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RUNNING HEAD: Eating Disorder Handbook

Eating Disorder Assessment Handbook  
For School Nurses in Hamilton County Schools

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School of Nursing

Eating Disorder Assessment Handbook  
for School Nurses in Hamilton County Schools

*Chapter 1*

*Background and significance*

In the United States, as many as 10 million females and one million males are fighting a life and death battle with anorexia or bulimia while millions more struggling with binge eating disorder (National Eating Disorder Association [NEDA], 2005). Eating disorders are prevalent among adolescent females and consist of anorexia nervosa, bulimia, and binge eating. Eating disorders continue throughout most of their lives and few ever receive treatment. Anorexia nervosa is the third most common chronic illness in adolescent females and carries the highest mortality rate of any psychiatric disorder (National Association of Anorexia Nervosa and Associated Eating Disorders [ANAD], 2008). In a nationwide survey conducted by NEDA (2005) found that four out of ten Americans either have suffered or have known someone who has suffered from an eating disorder. Eating disorders affect all races and all levels of income, and has been called the equal opportunity disease, crossing all racial, ethnic, gender, and socioeconomic lines (Rome, 2003).

Eating disorders can lead to severe medical problems and death. Potential complications of eating disorders are malnutrition, dehydration, ruptured spleen, organ damage such as kidney, heart, and liver, tooth/gum erosion and tears of the esophagus (ANAD, 2008). Depression, low self-esteem, shame, guilt, mood swings, and perfectionism are also associated with eating disorders (ANAD). Eating disorders affect all organ systems and can lead to sudden cardiac death and irreversible myocardial damage (Rome, 2003). According to the South Carolina Department of Mental Health

(2006) 20% of people suffering from anorexia will die prematurely from complications related to eating disorders including suicide and heart problems.

Family members of an individual with an eating disorder go through a great deal of suffering as well. The family may experience emotional turmoil, such as feelings of helplessness and despair, as well as bear the financial burden of treatment. The average direct medical costs for treating anorexia nervosa is \$6054 (NEDA, 2005).

In an attempt to facilitate early recognition and improve treatment the Diagnostic and Statistical manual of Mental Disorders, 4<sup>th</sup> edition. (DSM-IV) revised the criteria for diagnosis of eating disorders (Rome, 2003). The DSM-IV categorize anorexia nervosa and bulimia nervosa as eating disorders; whereas binge eating is called an eating disorder not otherwise specified (EDNOS) (American Psychiatry Association [APA], 2000).

Anorexia nervosa is characterized as an individual's refusal to maintain a normal body weight for age and height, maintenance of body weight less than 85% of expected (APA, 2000). The individual expresses an intense fear of gaining weight or becoming fat, even though he/she is underweight (APA, 2000). There is also a component of denial of the seriousness of their current low body weight. The criteria also include the absence of at least three consecutive menstrual cycles (amenorrhea) in post menarche females. A woman is considered to have amenorrhea if her periods occur only following hormone administration (APA).

Criteria for bulimia nervosa includes recurrent episodes of binge eating, that is characterized by the following: (1) eating in a discrete period of time (within any two hour period) an amount of food that is larger than most people would eat during a similar period of time and under similar circumstances, and (2) a sense of a lack of control over

eating during the episode (a feeling that one cannot stop eating or control what or how much one is eating) (APA, 2000). The individual engages in recurrent inappropriate compensatory behavior in order to prevent weight gain, such as self induced vomiting, misuse of laxative, diuretics, enemas, or other medications; fasting or excessive exercise (APA, 2000). Binge eating episodes and inappropriate compensatory behaviors both occur approximately two times a week for three months (APA, 2000). In addition, the person's self evaluation is overly influenced by body shape and weight (APA, 2000).

Eating Disorders Not Otherwise Specified category in the DSM-IV includes disorders of eating that do not meet the criteria for any specific Eating Disorder. (APA, 2000). Examples of this disorder include the following: females with all the criteria for Anorexia Nervosa are met except that the individual has regular menses; all of the criteria for Anorexia Nervosa are met except that the individual's weight is within the normal range; all of the criteria for Bulimia Nervosa are met except that the binge eating and inappropriate compensatory mechanisms occur at a frequency of less than twice a week or for a duration of less than three months; the regular use of inappropriate compensatory behavior by an individual of normal body weight after eating small amounts of food; repeatedly chewing and spitting out, but not swallowing, large amounts of food (APA, 2000). Binge eating disorder is included in the EDNOS category and is defined as recurrent episode of binge eating in the absence of the regular use of inappropriate compensatory behaviors characteristic of Bulimia Nervosa (APA, 2000).

*Healthy people 2010* is a catalog of objectives developed by the U.S. Department of Health and Human Services (USDHHS). One of the many goals of Health People 2010 is to improve mental health and ensure access to appropriate, quality mental health

services (USDHHS, 2000). Mental health is categorized in Healthy People 2010 in focus area 18. Eating disorders arise primarily in adolescents and young adult women with the median age of onset being 17 years of age (USDHHS, 2000). Those adolescents who suffer from a mental disorder such as anorexia nervosa or bulimia nervosa have a disrupted normal development that interferes with education and social interaction and keeps them from realizing their full potential as adults (U.S. Department of Health and Human Services, 2000). The goal of Healthy People 2010 in regards to child and adolescent mental health is to increase the proportion of children who receive treatment for their mental health problems. Better services and collaboration for children with emotional disturbance and their families will result in greater school retention, decreased contact with the juvenile justice system, increased stability of living arrangements, and improved education, emotional, and behavioral development (U.S. Department of Health and Human Services, 2000).

### *Problem Statement*

Eating disorders are dangerous and life-threatening diseases. Individuals suffering from eating disorders feel alone and helpless, which can lead to significant mental and physical damage. Early recognition can prevent the negative mental and physical health consequences. Research has found that eating disorders are more prevalent in adolescents. School nurses have the greatest opportunity and knowledge for recognizing and referring those students at risk. School nurses have the opportunity to be soldiers in the fight against these disorders, because they have the knowledge, skill, and accessibility to the adolescent student. The school nurse has extended contact with the adolescent allowing them to establish good relationships (Martin et al, 2002). A good relationship

between the adolescent and the school nurse will help the adolescent feel more comfortable in talking with the school nurse and will hopefully facilitate open and honest communication from the adolescent. Given that students do not present to the school nurse with the chief complaint of an eating disorder, the school nurse must be attentive and have a high index of suspicion, especially when caring for young women (Williams, P.M. et al, 2008). Establishing an assessment guideline and offering school nurses an effective assessment tool will allow them to accurately assess students, identify those at risks, and make the appropriate referrals for treatment.

### *Project Purpose*

The purpose of this project is to develop evidence-based assessment guidelines for school nurses in Hamilton County Tennessee to aid in the early recognition of eating disorders in adolescent children. Eating disorders are typically under diagnosed in this age group, therefore, a guideline will aid in early recognition and decrease the morbidity and mortality of these disorders. The eating disorders assessment guideline, along with information on eating disorders, will be presented to the school nurses of Hamilton County. Information on proper referral and ways to approach parents will also be provided to the school nurses. Help will be solicited from the Hamilton County Department of Education and Mary Cameron Robinson (MCR) Foundation in developing the guideline.

### *Theoretical Framework*

The Neuman Systems Model will provide the theoretical framework for developing eating disorder assessment guidelines for school nurses in Hamilton county schools. (Neuman, 2002). The Neuman Systems Model suggests a partnership between

caregivers and clients that fosters the understanding of the client's relationship with the environment and acting appropriately through preventative, corrective, and rehabilitative measures to ensure that desired outcome goals will be met. This system's theory encompasses wholism, which depicts that all elements of the client (physiological, psychological, sociocultural, developmental, and spiritual) are interactive. Neuman's model incorporates and illustrates the collaborative decision-making process concerning three levels of prevention and intra-, inter-, and extrapersonal stressors. For the purposes of this project adolescents are viewed as the clients who face a multitude of stressors including intrapersonal stressors, such as fear of failure, interpersonal stressors such as peer pressure, and extrapersonal stressors such as financial and family burdens. The Neuman Systems Model also suggests that as stress accumulates and is disregarded, an unchanging internal, external, and created environment poses significant burdens (Current Nursing, 2009).

Supporting and assisting both school nurses as well as school age children and adolescents who are suffering from an eating disorder will help create or strengthen a flexible line of defense for both, which will result in reduced stress and a decrease the eating disorder behavior (Tomey & Alligood, 2006). Neuman's model provides justification in recognizing and appropriately referring students who are suffering from an eating disorder to promote, maintain, and restore the health of individuals, aggregates, and the community.

### *Major Limitations*

This project does come with some limitations that will need to be overcome. School Nurses are very busy in their current roles, trying to stay abreast of current



recommendations and often time managing the care of students at multiple school locations. Therefore, attempting to present new information to the school nurses in Hamilton County may be met with some resistance. Another limitation is the screening tool being used in the guideline. Eating Attitudes Test – 26 (EAT-26), is dependent on accurate subject reporting (Maor, Sayag, Dahan, Hermoni, 2006). Financial resources may arise when printing the handbooks.

## *Chapter 2*

### *Review of Literature*

A review of the literature to explore the current body of knowledge concerning eating disorders among adolescents and school age children was conducted utilizing CINAHL, PubMed, and PsycINFO databases. Research findings related to epidemiology of eating disorders, medical complications, as well as screening tools used to identify eating disorders are included in the review. The research findings summarized within this review included a variety of quantitative research methods.

#### *Epidemiology*

Ackard, Fulkerson, and Neumark-Sztainer (2007) surveyed 4,746 middle and high school students recruited from 31 public schools in St. Paul/Minneapolis, Minnesota. The purpose of this study was to estimate the prevalence of individual criteria, identify sub threshold and full threshold eating disorders, and explore the utility of individual criteria in epidemiological studies. Data was obtained from the students of Project EAT, a comprehensive epidemiologic study of adolescent eating behaviors and weight-related issues. Each DSM-IV criterion for anorexia nervosa, bulimia nervosa, and binge eating disorder was mapped to survey questions following discussions and consensus by a multidisciplinary group of researchers and clinicians with expertise in the field. Ackard et al. found that more students suffered from a single criterion than a full eating disorder. Body image disturbance was present among 41.5% of girls and 24.9% of boys across all weight status, including 18% of girls and 4.2% of boys who were underweight. These individuals reported that they believed they were somewhat or very overweight despite

their low BMI. Eleven percent of girls and 3.3% of boys reported feeling out of control with their binge eating. When examining full threshold eating disorders, the researchers found 0.04% of girls to have anorexia nervosa and 0.3% of girls and 0.2% of boys to have bulimia nervosa. A high percentage of youth, 16% of girls and 15.4% of boys, reported binge eating, self-induced vomiting, laxative use and/or excessive exercise.

Maor et al. (2006) surveyed 238 male and female Israeli high school students using the Eating Attitudes Test-26 (EAT-26) to assess the prevalence of eating disorder in a school based population in the Misgav region in northern Israel. They found that with statistical significance 20.8% of girls and 5% of boys had a high risk EAT-26 ( $\chi^2 = 14.43$ ,  $P < 0.001$ ). An individual is considered to be high risk according to the EAT-26 if they score  $> 20$  on the 26 item questionnaire. The distribution of high EAT-26 by grouped grade and gender discovered no statistical significance (total  $\chi^2 = 0.67$ ,  $P = \text{NS}$ ; boys  $\chi^2 = 3.83$ ,  $P = \text{NS}$ ; girls  $\chi^2 = 0.40$ ,  $P = \text{NS}$ ).

In 2000, the National Eating Disorders Screening Program (NEDSP) coordinated a nationwide eating disorder screening initiative for high school students in the United States (Austin, Ziyadeh, Forman, Prokop, Keliher, Jacobs, 2008). Participating high schools were sent the EAT-26 questionnaire to screen for eating disorders, educational materials to use in classroom or assemblies, and technical assistance to help staff implement the screening, handle student requests to discuss eating disorders, and make appropriate referrals for evaluation and treatment. A total of 5,567 screening forms from approximately 98 schools were analyzed. Austin et al. found that high school girls were three to five times more likely than boys to score at or above 20 on the EAT-26 (13.5% of girls; OR(95%CI) 3.3 (1.1-10.1)) which means they are at high risk for an eating

disorder, to report vomiting to control their weight in the past three months (16.5% of girls; OR (95% CI) 1.9 (0.8-4.4), and to have ever been treated for an eating disorder. The researchers also found with statistical significance that girls were more likely to use exercise to control their weight more than one time a day in the past three months (15.2% of girls; OR (95% CI) 7.9 (1.4-44.1). No significant difference was found in eating disorder symptoms across racial and ethnic groups. In addition one in four girls and one in ten boys reported at least one disordered eating or weight control symptom serious enough to warrant further evaluation by a health professional.

In 1999 a study conducted among five public schools in East Tennessee assessed for students risk of an eating disorder (Miller, Verhegge, Miller, and Pumariega, 1999). The age of participants in the study ranged from 11 to 18 years. The researchers used the EAT-40 to screen the individuals in the study. The EAT-40 is a validated screening tool for the assessment of anorexia nervosa and bulimia nervosa. The higher the EAT-40 score the higher the risk an individual has of having an eating disorder. Students were divided among three groups: the more rural group, the middle group and the least rural group. The more rural and middle group are county school systems. The least rural group is a combined middle and high school that parents apply for their child to attend.

Numerous significant results were found in this study. ANOVA analysis of BMI and EAT-40 scores found that the higher the student's BMI the greater the EAT-40 score ( $p=0.0003$ ) ( $df=4$ ,  $F=5.365$ ). In addition, the more rural group showed a significantly higher EAT-40 scores than did the least-rural group ( $p< 0.001$ ). Positive EAT-40 scores increased from 12.5% at age 11 to 24% at age 16 in females. Males students had no positive results at ages 11 to 13, and a peak incidence of 8% at age 16. Regression

analysis of male and female positive EAT-40 scores and the student's age revealed significant linear relationship with  $p=.06$  for males and  $p=.006$  for females.

Thompson and Digsby (2004) studied dieting behaviors, body dissatisfaction, and eating problems among high school-aged female cheerleaders in South Carolina. The study consisted of 156 females with a mean age of 15 years. Researchers found that 46% of the participants were currently trying to lose weight and 13.5% had an EAT-20 score of 20 or higher indicating a possible eating disorder. Black females showed less weight reduction efforts ( $M = 11.47$ ,  $p = 0.0108$ ) when compared to white females ( $M = 12.64$ ).

### *Medical Complications*

Gadalla, T. and Piran, N. (2007) set out to examine the association between disordered eating attitudes and behaviors and substance use in women and men in Canada. The sample consisted on 36,984 men and women aged 15 or older who resided in private dwellings in ten provinces. The researchers found that 18.5% of women and 7.7% of men reported having a strong fear of being overweight in the past year. Of these individuals 89 men (0.5%) and 573 women (2.8%) were classified by the EAT-26 score as being at risk of having an eating disorder ( $p < 0.005$ ). In examining the co-occurrence of eating disorders and alcohol interference in men, Gadella & Piram (2007) found the observed probability to be 0.048%, which is four times the random/chance probability, indicating an association between the two conditions. The observed probability of co-occurrence in women of these two condition was 0.085%, which was 4.4 times the probability of them occurring by chance alone. The researchers also found that the measures of drug and alcohol use were consistently higher for women with an EAT-26 score above 20. The risk of eating disorders in women was strongly associated with

alcohol dependence, alcohol interference, cannabis drug use, illicit drug use, dependence and interference and lifetime use of cocaine/crack, amphetamine (speed), MDMA (ecstasy) and hallucinogens PCP or LSD. The risk of eating disorders in men was strongly associated with alcohol interference and lifetime use of amphetamine (speed) with marginal association with alcohol dependence and lifetime use of MDMA (ecstasy). In men the observed probability of the co-occurrence of eating disorders and amphetamine use was 0.084%, which is 2.7 times the probability of their co-occurrence by chance alone, indicating an association between the two conditions. Women showed a 0.214% observed probability of co-occurrence of these two conditions, which was double the probability of them occurring by chance alone. A strong association was found in women between the risk of eating disorders and number of illicit drug classes both life time and in the past year ( $p < 0.0005$ ).

A study conducted by Whetstone, Morrissey, and Cummings (2007) explored the relationship between perceived weight status and self-reported suicidal thoughts and actions by gender among middle school students. They found that a larger percentage of students who perceived themselves as overweight had thought ( $\chi^2 = 44.60$ ,  $df = 2$ ,  $p < .001$ ), planned ( $\chi^2 = 29.28$ ,  $df = 2$ ,  $p < .001$ ), or tried ( $\chi^2 = 20.75$ ,  $df = 2$ ,  $p < .001$ ) suicide than those who perceived themselves as normal weight or underweight.

Lifante-Olivia et al. (2008) studied at oral alterations among 18 hospitalized women in an eating disorders unit in Spain, and they found significant dental erosions with the majority being in the bulimic group. It was also found that the bulimic group had enlargement of the bilateral parotid and submaxillary glands.

According to NEDA (2005) up to 89% of bulimic patients show signs of tooth erosion associated with regurgitation. NEDA also reports that similar rates have been found in patients with highly restrictive dietary habits. The patient suffering from an eating disorder can have teeth that become brittle, translucent, and weak. The loss of the tissue and erosive lesions on the surface of teeth occur due to the effects of acid and can appear as early as six months from the start of the problem (NEDA).

### *Screening Tools*

The EAT-26 questionnaire was developed by Garner, Olmstead, Bohr, and Garfinkel in 1982. The development of the 26 item questionnaire was based on a factor analysis of the original 40-item questionnaire (EAT-40). The analysis shows that the EAT-26 is highly predictive of the total EAT-40 ( $r = 0.98$ ) and the EAT-26 maintains robust correlation with clinical and psychometric variables of the EAT-40, indicating that the 14 items eliminated from the EAT-40 are redundant and do not increase the instrument's predictive capability. Garner et al. stated that the EAT-26 is most suitable as an outcome measure in clinical groups or as a screening instrument in non-clinical setting based on the fact that the EAT-26 may indicate the presence of disturbed eating patterns, but it does not reveal the motivation or possible psychopathology underlying the manifest behavior.

In 2002 Perry et al. examined the different delivery methods of the SCOFF screening tool. They compared orally administered SCOFF scores to independently completed hand-written SCOFF scores. The study consisted of 185 male and female nursing and midwifery students at a South London University with an average age of 26. Students were randomly divided into two groups. One group was administered the

SCOFF verbally, then later completed the written SCOFF questionnaire. Administration of the SCOFF was reversed in the second group. A total of 178 participants completed the SCOFF by both methods of administration. There was agreement of the scores of 157 participants and disagreement in the remaining 21, yielding a kappa score of 0.811 ( $p < 0.001$ ), which is in the range of “very good agreement”. A kappa score also was found between oral and written administration (0.824 ( $p < 0.001$ ) “very good agreement”) in predicting an eating disorder. Overall, Perry et al. found better reliability of the SCOFF administered as a written questionnaire compared to oral interview, and identified more students with possible eating disorders via the written method versus the oral.

In 2009, Hautala et al. evaluated the SCOFF questionnaire in screening for eating disorder symptoms among adolescents in the school health care setting. The SCOFF questionnaire was delivered to students attending the 8<sup>th</sup> grade ( $n = 1453$ ) during the school year 2004-2005 and those attending the 9<sup>th</sup> grade ( $n = 1374$ ) during the school year 2003-2004 at a Finnish-speaking secondary school in southwestern Finland. Fourteen school nurses also participated in the study. Data from the school nurses were collected with semi-structured questionnaires focusing on demographic information, such as age, education and the duration of work experience, along with their assessment of an individual adolescent’s risk for an eating disorder. Data collected from the 8<sup>th</sup> graders was utilized to examine the detection of potential eating disorder cases during health examinations with or without SCOFF. In the school nurses’ assessments, 91% of students showed no risk for an ED, 5% were in a risk group, and for the remaining students ( $n = 46$ ) the nurses were uncertain in their risk assessment. In comparing the SCOFF scores with the nurses’ assessments, there was good agreement in asymptomatic students.



Ninety-three percent of those who reported no symptoms on SCOFF were assessed by the nurses as belonging to the non-ED risk group. The opposite was found in the ED risk group. On average 11% ( $n = 22$ ) of those adolescents who self-reported ED symptoms in SCOFF were rated by the nurses as belonging to the risk group. The range was from 20% ( $n = 10$ ) of those with two or more ED symptoms to 8% ( $n = 12$ ) of those with one self-reported ED symptom.

Parker, Bonner and Lyons (2005) assessed the screening capability of the SCOFF questionnaire for eating disorders in the graduate health population using the Eating Disorder Examination-Questionnaire (EDE-Q) as the gold standard for diagnosis. Two hundred and ninety-six male and female graduate students participated. Of the completed SCOFF surveys 48 (16.2%) had a potential eating disorder (yes to two or more of the five questions). Twenty-seven participants answered yes to two questions, 16 answered yes to three questions, and five answered yes to four questions. The SCOFF found that women were significantly more likely to be at risk for an eating disorder than male students ( $p < 0.01$ ). Those students who were identified as having a potential eating disorder based on their SCOFF score had significantly higher numbers on each EDE-Q subscale ( $p < 0.007$ ) Matrix project. The researchers utilized the DSM-IV criteria with the EDE-Q data and categorized 60 participants as having one of the three diagnosable eating disorders. Thirty-two of the 60 participants with a diagnosable eating disorders screened positive on the SCOFF and 28 screened negative. The SCOFF sensitivity was 53.3% and the specificity was 93.2%. In addition, researchers found that the NPV (negative predictive value) of the SCOFF, which is the proportion of those who test negative on the screen and actually do not have an eating disorder, was 88.7%. Parker et al. determined

the SCOFF questionnaire to be moderately effective for use as a quick screening tool to detect eating disorders. The researchers also stated the SCOFF identified about half of those with eating disorders in this study who would benefit from further evaluation and appropriately screened out 90% of those who may not need further questioning.

*Summary*

This literature review highlighted the current body of knowledge on the prevalence of, associated medical complications, and screening tools of eating disorders in the adolescent population. Recent research reveals that adolescent females are more prone than males to suffer from an eating disorder. It has also been found that those suffering from an eating disorder are more likely commit suicide, have dental erosions, and substance abuse issues. The EAT-26 and SCOFF have been shown to be effective screening tools in identifying those individuals in the community that are at risk for having an eating disorder. Because of the prevalence rates of eating disorders in the adolescent population and the complications they are associated with indicate the increased necessity for recognition tools to be utilized in the high school population. The project introduced was developed for this purpose.

*Chapter 3*

*Comparative Evaluation*

According to the epidemiology research articles the majority of individuals affected with an eating disorder are female adolescents 11 to 18 years of age. Given the high incidence of eating disorders in this age range, the eating disorder assessment handbook will be presented to school nurses practicing at public high schools in Hamilton County, Tennessee. There are 16 public high school sites with approximately 12,000 male and female students in Hamilton County. According to Dotty Volz, the Assistant to the Director of School Nurses in Hamilton County, the school nurses in this county need information on eating disorders. The information needs to be easily accessible and user friendly. The Mary Cameron Robinson (MCR) Foundation voiced the need to have a booklet or some kind of informational tool on eating disorders to administer to school nurses. The development of an information handbook about eating disorders for school nurses is very feasible. The developer of the handbook needs to ensure that accurate information is included and that the handbook is comprehensible. The resources needed for the development of the handbook include time to gather information, computer to compile the information into a file, and finances to print the handbook in a spiral bound book. Financial resources will be elicited from the MCR Foundation.

*Chapter 4*

*Project Design*

The eating disorder assessment handbook was developed as a resource tool for school nurses. The handbook includes DSM-IV diagnostic criteria, frequently used terms in this area of medicine, assessment interview questions, body assessment figures, screening tools, and organizational resources. The content of the handbook was developed after reviewing material from the National Eating Disorder Association, National Association of Anorexia and Associated Eating Disorders, current research articles, as well as consulting the staff at the Mary Cameron Robinson (MCR) Foundation. The objectives of the eating disorder assessment handbook are to provide school nurses with accurate information, evidenced based screening tools, and an easy to use format. The DSM-IV criteria section of the handbook includes the three recognized eating disorders: anorexia nervosa, bulimia nervosa and eating disorders not otherwise specified. The interview questions in the handbook can be utilized by the school nurse to investigate the severity of a student's eating disorder behavior. There are three assessment figures in the handbook that represent each of the three DSM-IV recognized eating disorders. The assessment figures include the assessment findings that could be found in each of the eating disorders, which enables the school nurse to get a quick view of all the body systems affected by each eating disorder (see Appendix A for all three assessment figures).

The screening tools section gives the school nurse additional tools to aid in the recognition of an eating disorder in the adolescent. The screening tools should be used in conjunction with a head to toe assessment and the school nurse's judgment. The

screening tools included in this handbook are The Eating Attitudes Test – 26 (EAT-26) and the SCOFF questionnaire (see Appendix B and C for example of each screening tool). The EAT-26 and the SCOFF questionnaire are both validated eating disorder screening tools. The EAT-26 is a questionnaire that the students fill out by themselves, however the SCOFF can be given as a independently completed questionnaire or in a face-to-face interview format. The scores of the EAT-26 test range from 0-78, with a score above 20 revealing that the individual may have an eating disorder and should be referred to their physician or mental health professional for further evaluation. The SCOFF questionnaire includes five yes or no questions. If the student answers yes to two or more of the SCOFF questions it is possible the student may have an eating disorder that needs further investigation (Morgan, Reid, Lacey, 1999). The eating disorder assessment handbook will be provided to the school nurses in a spiral booklet format. The handbook material and screening tools are primarily designed for adolescent females and males in public schools.

Screening adolescents in high school will aid in early recognition of at risk individuals and begin treatment which will improve treatment effectiveness and alleviate acute and chronic complication of disordered eating and weight control behaviors, such as impaired growth and digestive functioning, osteoporosis, and obesity (Austin, et al, 2008). The eating disorder assessment handbook is considered secondary prevention, which helps promote early identification and treatment of an eating disorder before it spirals out of control. (NEDA, 2005).

The eating disorder assessment handbook will be presented to each school nurse who practices at a public high school in Hamilton County, TN. The project manager, on

an individual face-to-face meeting, will do the presentation with each high school nurse at the high school she practices at during the time of day he/she chooses. This will give the school nurse the opportunity to ask uninhibited questions to the project manager and to completely examine the handbook.

*Chapter 5*

*Evaluation*

There are 16 public high schools in the Hamilton County area in Tennessee. Of those 16 schools permission was given by Dotty Volz, assistant to the director of school health, to visit five of the 16 high school locations. On March 31 2010 the eating disorder assessment handbook was presented to each of the five interested high school nurses on an individual basis at their school location. Each school nurse was given a survey to complete after reviewing the handbook (see Appendix D for example of survey). A stamped envelope addressed to the project manager was given with each survey. The survey is a Likert-scale format with five questions. At the end of the survey are two questions that ask the school nurse to provide feedback on the handbook and offer suggestions on how to make improvements. Each of the school nurses that were presented the handbook stated they were excited to be receiving an additional tool to help them with eating disorders. They also were enthusiastic about the screening tools that were included in the handbook. These school nurses also stated that they felt their colleagues at the other high schools would be interested in the eating disorder assessment handbook. A total of nine surveys were distributed. Two of the high schools were staffed by two school nurses. Thus far three surveys have been returned. Each of the surveys have stated that they strongly agree that “the eating disorder handbook is user friendly”; “I will use the eating disorder handbook when I suspect an eating disorder in a student”; “I will recommend the eating disorder handbook to other school nurses”. When asked what they liked most about the handbook two of the school nurses stated that they liked the assessment tools.

The eating disorder assessment handbook was evaluated for its content, design, and if the handbook is user friendly by the MCR Foundation, Dr. Tyson an expert in eating disorders, fellow nurse practitioner students, pediatricians, and a pediatric nurse practitioner. The consensus of the reviews was that the handbook is visually appealing; the content included was accurate and easy to follow; and would be an exceptional addition to the school nurse's repertoire.

*Dissemination of Findings*

The eating disorder assessment handbook will be given to the MCR Foundation to distribute at their discretion. A copy of the handbook will also be given to each school nurse at every high school in Hamilton County. The assessment handbook, along with the response of the school nurses to the material, will be sent to the *Journal of School Health*, *International Journal of Eating Disorders*, *Journal of School Nursing*, and *Journal of Adolescent Health*.



*Chapter 6*

*Summary*

The eating disorder assessment handbook offers the school nurse an extra tool to have on hand to aid in the early recognition of eating disorders in the adolescent population. The early recognition can decrease the morbidity and mortality of eating disorders. The handbook also offers the school nurse tips on talking to parents as well as resources they can use.

Each year during the school nurse in-service week in Hamilton County the eating disorder assessment handbook will be presented along with any new information that has been gathered, as well as address any questions or issues the school nurses have about the handbook. The project manager or a member of the MCR Foundation will perform the presentation of the eating disorder handbook.

The eating disorder assessment handbook can be used by nurses in doctor's offices, both family practice or pediatrician clinics, and nurses at the health department. The screening tools in the handbook can also be used by individuals in the community to conduct research on the prevalence of eating disorders in adolescents in the Chattanooga area.

## References

- Ackard, D.M., Fulkerson, J.A., Neumark-Sztainer, D. (2007). Prevalence and utility of DSM-IV eating disorder diagnostic criteria among youth. *International Journal of Eating Disorders*. 40(5). 409-417.
- Alligood, M. R., Tomey, A. M. (2006) *Nursing Theory Utilization and Application* (3rd ed.). Missouri: Elsevier Mosby.
- American Psychiatric Association (2000). *Diagnostic and Statistical Manual of Mental Disorders* 4<sup>th</sup> Ed. Text Revision. Washington, DC, American Psychiatric Association. 583-595.
- Austin, S.B., Ziyadeh, N.J., Forman, S., Prokop, L.A., Keliher, A., Jacobs, D., (2008). Screening high school students for eating disorders: results of a national initiative. *Preventing Chronic Disease*. 5(4). Retrieved from [http://www.cdc.gov/pcd/issues/2008/oct/07\\_0164.htm](http://www.cdc.gov/pcd/issues/2008/oct/07_0164.htm) on January 8, 2009.
- Current Nursing. (2009). *Application of Betty Neuman's Systems Model*. Retrieved April 4, 2009, from [http://currentnursing.com/nursing\\_theory/application\\_Betty\\_Neuman's\\_model.htm](http://currentnursing.com/nursing_theory/application_Betty_Neuman's_model.htm)
- Gadalla, T., & Piran, N. (2007) Eating disorders and substance abuse in Canadian men and women: a national study. *Eating Disorders* 15. 189-203.
- Garner, D.M., Olmsted, M.P., Bohr, Y. and Garfinkel, P.E. (1982). The eating attitudes test: Psychometric features and clinical correlates. *Psychological Medicine*, 12, 871-878.)
- Hamilton County Department of Education (2009). *Hamilton County Department of Education General Information*. Retrieved from site [http://www.hcde.org/media/pdf/items/hcs\\_info.pdf](http://www.hcde.org/media/pdf/items/hcs_info.pdf) on April 2, 2010
- Hautala, L., Jouni, J., Alin, J., Gronroos, M., Maunula, A.M., Karukivi, M., Liuksila, P.R., Raiha, H., Valimaki, M., & Saarijarvi, S. (2009). Uncovering hidden eating disorders using the scoff questionnaire: cross-sectional survey of adolescents and comparison with nurse assessments. *International Journal of Nursing Studies*. 46. 1439-1447.
- Lifante-Oliva, C., Lopez-Jornet, P., Camacho-Alonso, F., & Esteve-Salinas, J. (2008). Study of oral changes in patients with eating disorders. *International Journal of Dental Hygiene*, 6, 119-122.
- Maor, N.R, Sayag, S., Dahan, R., Hermoni, D. (2006). Eating attitudes among adolescents. *Israel Medical Association Journal*. 8. 627-629.

- Miller, M.N., Verhegge, R., Miller, B.E., Pumariega, A.J. (1999). Assessment of risk of eating disorders among adolescents in appalachia. *Journal of American Academy of Child and Adolescent Psychiatry*, 38(4). 437-443.
- Morgan, J. F., Reid, F., Lacey, J.H., (1999). The SCOFF questionnaire: assessment of a new screening tool for eating disorders. *British Medical Journal*. 319 1467 -1468.
- National Eating Disorder Association (2005). Facts for activists or anyone. Retrieved from <http://www.nationaleatingdisorders.org> on December 27, 2009.
- National Eating Disorder Association. (2005). Eating concerns and oral health. Retrieved from <http://www.nationaleatingdisorders.org> on December 27, 2009.
- National Association of Anorexia Nervosa and Associated Eating Disorders. (2008). Facts about eating disorders. Retrieved from <http://www.anad.org/22385/index.html> on April 26, 2009.
- Neuman, B. (2002). *The Neuman Systems Model* (4th ed.). Upper Saddle River, NJ: Prentice Hall.
- Parker, S.C., Lyons, J., Bonner,J., (2005). Eating disorders in graduate students: exploring the scoff questionnaire as a simple screening tool. *Journal of American College Health*. 54(2). 103-107.
- Perry, L., Morgan, J., Reid, F., Brunton, J., O'Brien, A., Luck, A., Lacey, H. (2002). Screening for symptoms of eating disorders: reliability of the scoff screening tool with written compared to oral delivery. *International Journal of Eating Disorders*. 32(4). 466-472.
- Rome, E.S. (2003) Eating disorders. *Obstetrics and Gynecology Clinics of North America*.30. 353-377
- Shisslak, C.M., Crago, M., & Estes, L.S. (1995). The spectrum of eating disturbances. *International Journal of Eating Disorders*, 18 (3), 209-219.
- South Carolina Department of Mental Health (2006). Eating disorder statistics. Retrieved from <http://www.state.sc.us/dmh/anorexia/statistics.htm> on May 6, 2009.
- Thompson, S., Digsby, S., (2004). A preliminary survey of dieting, body dissatisfaction, and eating problems among high school cheerleaders. *Journal of School Health*. 74(3). 85-90.
- Whetstone, L.M., Morrissey, S.L., & Cummings, D.M. (2007). Children at risk: the

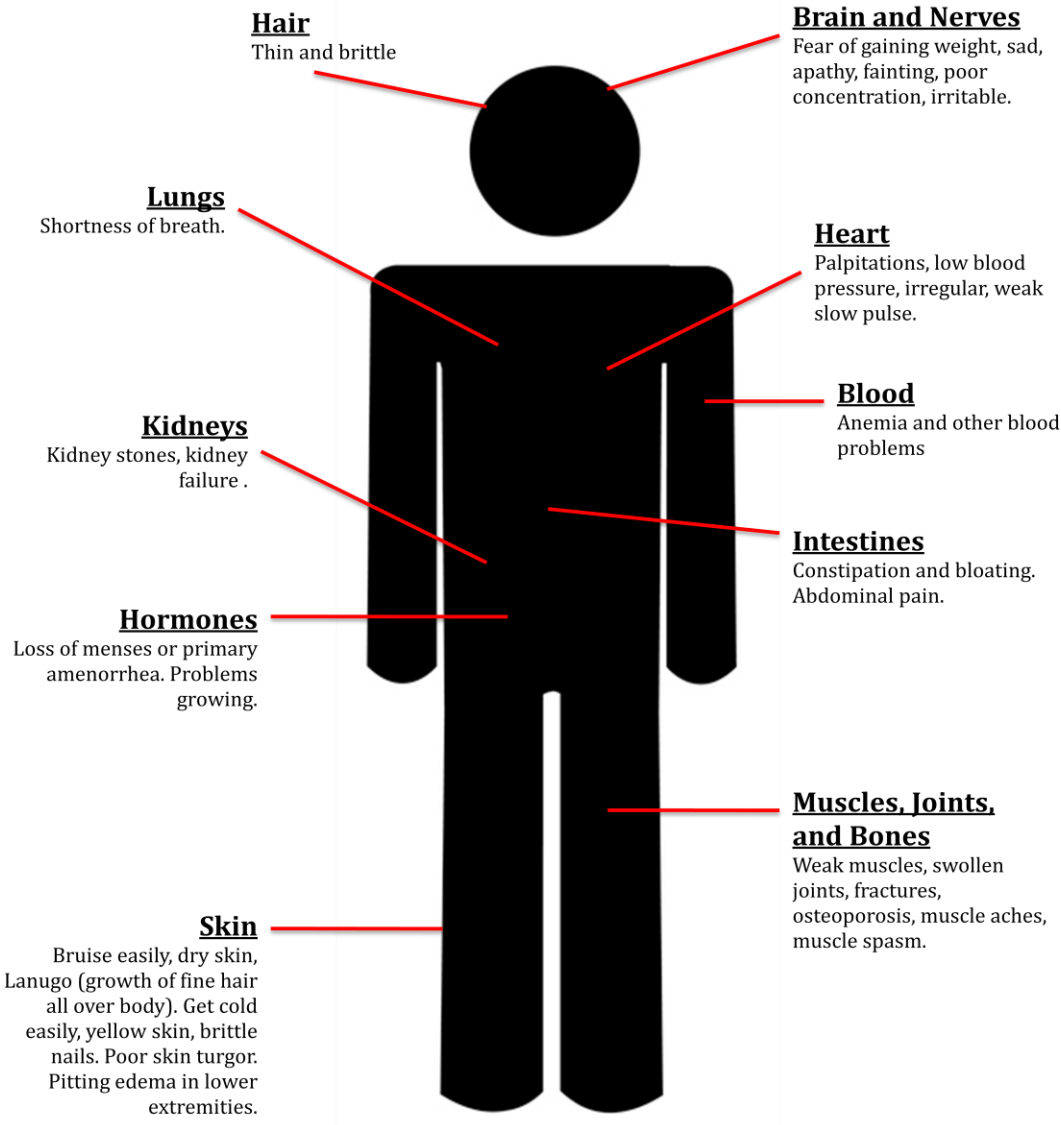
association between perceived weight status and suicidal thoughts and attempts in middle school youth. *Journal of School Health*, 77(2), 59-67

Williams, P.M., Goodie, J., Motsinger, C.D. (2008). Treating eating disorders in primary care. *American Family Physician*. 77(2). 187-195.

Appendix A

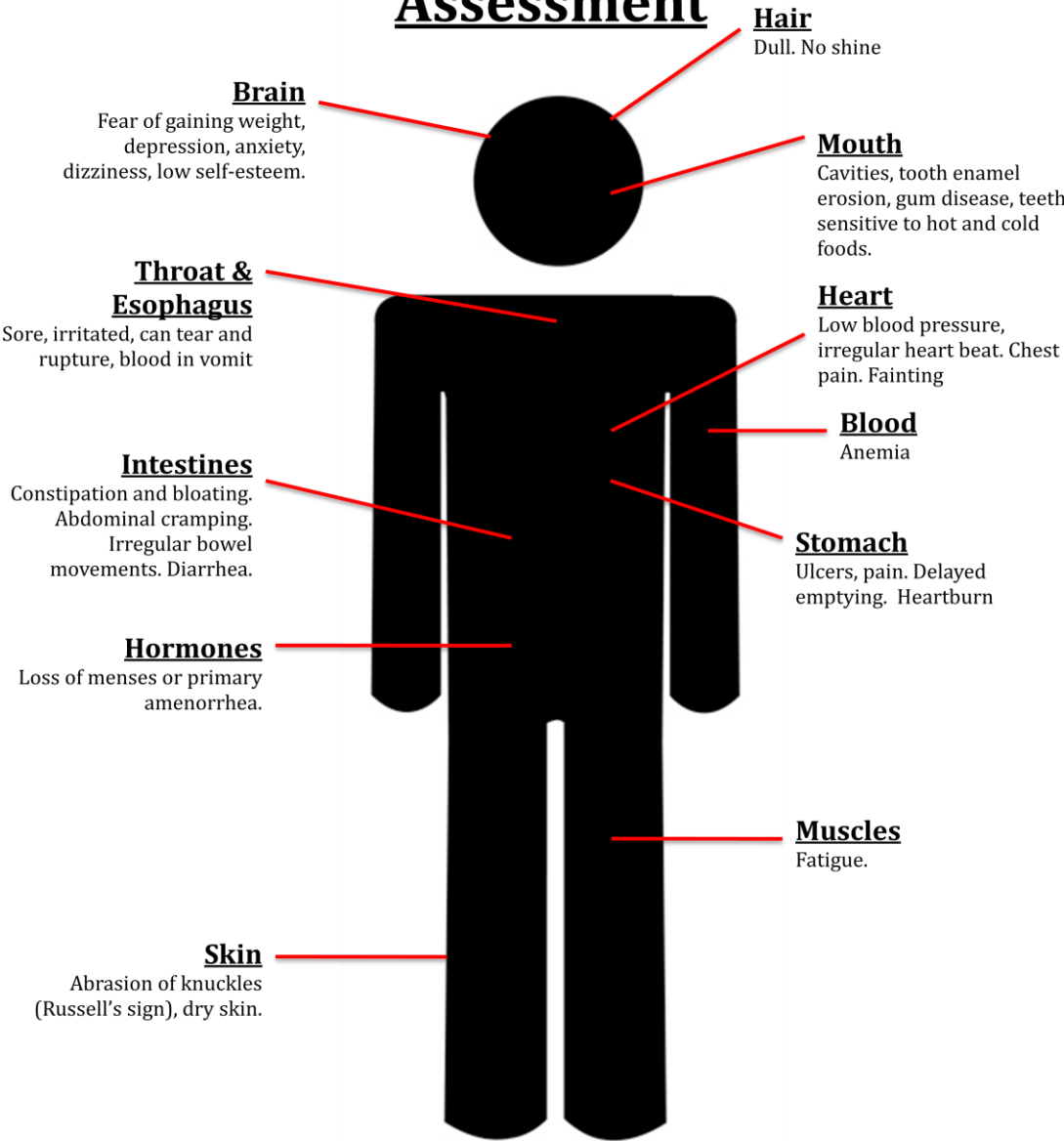
Assessment Figures

# Anorexia Nervosa Assessment



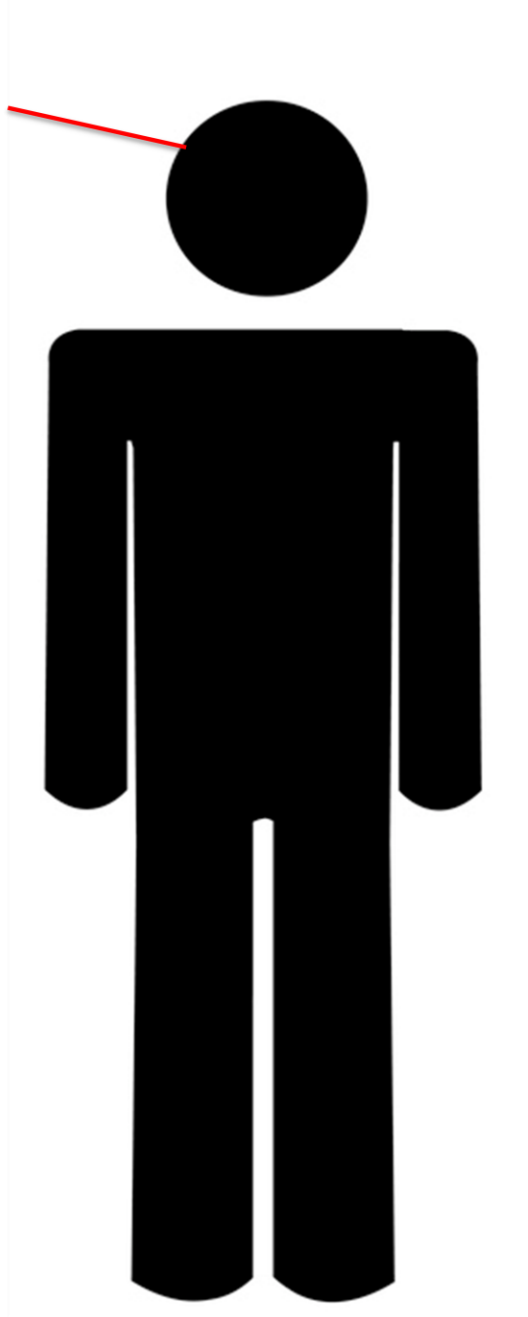
# Bulimia Nervosa

## Assessment



## Binge Eating Assessment

**Brain**  
Fear of gaining weight,  
depression, anxiety,  
dizziness, low self-esteem.



May be no obvious physical signs of symptoms. The person maybe overweight or obese, or may be of normal weight





19. Display self-control around food                                    \_\_\_\_\_
20. Feel that others pressure me to eat                                 \_\_\_\_\_

	Always	Usually	Often	Sometimes	Rarely	Never	Score
21. Give too much time and thought to food	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	_____
22. Feel uncomfortable after eating sweets	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	_____
23. Engage in dieting behavior	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	_____
24. Like my stomach to be empty	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	_____
25. Enjoy trying new rich foods	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	_____
26. Have the impulse to vomit after meals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	_____

**Total Score (see below for scoring instructions)** \_\_\_\_\_

**Please respond to each of the following questions:**

- 1) Have you gone on eating binges where you feel that you may not be able to stop?  
(Eating much more than most people would eat under the same circumstances)  
No     Yes     How many times in the last 6 months? \_\_\_\_\_
- 2) Have you ever made yourself sick (vomited) to control your weight or shape?  
No     Yes     How many times in the last 6 months? \_\_\_\_\_
- 3) Have you ever used laxatives, diet pills or diuretics (water pills) to control your weight or shape?  
No     Yes     How many times in the last 6 months? \_\_\_\_\_
- 4) Have you ever been treated for an eating disorder?  
No     Yes     When? \_\_\_\_\_
- 5) Have you recently thought of or attempted suicide?  
No     Yes     When? \_\_\_\_\_

## SCORING THE EATING ATTITUDES TEST

For all items **except #25**, each of the responses receives the following value:

Always = 3  
Usually = 2  
Often = 1  
Sometimes = 0  
Rarely = 0  
Never = 0

For **item #25**, the responses receive these values:

Always = 0  
Usually = 0  
Often = 0  
Sometimes = 1  
Rarely = 2  
Never = 3

® After scoring each item, add the scores for a total. If your score is over **20**, we recommend that you discuss your responses with a counselor (take your responses to the EAT with you to your first appointment).

® If you responded yes to any of the five YES/NO items on the bottom of the EAT, we also suggest that you discuss your responses with a counselor.

**EAT-26 David M. Garner & Paul E. Garfinkel (1979), David M. Garner et al., (1982)**

Appendix C  
**SCOFF**  
Questionnaire

1. Do you make yourself **S**ick because you feel uncomfortably full?

Yes or No

2. Do you worry you have lost **C**ontrol over how much you eat?

Yes or No

3. Have you recently lost **O**ne stone in 3 month period?

Yes or No

4. Do you believe yourself to be **F**at when others say you are too thin?

Yes or No

5. Would you say **F**ood dominates your life?

Yes or No

(One stone = 14 lbs.)

# Interpretation of SCOFF Questionnaire

- If the student answers 'No' to every question, the test indicates the individual does not have an eating disorder.
- If the student answers 'Yes' to 1 question, with the rest answered as 'No', the test indicates the individual does not have an eating disorder. However, it does suggest that the student may have some issues with food or body image.
- If the student answered Yes to at least 2 questions, the test indicates the student may have **Anorexia Nervosa** or **Bulimia Nervosa**. This is not a diagnosis, but it is possible the student may have an eating disorder that needs further investigation by a qualified health professional.

Adapted from:

**Morgan, J. F., F. Reid and J. H. Lacey.** The SCOFF questionnaire: assessment of a new screening tool for eating disorders. *BMJ*.

Appendix D

School Nurse Survey

# Eating Disorder Assessment Handbook Survey

Name: \_\_\_\_\_

Name of High School \_\_\_\_\_

# of years practicing as school nurse \_\_\_\_\_

	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
1. I feel comfortable assessing a child with a suspected eating disorder					
2. The eating disorder handbook is user friendly					
3. I will use the eating disorder handbook when I suspect an eating disorder in a student.					
4. I will recommend the eating disorder handbook to other school nurses					
5. I have experience in assessing and treating an individual with an eating disorder.					

**Ways to improve the Eating Disorder Handbook:**

**What I like most about the Handbook:**

## Appendix E

## Matrix of Research Articles

Authors	Questions/Purpose	Sample	Findings
Parker, S.C., Lyons, J., Bonner, J. (2005). Eating Disorders in Graduate Students: Exploring the SCOFF questionnaire as a simple screening tool. <i>Journal of American College Health</i> . 54(2). 103-107.	To assess the screening capabilities of the SCOFF questionnaire for eating disorders in the graduate student health population using the EDE-Q as the gold standard for diagnosis and to examine eating behavior in the graduate population, focusing on gender, body image disturbance, and dieting behavior as risk factors.	Graduate students aged 20-51 who came to the university student health center on the Chicago campus.	<ul style="list-style-type: none"> <li>• The SCOFF found that women were significantly more likely to be at risk for an eating disorder than male students (<math>p &lt; 0.01</math>).</li> <li>• Those who were identified with the SCOFF as having a potential eating disorder had significantly higher numbers on each EDE-Q (<math>p &lt; 0.007</math>).</li> <li>• SCOFF sensitivity 53.3% and specificity was 93.2%</li> <li>• NPV of SCOFF 88.7%</li> </ul>
Hautala, L., Jouni, J., Alin, J., Gronroos, M., Maunula, A.M., Karukivi, M., Liuksila, P.R., Raiha, H., Valimaki, M., Saarijarvi, S. (2009). Uncovering hidden eating disorders using the scoff questionnaire: cross-sectional survey of adolescents and comparison with nurse assessments. <i>International Journal of Nursing Studies</i> . 46. 1439-1447.	Purpose of this study was to evaluate the feasibility of the Finnish version of the SCOFF questionnaire in screening for eating disorder symptoms in adolescents in school health care setting.	Students attending 8 <sup>th</sup> grade (n=1453) and students attending 9 <sup>th</sup> grade (n=1374) during the school year 2003-2004 at Finnish speaking secondary school in southwestern Finland	<ul style="list-style-type: none"> <li>• Nurses assessments 91% of students showed no risk for an ED, 5 % were in a risk group, and the remaining (n=46) the nurses were uncertain in their risk.</li> <li>• Good agreement found between the SCOFF scores and the school nurses' assessments in asymptomatic students.</li> <li>• Ninety-three percent of those who reported no symptoms on SCOFF were assessed by the nurses as belonging to the non-ED risk group</li> <li>• opposite was found in the ED risk group. On average 11% (n = 22) of those adolescents who self-reported ED symptoms in SCOFF were rated by the nurses as</li> </ul>

			belonging to the risk group. The range was from 20% (n = 10) of those with two or more ED symptoms to 8% (n = 12) of those with one self-reported ED symptom.
Perry, L., Morgan, J., Reid, F., Brunton, J., O'Brien, A., Luck, A., Lacey, H. (2002). Screening for symptoms of eating disorders: reliability of the scoff screening tool with written compared to oral delivery. <i>International Journal of Eating Disorders</i> . 32(4). 466-472.	To increase the wider usage of the SCOFF questionnaire. To administer the screening tool in an oral interview and via anonymous written questionnaire and to compare responses to delivery in these two different forms.	327 nursing and midwifery students at a South London University. Average age is 26	<ul style="list-style-type: none"> <li>There was agreement of the scores of 157 participants and disagreement in the remaining 21, yielding a kappa score of 0.811 (<math>p &lt; 0.001</math>), which is in the range of "very good agreement". A kappa score also was found between oral and written administration (0.824 (<math>p &lt; 0.001</math>) "very good agreement") in predicting an eating disorder. Overall, Perry et al. found better reliability of the SCOFF administered as a written questionnaire compared to oral interview, and identified more students with possible eating disorders via the written method versus the oral.</li> </ul>
Austin, S.B., Ziyadeh, N.J., Forman, S., Prokop, L.A., Keliher, A., Jacobs, D., (2008). <a href="http://www.cdc.gov/pcd/issues/2008/oct/07_0164.htm">http://www.cdc.gov/pcd/issues/2008/oct/07_0164.htm</a> on January 8, 2009.	To evaluate the screening program's ability to reach symptomatic youth who had not yet accessed treatment and to examine sex and racial/ethnic differences in symptoms and treatment history	152 public, private and parochial high schools from 34 states. Male and female students	<ul style="list-style-type: none"> <li>high school girls were three to five times more likely than boys to score at or above 20 on the EAT-26 (13.5% of girls; OR(95%CI) 3.3 (1.1-10.1)) which means they are at high risk for an eating disorder, to report vomiting to control their weight in the past three months (16.5% of girls;</li> </ul>

			<p>OR (95% CI) 1.9 (0.8-4.4), and to have ever been treated for an eating disorder. The researchers also found with statistical significance that girls were more likely to use exercise to control their weight more than one time a day in the past three months (15.2% of girls; OR (95% CI) 7.9 (1.4-44.1).</p> <p>No significant difference was found in eating disorder symptoms across racial and ethnic groups. In addition one in four girls and one in ten boys reported at least one disordered eating or weight control symptom serious enough to warrant further evaluation by a health professional.</p>
<p>Lifante-Olivia, C., Lopez-Jornet, P., Camacho-Alonso, F., Esteve-Salinas, J., (2008). Study of roal changes in patients with eating disorders. <i>International Journal of Dental Hygiene</i>. 6. 119-122.</p>	<p>Study oral alterations in a groups of women with eating disorders</p>	<p>18 hospitalized patients in eating disorder unit of the hospital de Albacete (Spain). Ages range 13-32 years All were female</p>	<ul style="list-style-type: none"> <li>• significant dental erosions with the majority being in the bulimic group. It was also found that the bulimic group had enlargement of the bilateral parotid and submaxillary glands.</li> </ul>
<p>Whetstone, L.M., Morrissey, S.L., Cummings, D.M. (2007). Children at risk: the association</p>	<p>Explore the relationship between perceived weight status and self-reported suicidal thoughts and actions by gender among middle school students. Explore the relationship</p>	<p>27 public middle schools in 4 eastern North Carolina counties. 10-16 years of age</p>	<ul style="list-style-type: none"> <li>• larger percentage of students who perceived themselves as overweight had thought (<math>x^2 = 44.60</math>, <math>df = 2</math>, <math>p &lt; .001</math>), planned (<math>x^2 = 29.28</math>, <math>df = 2</math>, <math>p &lt; .001</math>), or tried (<math>x^2 = 20.75</math>, <math>df = 2</math>, <math>p &lt; .001</math>) suicide</li> </ul>



	between the interaction of race and perceived weight status and suicidal thought and behaviors	Male and Females	than those who perceived themselves as normal weight or underweight.
<p>Ackard, D.M., Fulkerson, J.A., Neumark-Sztainer, D. (2007). Prevalence and utility of DSM-IV eating disorder diagnostic criteria among youth. <i>International Journal of Eating</i></p>	<ul style="list-style-type: none"> <li>• A population-based, non-treatment seeking sample of youth was used to estimate the prevalence of individual criteria, identify subthreshold and full threshold EDs, and explore the utility of individual criteria in epidemiological studies, noting the negative and positive predictive values, specificity and sensitivity of individual criteria.</li> <li>• Expected to find low rates of full threshold EDs, but high prevalence of subthreshold EDs and ED symptoms among this population-based sample of youth. Anticipated that the current DSM-IV diagnostic criteria may be challenging for use in epidemiological populations of youth due to limitations in operationalizing key criteria that are subjected to interpretation or are best evaluated in interview settings.</li> </ul>	<p>4,746 youth – 50% boys and 50% girls. 31 public middle and high schools in suburban and urban school districts in St.Paul/Minneapolis, Minnesota. Average age 14.9years.</p>	<ul style="list-style-type: none"> <li>• Body image disturbance was present among 41.5% of girls and 24.9% of boys across all weight status, including 18% of girls and 4.2% of boys who were underweight. These individuals reported that they believed they were somewhat or very overweight despite their low BMI. Eleven percent of girls and 3.3% of boys reported feeling out of control with their binge eating.</li> <li>• More students suffered from a single criterion than a full eating disorder</li> <li>• 0.04% of girls to have anorexia nervosa and .3% of girls and 0.2% of boys to have bulimia nervosa. A high percentage of youth, 16% of girls and 15.4% of boys, reported binge eating, self-induced vomiting, laxative use and/or excessive exercise</li> </ul>
<p>Thompson, S.,</p>	<ul style="list-style-type: none"> <li>• Examine dieting,</li> </ul>	<p>Female</p>	<ul style="list-style-type: none"> <li>• 46% of the participants</li> </ul>

<p>Digsby, S., (2004). A preliminary survey of dieting, body dissatisfaction, and eating problems among high school cheerleaders. <i>Journal of School Health.</i> 74(3). 85-90.</p>	<p>body dissatisfaction, and subclinical and clinical eating disorders among high school-aged, female cheerleaders.</p> <ul style="list-style-type: none"> <li>Addressed 3 questions: 1.) for girls participating in cheerleading, what are the rates of dieting, body dissatisfaction, and eating disorders? 2.) do differences exist by race (black or white) in dieting or body dissatisfaction? 3) how do race (black or white), EAT scores, and BMI affect scores for subclinical eating disorders?</li> </ul>	<p>cheerleaders from public secondary schools in 3 South Carolina coastal counties. Total of 156 cheerleaders ages ranged 12 to 18 years.</p>	<p>were currently trying to lose weight and 13.5% had an EAT-20 score of 20 or higher indicating a possible eating disorder. Black females showed less weight reduction efforts (M = 11.47, p = 0.0108) when compared to white females (M = 12.64).</p>
<p>Garner, D.M., Olmstead, M.P., Bohr, Y., Garfinkel, P.E., (1982). The eating attitudes test: psychometric features and clinical correlates. <i>Psychological Medicine.</i> 12. 871-879.</p>	<ul style="list-style-type: none"> <li>Describe a factor analysis of the EAT on large sample of anorexic patients and determine whether item clusters are associated with clinical and personality features.</li> </ul>	<p>160 female patients in anorexia sample from seen at Clarke institute of Psychiatry. Mean age 21.5. patients were in various stages of illness. Mean duration of illness 4.3 yrs. Comparison group 140 females university students from first and second year</p>	<ul style="list-style-type: none"> <li>Factor analysis shows that the EAT-26 is highly predictive of the total EAT-40 (r =0.98) and the EAT-26 maintains robust correlation with clinical and psychometric variables of the EAT-40, indicating that the 14 items eliminated from the EAT-40 are redundant and do not increase the instrument’s predictive capability</li> </ul>

		psychology courses. Mean age 20.3	
Miller, M.N., Verhegge, R., Miller, B.E., Pumariega, A.J. (1999). Assessment of risk of eating disorders among adolescents in appalachia. <i>Journal of American Academy of Child and Adolescent Psychiatry</i> , 38(4). 437-443.	<ul style="list-style-type: none"> <li>Goal was to screen for adolescents in a rural population who are at high risk of developing an eating disorder, since development of eating disorders is preceded by disordered attitudes and changes in behavior. Aims to increase understanding of the geographical distribution of disorders eating attitudes through an evaluation of a culturally distinct region that has been understudies and underserved.</li> </ul>	Male and female students from 3 regional public school systems in grades 6 through 10. Total of 1302 students ages ranging 11 to 18 years of age.	<ul style="list-style-type: none"> <li>ANOVA analysis of BMI and EAT-40 scores found that the higher the student's BMI the greater the EAT-40 score (<math>p=0.0003</math>) (<math>df=4</math>, <math>F=5.365</math>)</li> <li>the more rural group showed a significantly higher EAT-40 scores than did the least-rural group (<math>p &lt; 0.001</math>). Positive EAT-40 scores increased from 12.5% at age 11 to 24% at age 16 in females. Males students had no positive results at ages 11 to 13, and a peak incidence of 8% at age 16. Regression analysis of male and female positive EAT-40 scores and the student's age revealed significant linear relationship with <math>p=.06</math> for males and <math>p=.006</math> for females.</li> </ul>
Maor, N.R, Sayag, S., Dahan, R., Hermoni, D. (2006). Eating attitudes among adolescents. <i>Israel Medical Association Journal</i> . 8. 627-629.	<ul style="list-style-type: none"> <li>Assess the prevalence of disordered eating attitudes in a large school-based population.</li> </ul>	238 high school students in 7 <sup>th</sup> to 12 <sup>th</sup> grade in Misgav region in northern Israel.	<ul style="list-style-type: none"> <li>20.8% of girls and 5% of boys had a high risk EAT-26 (<math>\chi^2 = 14.43</math>, <math>P &lt; 0.001</math>).</li> <li>distribution of high EAT-26 by grouped grade and gender discovered no statistical significance (total <math>\chi^2 = 0.67</math>, <math>P = NS</math>; boys <math>\chi^2 = 3.83</math>, <math>P = NS</math>; girls <math>\chi^2 = 0.40</math>, <math>P = NS</math>).</li> </ul>
Gadalla, T., & Piran, N. (2007) Eating disorders and substance abuse in	<ul style="list-style-type: none"> <li>To examine the association between disordered eating attitudes and</li> </ul>	Multistage stratified cluster sample 36,984	<ul style="list-style-type: none"> <li>18.5% of women and 7.7% of men reported having a strong fear of being overweight in the</li> </ul>

<p>Canadian men and women: a national study. <i>Eating Disorders</i> 15. 189-203.</p>	<p>behaviors and substance use in nationally representative sample of women and men in Canada.</p> <ul style="list-style-type: none"> <li>• To utilize a national sample of Canadian women and men to examine the association between disordered eating attitudes and behaviors and the use of a range of substance classes, licit and illicit.</li> <li>• Present investigation aimed to utilize the national sample of adult Canadians to examine gender differences in the co-occurrence between disordered eating attitudes and behaviors and the use of a range of substance classes.</li> </ul>	<p>respondents age 15 or older 20,211 women 16,773 men</p>	<p>past year. Of these individuals 89 men (0.5%) and 573 women (2.8%) were classified by the EAT-26 score as being at risk of having an eating disorder (<math>p &lt; 0.005</math>).</p> <ul style="list-style-type: none"> <li>• co-occurrence of eating disorders and alcohol interference in men, the researchers found the observed probability to be 0.048%, which is four times the random/chance probability, indicating an association between the two conditions. The observed probability of co-occurrence in women of these two condition was 0.085%, which was 4.4 times the probability of them occurring by chance alone.</li> <li>• The researchers also found that the measures of drug and alcohol use were consistently higher for women with an EAT-26 score above 20. The risk of eating disorders in women was strongly associated with alcohol dependence, alcohol interference, cannabis drug use, illicit drug use, dependence and interference and lifetime use of cocaine/crack, amphetamine (speed), MDMA (ecstasy) and hallucinogens PCP or LSD. The risk of eating disorders in men was strongly associated with</li> </ul>
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			<p>alcohol interference and lifetime use of amphetamine (speed) with marginal association with alcohol dependence and lifetime use of MDMA (ecstasy). In men the observed probability of the co-occurrence of eating disorders and amphetamine use was 0.084%, which is 2.7 times the probability of their co-occurrence by chance alone, indicating an association between the two conditions. Women showed a 0.214% observed probability of co-occurrence of these two conditions, which was double the probability of them occurring by chance alone.</p> <ul style="list-style-type: none"><li>• A strong association was found in women between the risk of eating disorders and number of illicit drug classes both life time and in the past year (<math>p &lt; 0.0005</math>).</li></ul>
--	--	--	--