Treatment Outcome Research at the Monte Nido Treatment Center
[1 to10-Year Follow-up Study]

Many potential clients and family members may ask, "Does your program work? Do you have any statistics on the benefits of treatment at the Monte Nido Treatment Center?" Because our staff is committed to providing the best available care to every client in our program, we have been evaluating the short and long-term benefits of our services for some years now.

We collect information as part of an ongoing assessment before, during and at several intervals after treatment at our program in order to document effectiveness and determine long-term outcome. To date we have completed a comprehensive follow-up study of clients who have attended our program for at least 30 days[1].

This research involves measuring a variety of eating disorder related symptoms at admission, discharge and follow-up. Follow-up data is collected annually over the course of up to 10 years. This allows us to determine to what extent clients have improved and either lost or maintained that improvement several years after treatment at Monte Nido.

At each assessment time period, participants completed a number of assessment instruments, including the Eating Disorders Inventory-2 (EDI-2), the Beck Depression Inventory (BDI), and a structured eating disorder assessment questionnaire specifically developed for outcome assessment. The EDI-2[2] has 11 subscales that measure a number of important clinical behaviors and personality features of eating disorders, including Drive for Thinness, Bulimia, Body Dissatisfaction, Ineffectiveness, Perfectionism, Interpersonal Distrust, Interoceptive Awareness, Maturity Fears, Asceticism, Impulse Regulation, and Social Insecurity.

A simplified summary explanation of the assessment instruments is provided with the results below.

To ensure critical objectivity in the analysis of our data, we contracted with renowned eating disorder specialist and researcher, Dr Timothy Brewerton. Dr. Brewerton is triple board certified in general psychiatry, child/adolescent psychiatry and forensic psychiatry. He is a Fellow of the American Psychiatric Association and Founding Fellow of the Academy of Eating Disorders. He is past President of the Eating Disorders Research Society and has served on the Board of Directors of the Academy of Eating Disorders. Dr. Brewerton has published over 110 articles and book chapters on various aspects of eating disorders, including their psychobiology, psychopharmacology, epidemiology, and comorbidity. He is Editor of the acclaimed textbook, Clinical Handbook of Eating Disorders: An Integrated Approach. Dr. Brewerton has reviewed for over three dozen journals and is currently on the Editorial Boards of the International Journal of Eating Disorders, Eating Disorders: The Journal of Treatment and Prevention, and Current Food and Nutrition Science. He has received numerous awards recognizing his accomplishments. Dr. Brewerton is currently in private practice in the Charleston, SC area and continues as Clinical Professor of Psychiatry and Behavioral Sciences at the Medical University of South Carolina.

Where we insert comments not attributable to Dr. Brewerton, our comments will be italicized.

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[1] Due to the necessary course of treatment and the severity of clients seeking admission to our program, Monte Nido requires a minimum of a 30-day stay.

[2] We used the EDI-2 instead of the EDI-3 because the EDI-2 has been used much more extensively and has a much stronger track record in research studies on assessment and treatment outcome.

Survey Protocol:

Each client was given our assessment survey [as described above by Dr. Brewerton] when they admitted, and when they discharged.

The results of the surveys were used by the primary therapist to complete the psycho-social evaluation of each client, educate the clinical team and ascertain the program's clinical goals for each client. Just before discharge, the survey was done again, and reviewed with the client [and the clinical team] as a means to support the work they had done at the facility and the work they will need to continue post-discharge.

For those who completed our minimum 30-day program, 75% continued to participate in the on-going post-discharge survey process. Most graduates did surveys multiple times after their discharge. The assessment time periods were; 3-months, 6-months, 1-year, 18-months, 2-year, 3-year, 4-year, 5-year, 6-year, 7-year, 8-year, 9-year and 10-year.

Although most graduates did surveys multiple times – Dr. Brewerton used "only" their very last/latest survey response.

To protect the client's confidentiality and anonymity, each respondent was identified with a computer-generated number – no names. By 2003, an Internet system was created allowing for direct entry into the database by the graduate.

An anonymous weight response card was provided so that graduates who continued to follow our philosophical paradigm of not weighing oneself could provide that essential piece of information – without weighing themselves.

Research Findings:

Of a possible 231 potential respondents (those that completed $\geq$ 30 days of the program), 75% (172) participated in the study.

Of the 172 who completed questionnaires, only those with either anorexia nervosa (AN) or bulimia nervosa (BN) were included in the analyses (156 of 172). This is because the sample size (n=16) of clients with Eating Disorder Not Otherwise Specified (EDNOS) was too small for analysis.

In addition, we decided that outcome significance would only be obtained by using surveys beginning no less than one year post-graduate (PG), so only those who had responses at least one year out from discharge were included in the PG analyses.

<u>For all PG analyses only the last or most recent PG variable was used in order to get the longest or greatest follow-up period since discharge.</u>

The average age of both the AN and BN groups was 30.9 years.

The average length of stay was 96 days for the AN clients and 79 days for the BN clients.

Fifty-one percent of the AN clients and 59% of the BN clients attended Bella Mar, our transitional program, prior to discharge.

The average duration of time between discharge and last PG follow-up was 4.5 years for the AN group and 4.1 years for the BN group.

It is notable that many of our clients were not treatment naïve.

Among our clients with AN,

- 21% had been seeing a psychiatrist,
- 43% a therapist and
- 18% a dietitian.

- Thirty-four percent had been previously hospitalized,
    - 26% for their eating disorder, and
- 34% had been in a day treatment program.

Among the BN clients,

- 25% had been seeing a psychiatrist,
- 38% a therapist, and
- 14% a dietitian.

- Twenty-eight percent had been previously hospitalized,
    - 18% for their eating disorder, and
- 21% had been in a day treatment program.

In other words, a large number of our clients had failed previous inpatient, residential and/or outpatient treatment.

The analysis did not separate out clients who had only been hospitalized or only been treated in a day treatment program – so you cannot add the percentage hospitalized with the percentage treated in day treatment to establish how many of our clients had previous treatment.

Data Outcome Presentation:

The outcome report you are about to read analyses and presents the survey data results separately comparing each diagnosis. It was important to us to determine how effective we were with the different groups.

There are two sections to the report. The first section reports the outcomes for clients suffering from anorexia nervosa and the second section for clients suffering from bulimia nervosa.

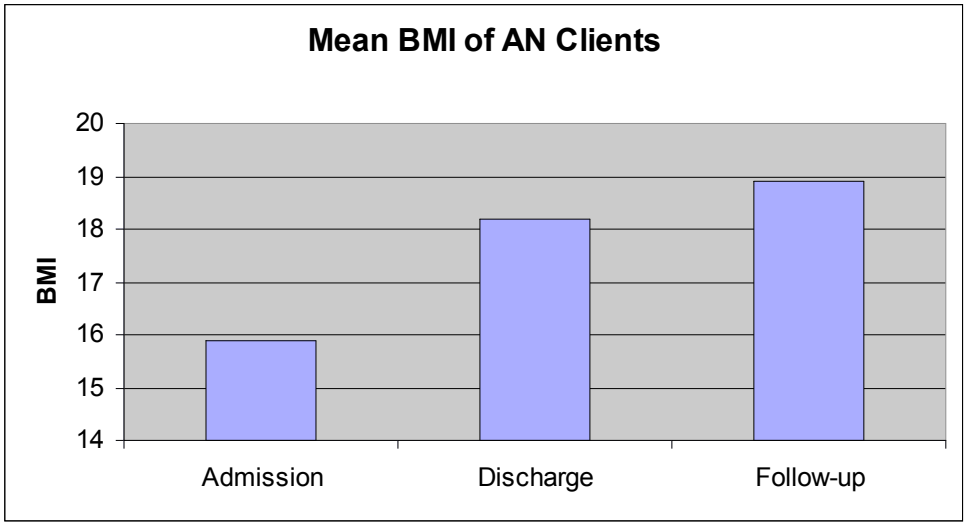
If you compare this report or its graphs with other people's or treatment facilities outcome studies, please make sure they also separate out the different diagnosis groups as statements or graphs. Clumping the different diagnosis together would not be comparable.

Anorexia Nervosa

Body Mass Index

The table below shows average or mean body mass index (BMI) of the clients with AN at admission, at discharge and at post-graduate follow-up. There was a statistically significant increase in average or mean BMI from admission to discharge. In addition, there was a further significant increase in mean BMI between discharge and follow-up. This result indicates that AN clients not only gain weight in our program, but they also maintain their weight recovery after leaving the hospital. Furthermore, they continue to improve and normalize, as there is a continued statistically significant increase in BMI between discharge and post-graduate follow-up an average of 4.5 years later.

Below 18 is one of our diagnostic criteria for AN



A BMI below 18 is used diagnostically to determine if someone is suffering from AN.

What is significant from our perspective is that the follow-up [averaging 4.5 years after graduation] shows continued "statistically significant" improvement.

One of the greatest problems after discharge for individuals with anorexia is the tendency to lose the weight gained at the program. We believe a significant factor for this weight loss is because people do not gain the emotional strength and experiential knowledge to manage their weight gain.

We believe in a collaborative and individualized weight gain process for each client. We believe it is important for each client not only to weight restore but also learn how much they can eat – without weight gain, or in other words, the concept of weight maintenance. This helps clients learn to break their association that eating "equals" weight gain. The knowledge of and skills for weight maintenance enables clients to take needed psychological breaks from weight gain without losing weight. We believe our collaborative process combined with our tiered approach to weight gain and weight maintenance enhances continued improvement after discharge. Our survey results support the values we hold in this area.

Evidence of post-discharge improvement is shown in the graphs on the following pages. Our clients improve physically along with a continued reduction in symptoms as measured by standardize testing as well as indicating their own perceptions of improvement.

Good, Intermediate and Poor Outcomes

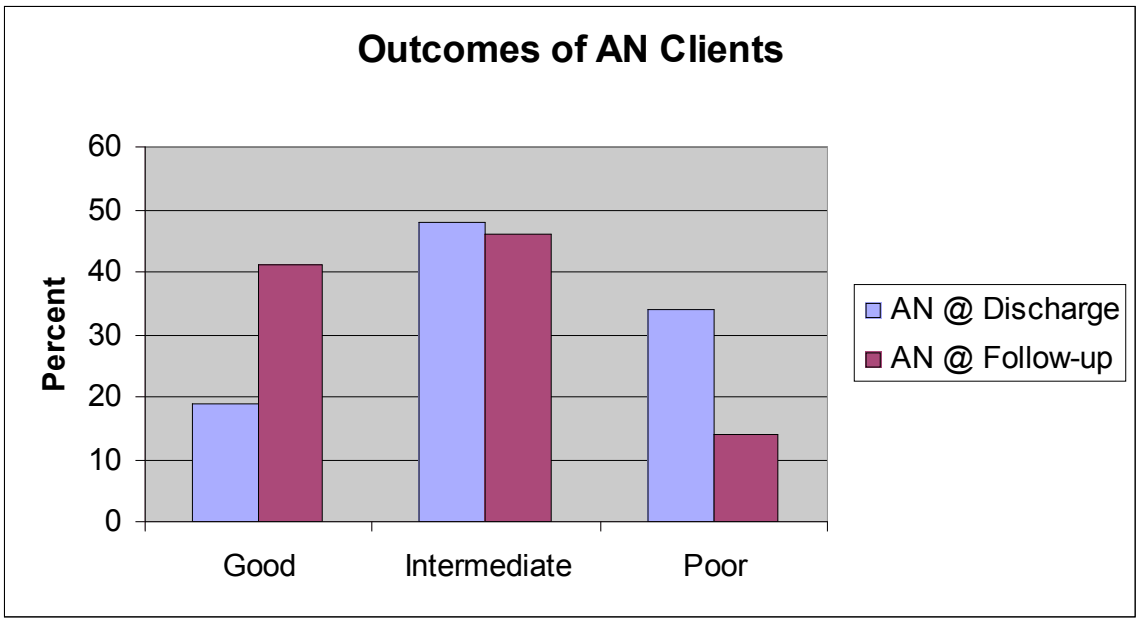
Recovery from AN is customarily determined not only by the complete return of normal weight but also of normal menstrual function. The graph below shows the percentage of clients with AN who had good, intermediate or poor recovery at the times of discharge and post-graduate follow-up.

- Good or full recovery is indicated by the return of normal weight above a BMI of 18.0 AND the return of normal menstrual function.
- Intermediate or partial recovery is indicated by EITHER weight restoration OR resumption of normal menstrual function, whereas
- Poor recovery is indicated by the absence of both.

Considering the severity of our clients suffering from Anorexia Nervosa at admission [an average BMI of 15.9], we are quite please that; 19.5% of them discharge with a BMI at or above 18 and a return of menses, and another 49% of them discharge either with their BMI over 18 or with the return of normal menstrual function.

Although we prefer for all of our clients to obtain these goals prior to discharge, we know that this is not possible, therefore we are committed to providing the tools each client needs to continue the recovery process post discharge.

The graph below shows that our AN clients, suffering from what is considered a chronic and treatment resistant disorder, continue the path of recovery until only 12% remain with a poor outcome. Down from 33% at discharge

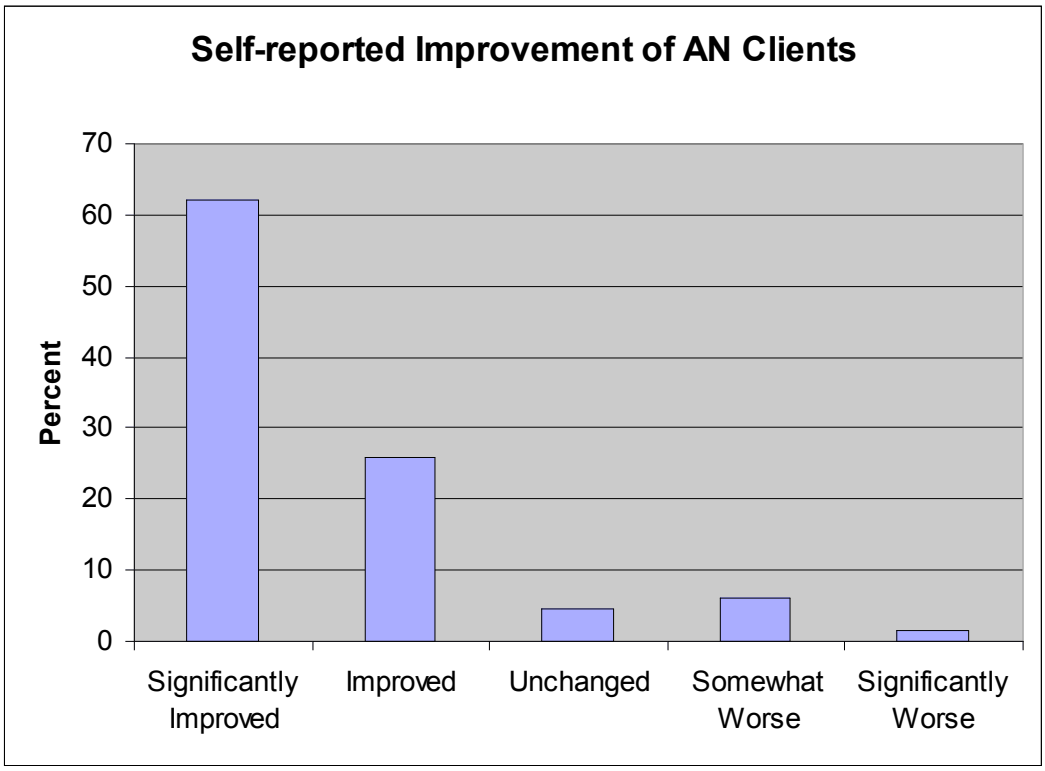


Monte Nido Residential Facility's Outcome Study - 5/28/07
Graduates between March 25th, 1996 & May 12th 2006

Self Report of Improvement

When clients with AN rated their own degree of improvement at post-graduate follow-up, 88% rated themselves as "significantly improved" or "improved." *Please see the graph below.*

It appears that our client's self-reported perceptions of their improvement at follow-up match the results produced by the standardized testing. We are pleased that in both the standardized measures and subjective reports, our clients are greatly improved.



Eating Disorder Behaviors

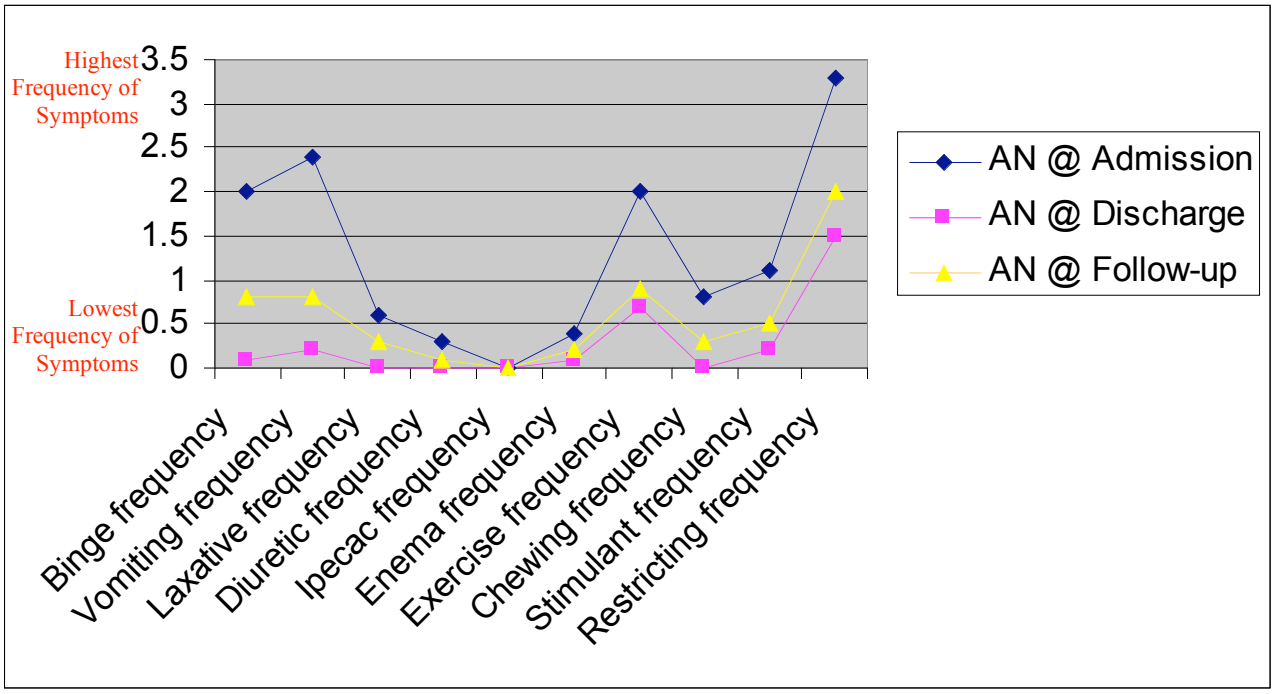
Our goal in treatment is to give clients the tools to achieve control over both their weight and their life without resorting to destructive behaviors. These destructive behaviors and their use as an anesthesia to life are difficult to combat once discharged from a program. We are very encouraged that the outcome survey shows we are providing our clients with the tools necessary to continue recovery in this area.

The graph below shows the average ratings of clients with AN on a variety of eating disordered behaviors at admission, discharge and post-graduate follow-up.

There were statistically significant improvements in the frequencies of binge eating, vomiting, laxative abuse, chewing and spitting, exercise frequency, stimulant use, and restricting from admission to discharge. All of these significant improvements were maintained at post-graduate follow-up in comparison to admission values.

The scores are based on a scale of 0-6 and can be understood as follows: 0 = not at all; 1 = once a month or less; 2 = a few times a month; 3 = at least once a week; 4 = at least twice a week; 5 = daily; 6 = more than once a day.

Monte Nido's Binge, Purge & Other Compensatory Results Plotted



Psychological Symptoms of AN

Measured by the Eating Disorder Inventory [EDI-2]

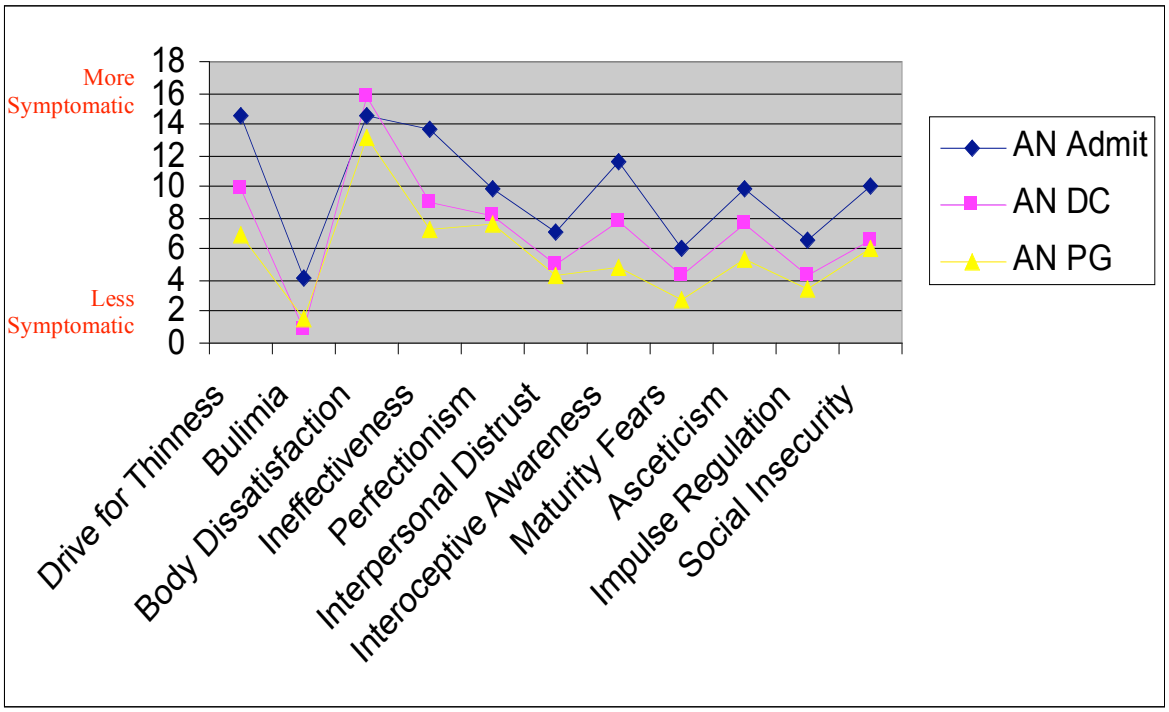
The Eating Disorder Inventory (EDI-2) is a widely used, standardized, self-report measure of psychological symptoms commonly associated with anorexia nervosa, bulimia nervosa and other eating disorders (Garner, 1991). The EDI-2 does not yield a specific diagnosis of an eating disorder. Rather it is aimed at the measurement of psychological traits or symptom clusters presumed to have relevance to understanding and treatment of eating disorders. The psychological profile provided by the EDI-2 is consistent with the understanding of eating disorders as multi-determined and heterogeneous syndromes.

The authors of the measure have evidence that the EDI-2 is sensitive to clinical change and that it can play a valuable role in clinical evaluations of eating disorder patients. Since it is sensitive to clinical change, it provides a method to measure the change brought about by participation in our program and if those changes have any lasting effect. Dr. Brewerton's analysis below shows statistically significant improvement not only between admission and discharge, but most importantly, during the post-graduate follow-up period.

Description of the EDI-2 Subscales

- *Drive for Thinness (DT): An elevated subscale score suggests a preoccupation with weight and/or body shape, demonstrates a morbid fear of weight gain, an excessive concern with dieting, and a strong desire for thinness.*
- *Bulimia (B): An elevated subscale score suggests binge eating and purging behavior.*
- *Body Dissatisfaction (BD): A subscale score indicates dissatisfaction with overall body shape and/or the size of specific regions of the body (i.e. stomach, hips, thighs, and buttocks).*
- *Ineffectiveness (I): An elevated subscale score indicates feelings of insecurity, worthlessness, emptiness, and general inadequacy.*
- *Perfectionism (P): An elevated subscale score suggests perfectionistic strivings.*
- *Interpersonal Distrust (ID): An elevated subscale score indicates reluctance to form close relationships and express thoughts and feelings to others.*
- *Interoceptive Awareness (IA): An elevated subscale score indicates the respondent has difficulty in recognizing, and accurately responding to, emotions and sensations of hunger and satiety.*
- *Maturity Fears (MF): An elevated subscale score suggests an excessive sense of pressure experienced by the respondent, which is associated with the demands of adulthood.*
- *Asceticism (A): self-discipline, self-denial, control of bodily urges, self-sacrifice.*
- *Impulse Regulation (IR): This subscale assesses the tendency towards impulsivity, substance abuse, recklessness, hostility, destructiveness in interpersonal relationships, and self-destructiveness. The tendency toward poor impulse regulation has been identified as a poor prognostic sign in eating disorders*
- *Social Insecurity (SI): This subscale measures the belief that social relationships are tense, insecure, disappointing, unrewarding, and generally of poor quality.*

Monte Nido Anorexia Nervosa EDI-2 Results Plotted



The graph above shows the EDI-2 profile for AN clients at admission, discharge and post-graduate follow-up.

The results plotted in the graph above, display that the AN clients showed significant improvement in all subscale scores between admission and discharge, and in 9 of these subscale scores improvement were statistically significant (Bulimia, Ineffectiveness, Perfectionism, Interpersonal Distrust, Interoceptive Awareness, Maturity Fears, Asceticism, Impulse Regulation, Social Insecurity).

By the time of post-graduate follow-up, improvement had continued such that our AN clients showed statistically significant improvements in all EDI-2 subscale scores.

It is interesting to note that the Body Dissatisfaction scores for our AN clients increase from admission to discharge. This is expected due to the weight gain achieved during this time. It takes clients time to adjust to their new bodies. What is significant is that although clients continued to gain weight after discharge, their score on Body Dissatisfaction as well as all other EDI scores, statistically improved!

The outcome study continues on the next page

Beck Depression Inventory® -II (BDI-II)

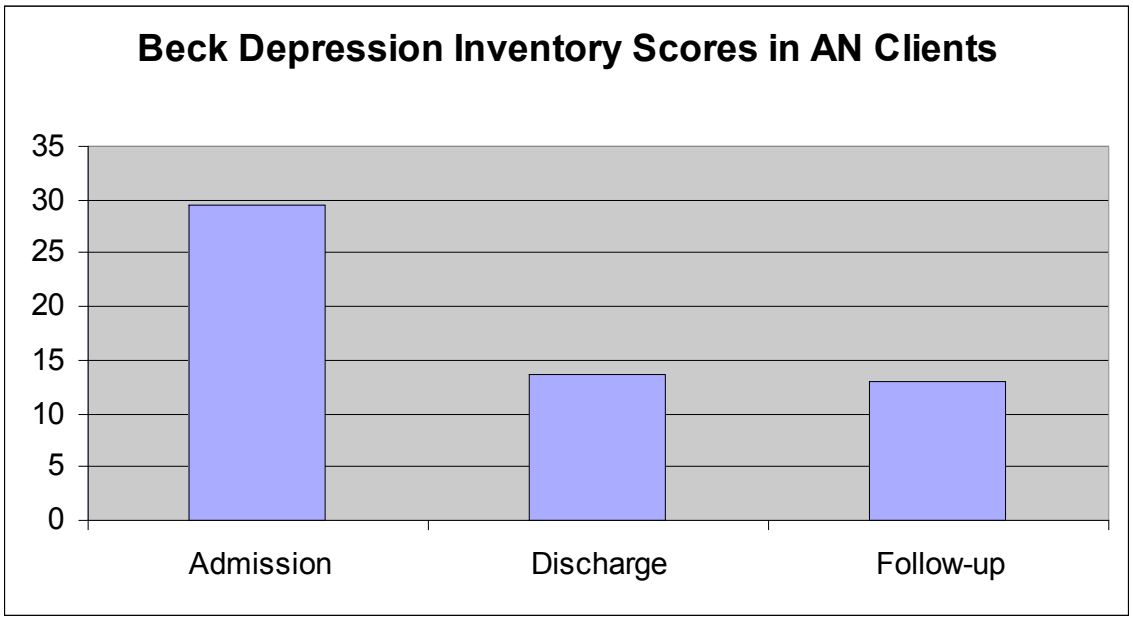
The Beck Depression Inventory (BDI, BDI-II), created by Dr. Aaron T. Beck, is a twenty-one question multiple choice self-report inventory that is one of the most widely used instruments for measuring the severity of depression. The questionnaire is designed for adults age 17-80 and is composed of items relating to depression symptoms such as hopelessness and irritability, cognitions such as guilt or feelings of being punished, as well as physical symptoms such as fatigue, weight loss, and lack of interest in sex.

The BDI®-II is an effective measure of a client's "mood". The test was also shown to have a high one-week test-retest reliability, suggesting that it was not overly sensitive to daily variations in mood. This reliability allows the clinician insight into the emotional state of the client without having to rely solely on the client's own self-report.

The BDI-II contains twenty-one questions, each answer being scored on range of 0 to 3. Higher total scores indicate more severe depressive symptoms: Cumulative scores of 0-13 = minimal depression; 14-19 = mild depression; 20-28 =moderate depression; and 29-63 = severe depression..

Our survey results show a significant improvement not only between admission and discharge, but at follow up. Not only did the client's eating disorder symptoms reduce – but the measures of their emotional well being and self-satisfaction continued to improve.

All clients also completed the Beck Depression Inventory (BDI), Clients with AN showed statistically significant improvement in depressive symptoms between admission and discharge. This improvement was maintained at the time of post-graduate follow-up.

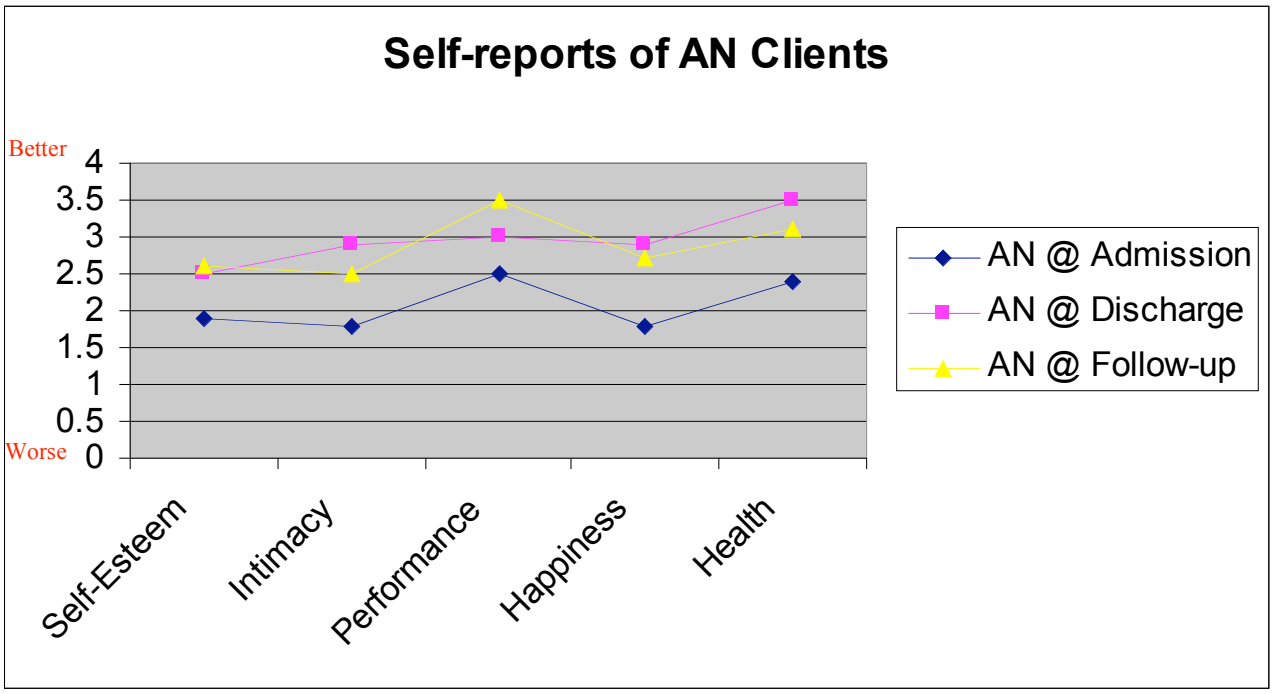


Clients' Perceptions of Themselves

As an eating disorder treatment facility, our mission of course is to treat the eating disorder. However, it is important to understand that eating disorder behaviors are used to cope with a variety of feelings, situations and experiences. In this way each client's eating disorder serves a purpose or "performs jobs" for them that they are unable to accomplish in healthier, more appropriate ways. The real task is to help each client learn to understand her needs and cope with life without resorting to self-destructive eating disorder behaviors. This requires developing a strong healthy self.

We believe that upon entering treatment each client has an "eating disorder self" and a "healthy self" but that the eating disorder self is in charge while the healthy self has become weak and in need of reviving. Our goal is to facilitate the emergence of a strong healthy self. This involves working with each client in a variety of areas such as self-esteem and intimacy. We work to ensure that clients themselves begin to see improvements in these areas and consequently improvement in their ability to perform at work, school and in their overall happiness and health. Our survey asks clients to rate themselves in these areas.

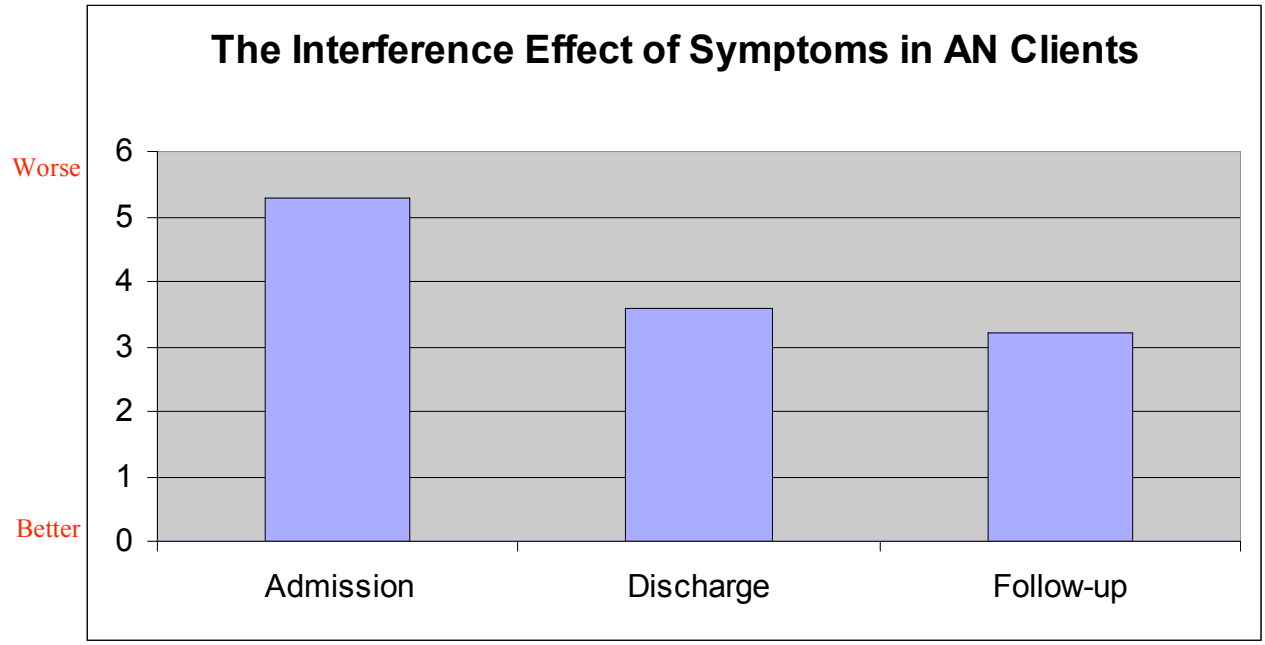
We are happy to report that when clients with AN rated themselves on self-esteem, intimacy, performance *[performance in school or at work],* happiness and overall health, there were statistically significant improvements between admission and discharge on all of these measures. All of these improvements were maintained at post-graduate follow-up.



Interference Effect of Symptoms

Eating disorder behaviors are intrusive and interfere with normal life functioning. The importance of measuring the interference effect of symptoms is that it reveals how much time clients spend on their eating disorder, either engaging in the behaviors or thinking about them, such as wanting to binge, worrying about getting fat, or trying to avoid eating. We believe that our client's physical and emotional health can only truly improve once the eating disorder interference in that person's life diminishes and is under control.

The interference effect of symptoms was rated by AN clients at admission, at discharge and at post-graduate follow-up. There was a statistically significant improvement from admission to discharge, which was maintained at follow-up. There was in fact statistical evidence of further improvement between discharge and follow-up in the AN clients.



In Summary

Positive outcomes in supervised treatment facilities do not necessarily predict positive follow-up results.

Our survey results indicate that Monte Nido has successfully bridged the gap between supervised treatment in a facility and the continuation of post-discharge positive outcomes and recovery. This study is important because we see significant changes carried well into post-graduate lives.

From this 1-10 year study, it appears that our philosophy of treatment, our post-discharge transitional program and our out-reach activities provide our clients with the ability to strengthen their "healthy selves" and make life choices allowing them to "give up" their eating disordered selves in favor of a healthy life.

The fact that 75% of our alumni were willing to participate in this very long process of accumulating data over a decade is a testament to the connection we develop with our clients.

We believe that our outcome data will help others feel confident in selecting our program for themselves, their loved ones, their clients or their insured customers.

If you have any questions about this study or anything else,
Please contact us at 310 457-9958 or mntc@montenido.com