University of North Carolina at Chapel Hill.

George, C., Kaplan, N., & Main, M. (1985). Adult attachment interview (AAI). *Unpublished manuscript, university of California at Berkeley*.

Greenfeld, D., Strauss, J. S., Bowers, M. B., & Mandelkern, M. (1989). Insight and interpretation of illness in recovery from psychosis. *Schizophrenia Bulletin, 15*(2), 245-252.

Greenfeld, D. G., Anyan, W. R., Hobart, M., Quinlan, D. M., & Plantes, M. (1991). Insight into illness and outcome in anorexia nervosa. *International Journal of Eating Disorders, 10*(1), 101-109.

Hallgren, K. A. (2012). Computing inter-rater reliability for observational data: An overview and tutorial. *Tutorials in quantitative methods for psychology, 8*(1), 23.

Hartmann, A. S., Thomas, J. J., Wilson, A. C., & Wilhelm, S. (2013). Insight impairment in body image disorders: Delusionality and overvalued ideas in anorexia nervosa versus body dysmorphic disorder. *Psychiatry Research, 210*(3), 1129-1135.

Hasson-Ohayon, I., Kravetz, S., Roe, D., David, A. S., & Weiser, M. (2006). Insight into psychosis and quality of life. *Comprehensive Psychiatry, 47*(4), 265-269. doi: 10.1016/j.comppsych.2005.08.006

Hayes, A. F., & Krippendorff, K. (2007). Answering the call for a standard reliability measure for coding data. *Communication methods and measures, 1*(1), 77-89.

Henriksen, M. G., & Parnas, J. (2014). Self-disorders and schizophrenia: A phenomenological reappraisal of poor insight and noncompliance. *Schizophrenia Bulletin, 40*(3), 542-547.

Himle, J. A., Van Etten, M. L., Janeck, A. S., & Fischer, D. J. (2006). Insight as a Predictor of Treatment Outcome in Behavioral Group Treatment for Obsessive-Compulsive Disorder. *Cognitive Therapy and Research, 30*(5), 661-666.

Jones, W. R., & Morgan, J. F. (2010). Eating disorders in men: A review of the literature. *Journal of Public Mental Health, 9*(2), 23-31. doi: 10.5042/jpmh.2010.0326

Kemp, R., & David, A. (1997). Insight and compliance. In B. Blackwell (Ed.), *Treatment compliance and the therapeutic alliance.* (pp. 61-84). Amsterdam, Netherlands: Harwood Academic Publishers.

Konstantakopoulos, G., Tchanturia, K., Surguladze, S. A., & David, A. S. (2011). Insight in eating disorders: Clinical and cognitive correlates. *Psychological Medicine: A Journal of Research in Psychiatry and the Allied Sciences, 41*(9), 1951-1961.

Krippendorff, K. (2007). Computing Krippendorff's alpha reliability. *Departmental papers (ASC)*, 43.

Kyriacou, O., Treasure, J., & Schmidt, U. (2008). Understanding how parents cope with living with someone with anorexia nervosa: Modelling the factors that are associated with carer distress. *International Journal of Eating Disorders, 41*(3), 233-242. doi: 10.1002/eat.20488

Lewinsohn, P. M., Seeley, J. R., Moerk, K. C., & Striegel-Moore, R. H. (2002). Gender differences in eating disorder symptoms in young adults. *International Journal of Eating Disorders, 32*(4), 426-440. doi: 10.1002/eat.10103

Maxwell, M., Thornton, L. M., Root, T. L., Pinheiro, A. P., Strober, M., Brandt, H., . . . Bulik, C. M. (2011). Life beyond the eating disorder: Education, relationships, and reproduction. *International Journal of Eating Disorders, 44*(3), 225-232.

Mintz, A. R., Dobson, K. S., & Romney, D. M. (2003). Insight in schizophrenia: A meta-analysis. *Schizophrenia Research, 61*(1), 75-88.

Muthén, L. K. (2007). Mplus: Statistical Analysis with Latent Variables (Version 4.21)[Computer software.

National Institute for Clinical Excellence. (2004). Eating disorders: Core interventions in the treatment and management of anorexia nervosa, bulimia nervosa and related eating disorders. *NICE Guidelines (CG9).* 9, from https://www.nice.org.uk/guidance/cg9/resources/guidance-eating-disorders-pdf

Neziroglu, F., Stevens, K. P., McKay, D., & Yaryura-Tobias, J. A. (2001). Predictive validity of the overvalued ideas scale: outcome in obsessive–compulsive and body dysmorphic disorders. *Behaviour Research and Therapy, 39*(6), 745-756.

Padierna, A., Martín, J., Aguirre, U., González, N., Muñoz, P., & Quintana, J. M. (2013). Burden of caregiving amongst family caregivers of patients with eating disorders. *Social Psychiatry and Psychiatric Epidemiology, 48*(1), 151-161.

Papadopoulos, F. C., Ekbom, A., Brandt, L., & Ekselius, L. (2009). Excess mortality, causes of death and prognostic factors in anorexia nervosa. *The British Journal of Psychiatry, 194*(1), 10-17.

Pearlin, L. I., Mullan, J. T., Semple, S. J., & Skaff, M. M. (1990). Caregiving and the stress process: An overview of concepts and their measures. *The Gerontologist, 30*(5), 583-594.

Roe, D., & Kravetz, S. (2003). Different Ways of Being Aware of a Psychiatric Disability: A Multifunctional Narrative Approach to Insight into Mental Disorder. *Journal of Nervous and Mental Disease, 191*(7), 417-424.

Sabourin, S., Valois, P., & Lussier, Y. (2005). Development and Validation of a Brief Version of the Dyadic Adjustment Scale With a Nonparametric Item Analysis Model. *Psychological Assessment, 17*(1), 15-27. doi: 10.1037/1040-3590.17.1.15

Santonastaso, P., Saccon, D., & Favaro, A. (1997). Burden and psychiatric symptoms on key relatives of patients with eating disorders: a preliminary study. *Eating and Weight Disorders-Studies on Anorexia, Bulimia and Obesity, 2*(1), 44-48.

Smith, C. M., Barzman, D., & Pristach, C. A. (1997). Effect of patient and family insight on compliance of schizophrenic patients. *The Journal of Clinical Pharmacology, 37*(2), 147-154.

Spanier, G. B. (1976). Measuring dyadic adjustment: New scales for assessing the quality of marriage and similar dyads. *Journal of Marriage and the Family, 38*(1), 15-28.

Sullivan, P. F. (1995). Mortality in anorexia nervosa. *The American Journal of Psychiatry, 152*(7), 1073-1074.

Tarrier, N., Sommerfield, C., & Pilgrim, H. (1999). Relatives' expressed emotion (EE) and PTSD treatment outcome. *Psychological Medicine: A Journal of Research in Psychiatry and the Allied Sciences, 29*(4), 801-811. doi: 10.1017/s0033291799008569

Tozzi, F., Sullivan, P. F., Fear, J. L., McKenzie, J., & Bulik, C. M. (2003). Causes and recovery in anorexia nervosa: The patient's perspective. *International Journal of Eating Disorders, 33*(2), 143-154.

Treasure, J., Murphy, T., Szmukler, T., Todd, G., Gavan, K., & Joyce, J. (2001). The experience of caregiving for severe mental illness: A comparison between anorexia nervosa and psychosis. *Social Psychiatry and Psychiatric Epidemiology, 36*(7), 343-347. doi: 10.1007/s001270170039

Whisman, M. A. (2007). Marital distress and DSM-IV psychiatric disorders in a population-based national survey. *Journal of Abnormal Psychology, 116*(3), 638-643.

Whitney, J., Murray, J., Gavan, K., Todd, G., Whitaker, W., & Treasure, J. (2005). Experience of caring for someone with anorexia nervosa: Qualitative study. *The British Journal of Psychiatry, 187*(5), 444-449.

Wolitzky, D. L. (2005). The theory and practice of traditional psychoanalytic treatment. In A. S. Gurman & S. B. Messer (Eds.), *Essential Psychotherapies: Theory and Practice* (2nd ed., pp. 24-68). New York, NY: The Guilford Press.