Screening for eating disorders in primary care

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Dedication

I would like to thank my family, friends, and fellow classmates for their continued support and encouragement which has helped me succeed throughout the physician assistant program.
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**Introduction:**

Eating disorders are psychiatric illnesses that have significant psychological, social, medical, and economic consequences. Eating disorders are broken down into three different categories; anorexia nervosa, bulimia nervosa, and eating disorder not otherwise specified. Up to ten million people in the United States suffer from eating disorders and the associated cost is billions of dollars every year (Practice guideline 2000). Females are affected more than males with up to ninety-five percent of anorexia nervosa patients, eighty percent of bulimia nervosa patients, and sixty percent of binge eating disorder patients being female (Powers & Santana, 2002). Most eating disorders begin in adolescence or young adulthood (Zerbe, 2007). These disorders affect individuals regardless of one’s socioeconomic status or ethnicity (Powers & Santana, 2002).

Primary care physicians and gynecologists are often the first healthcare providers to detect an eating disorder. Early detection and intervention are key to treating the disease and reducing the associated morbidity and mortality (Rome, 2003). Medical complications associated with eating disorders can affect every body system (osteoporosis, infertility, heart disease). Nearly twenty percent of anorexia nervosa patients will die within twenty years if they go untreated giving anorexia nervosa the highest premature mortality rate of any psychiatric illness (Powers & Santana, 2002). With bulimia nervosa, the mortality rate is five percent at ten years if left untreated (Powers & Santana, 2002).

Patients, family members, and healthcare providers are often unaware that an eating disorder exists and the patients themselves can be in denial (Johnson, 2003). In today’s society thinness as the ideal is constantly portrayed by the media and this can even skew a health care
provider’s view of what represents a healthy body. Patients will present to the primary care setting with vague, non-specific symptoms that may be the direct result of an eating disorder, but they are not likely to acknowledge, or be aware that they have such a disorder. Screening populations who are at high risk is an important first step in identifying those with eating disorders.

The Diagnostic and Statistical Manual of Mental Disorders, DSM-IV-TR, is the primary system used to classify and diagnose mental disorders and includes information and diagnostic criteria for anorexia nervosa, bulimia nervosa, and eating disorder not otherwise specified (American Psychiatric Association, 2000).

According to the DSM-IV-TR, anorexia nervosa has a lifetime prevalence of 0.5 percent for females and a male prevalence that is one-tenth that of females (American Psychiatric Association, 2000). For a diagnosis of anorexia nervosa, the following four criteria need to be met. First, an individual must weigh less than eight-five percent of their ideal body weight. The next two criteria are an intense fear of gaining weight and a severe disturbance in body image. And finally, amenorrhea of at least three consecutive menstrual cycles must occur. Two sub-types of anorexia nervosa include: restricting and binge-eating/purging type. In the restricting type, weight loss is achieved through fasting, dieting, or excessive exercise and does not include binge eating or purging. The binge-eating/purging type involves the individual binging, which is eating a large quantity of food while feeling out of control, followed by purging behavior: vomiting, inappropriate laxative use, diuretic use, or enema use (American Psychiatric Association, 2000).
In bulimia nervosa the lifetime prevalence among females is one to three percent while the prevalence in males is one-tenth that of females (American Psychiatric Association, 2000). The criteria for a diagnosis of bulimia nervosa include repeated episodes of binge eating with the individual engaging in a purging behavior after - in order to prevent weight gain. Binge eating is defined as eating an amount of food that is considerably larger than what most people would eat in a similar time period, accompanied by a feeling of no control over their eating. The behaviors used after a binge to offset the weight gain can be divided into purging and non-purging types. The purging behaviors can include self-induced vomiting and diuretic or laxative abuse, while the non-purging behaviors consist of excessive exercise, fasting, or strict diets. These episodes of binge eating and the behaviors that follow must occur at least two times a week for at least three months. Additional criteria include the individual giving undue importance to their shape and weight in determining how they feel about themselves and that these symptoms do not occur exclusively during times of anorexia nervosa (American Psychiatric Association, 2000).

Eating disorder not otherwise specified is the diagnosis given for individuals who do not meet the strict criteria for the previous two eating disorders yet have disordered eating (American Psychiatric Association, 2000). Up to fifty percent of patients with eating disorders are given this diagnosis (Practice guideline 2000). An example of eating disorder not otherwise specified includes meeting all the anorexia nervosa criteria and having a weight that is in a normal range even though a large amount of weight was lost. Another instance includes frequently chewing and spitting out large amounts of food without swallowing (American Psychiatric Association, 2000).

For all mental illnesses, early intervention is important in reducing the associated morbidity and mortality associated with the disease. Early intervention depends on early
identification. There are many screening tools available for the detection of eating disorders but it is not clear which of these might best identify eating disorders in the medical setting. Both written and oral screening instruments for eating disorders will be described and their effectiveness in identifying eating disorders will be reported on. The six screening instruments that will be discussed are included in Epocrates, a popular medical software program used by healthcare professionals. Finally, a recommendation will be made for healthcare providers about screening for eating disorders in an effective yet time efficient way.
Screening

Primary care clinicians are in the best position to detect patients with eating disorders (Luck et al., 2002). Early diagnosis of an eating disorder is associated with improved prognosis. Johnston and colleagues (2007) examined the feasibility and acceptability of using an eating disorder screen in primary care.

The SCOFF (Sick, Control, One, Fat, Food) questionnaire, a short and simple screening tool for eating disorders, was completed by 111 women in the waiting room of a primary care setting prior to their appointment. The women then brought the questionnaire into the appointment with them. Eighteen of the women had a positive SCOFF. A health care provider offered treatment or a referral for only two of the women who had a positive result. The health care provider recorded the positive result in only four medical records (Johnston, Fornai, Cabrini, & Kendrick, 2007). This study suggests that patients with a possible eating disorder are rarely followed up on, offered treatment, or even have screening results documented in their chart.

The health care providers in this study found screening in the primary care setting to be acceptable and acknowledged that eating disorder screening was not typically a part of their practice. The concern expressed among the health care providers was what to do with a positive screening result. The providers mentioned referring the patients to many different services but saw those referrals as either inappropriate or the service being unavailable. (Johnston et al., 2007).
Screening Tools

**SCOFF**

The SCOFF questionnaire is a five question screening instrument for eating disorders. It is simple, quick, and easy to score. Every yes answer to a question is equivalent to one point. A score of two or more points indicates the patient may be suffering from an eating disorder. The SCOFF questionnaire is not meant to diagnose an eating disorder but to suggest an eating disorder may be present (Morgan, Reid, & Lacey, 1999). The questions included in the SCOFF are:

1. Do you make yourself **S**ick because you feel uncomfortably full?
2. Do you worry that you have lost **C**ontrol over how much you eat?
3. Have you recently lost more than **O**ne stone (14 lbs) in a 3 month period?
4. Do you believe yourself to be **F**at when others say you are too thin?
5. Would you say that **F**ood dominates your life?

A United States version of the SCOFF has been developed changing the original SCOFF pneunomic (Parker, Lyons, & Bonner, 2005). The questions for the United States version are:

1. Do you make yourself **S**ick because you feel uncomfortably full?
2. Do you worry that you have lost **C**ontrol over how much you eat?
3. Do you believe yourself to be fat when **O**thers say you are too thin?
4. Have you recently lost more than **F**ourteen pounds in a 3 month period?
Would you say that Food dominates your life?

The SCOFF questionnaire was used in a study of 212 women between the ages of eighteen and forty years old to assess its usefulness as a screening tool for eating disorders. In the study, the SCOFF questions were asked orally. Eating disorders were confirmed in 116 of these women prior to using the SCOFF and the other 96 women were confirmed to not have an eating disorder. Of the 116 women with eating disorders the SCOFF had 100% sensitivity (Morgan et al., 1999). Sensitivity is a statistical measure that indicates the proportion of people who have a specific disorder and test positive for that disorder. This study found that one hundred percent of the women with eating disorders will have a positive SCOFF. For the 96 women without eating disorders the specificity of the SCOFF was 87.5% (Morgan et al., 1999). Specificity is a statistical measure that indicates the proportion of people without a specific disorder and test negative for that disorder. A screening instrument with high sensitivity, is most likely to detect an individual who actually has the disorder. A screening instrument with high specificity is most likely to eliminate individuals who do not have the disorder. The one hundred percent sensitivity from this study indicates that the SCOFF is an excellent screening tool for eating disorders because a positive screen suggests no eating disorder will go undetected (although there will likely be false positives – indicating the presence of disorder when there is none). There will always be a trade off between detecting true positives versus false positives and an ideal screening instrument would have a balance between the two - sensitivity and specificity.

The SCOFF has been studied comparing the reliability of the tool depending on whether it was given orally or in a written format. Reliability refers to the screening instrument being able to give consistent results, that is, each time a test is administered to a person, the results
should be about the same. A study was conducted at South London University with a total sample of 185 nursing and midwifery students. Written administration of the SCOFF produced similar results to oral administration indicating that the SCOFF is a reliable screening tool in both administration methods. One small difference was noted between the two forms. The amount of subjects identified with a possible eating disorder was slightly higher when the SCOFF was administered in written format. This suggests that individuals may be more likely to disclose sensitive information in writing then in a face-to-face encounter (Perry et al., 2002). In the following section I will compare the SCOFF to several additional eating disorder screening instruments.

**SCOFF versus Eating Disorder Examination-Questionnaire**

A study conducted at a student health center used the SCOFF in combination with the Eating Disorder Examination – Questionnaire, EDE-Q, in graduate students. The EDE-Q is a thirty-six item questionnaire designed to detect eating disorders (this scale will not be reported on in detail as it is not contained in Epocrates). The questions are scored on a scale of zero to six with higher scores suggesting more symptoms. The sample size was 297 and included 215 women and 82 men. Over half of the participants were between the ages of twenty-three and twenty-six years old. In the 297 participants, forty-eight had a positive SCOFF screen suggesting the presence of an eating disorder. The individuals with a positive SCOFF had significantly higher scores on the EDE-Q subscales. The SCOFF results were then compared with the EDE-Q results and the DSM-IV diagnostic criteria that were used to diagnose the presence of an eating disorder. In this study the SCOFF was found to have a sensitivity of 53.3% and a specificity of 93.2%. This study shows the SCOFF to be fair at identifying the presence of an eating disorder (Parker et al., 2005).
A second study compared these instruments in two primary care clinics. A sample of 257 women between the ages of eighteen and forty completed both the EDE-Q and the SCOFF. In the second part of the study phone interviews were obtained from 147 of the women asking them diagnostic items from the Eating Disorder Examination, the oral form of the EDE-Q. Seventeen percent of the interviewed participants met the criteria for an eating disorder. In this study, the EDE-Q was found to have both a sensitivity and specificity of eighty percent while the SCOFF had a sensitivity of seventy-two percent and a specificity of seventy-three percent. The researchers point out the SCOFF may be preferred for standard screening in a primary care setting due to its conciseness. However, if an eating disorder is suspected the EDE-Q can be used as an alternative option because it has more questions and therefore more information can be obtained (Mond et al., 2008).

**SCOFF versus Clinical Interview**

The SCOFF takes about thirty seconds to two minutes to administer while a clinical interview based on the DSM-IV eating disorder diagnostic criteria takes ten to fifteen minutes (Luck et al., 2002). A study was conducted comparing the two in a primary care setting. The sample consisted of 341 women with one diagnosed with anorexia nervosa, three with bulimia nervosa, and nine with eating disorder not otherwise specified. These diagnoses were made from the clinical diagnostic interview using the DSM-IV. The SCOFF was able to detect all the anorexia nervosa and bulimia nervosa cases. Seven of the nine eating disorders not otherwise specified were detected with the SCOFF. In this study, the SCOFF had a sensitivity of 84.6% and a specificity of 89.6%. These results indicate it may be more complicated to detect patients that fall into the category of eating disorder not otherwise specified with the SCOFF (Luck et al., 2002).
Eating Disorder Screen for Primary Care

The Eating Disorder Screen for Primary Care (ESP) is a short five question screening instrument used to detect eating disorders. Having two or more abnormal responses to the questions indicates a positive screen result. Answering no to question one or yes to the other four questions indicates an abnormal response. The five questions are:

1. Are you satisfied with your eating patterns?
2. Do you ever eat in secret?
3. Does your weight affect the way you feel about yourself?
4. Have any members of your family suffered with an eating disorder?
5. Do you currently suffer with or have you ever suffered in the past with an eating disorder?

A European study using the ESP in college students and in a primary care setting found that the question regarding the family history of an eating disorder made no difference in the ESP’s screening potential for eating disorders. The data was reanalyzed eliminating the family history question. With the four question ESP, having two or more abnormal responses gave the ESP a sensitivity of 100% with a specificity of 71% in detecting an eating disorder (Cotton et al., 2003).

This study also used the SCOFF and compared the two screening instruments. Here, the SCOFF was found to have a sensitivity of 78% and a specificity of 88% in identifying any type of eating disorder. The ESP was more sensitive but less specific than the SCOFF at detecting
eating disorders. Both the SCOFF and the ESP were both helpful in ruling in an eating disorder diagnosis, yet the ESP was better at ruling out an eating disorder diagnosis (Cotton et al., 2003).

**Eating Attitudes Test – 26**

In addition to the SCOFF, the Eating Attitudes Test – 26 (EAT-26) is a twenty-six question self report screening instrument for eating disorders and is also used in the medical setting. The EAT-26 was originally designed to identify only anorexia nervosa but is currently used to identify the presence of any eating disorder. It recognizes individuals who are preoccupied with food or their weight, have unhealthy eating patterns, or have a poor body image. Each question has six choices with a corresponding point value; always (3), usually (2), often (1), sometimes (0), rarely (0), and never (0). Upon completion the score is calculated and a total of twenty or more is considered high and identifies a possible eating disorder.

Researchers administered the EAT-26 along with four supplemental behavioral screening questions to a military family population of 340 adolescent females and their parents visiting a military medical center. Every parent and adolescent completed the questionnaire individually. Both the parents and the adolescents filled the questionnaire out about themselves. Answering yes to any of the supplemental questions suggested the presence of an eating disorder (Waasdorp, Caboot, Robinson, Abraham, & Adelman, 2007). The supplemental questions included were:

1. In the past 6 months, have you gone on eating binges where you feel that you may not be able to stop (eating much more food than most people would eat under the same circumstances)?
2. In the past 6 months, have you made yourself sick (vomited) to control your weight or shape?

3. In the past 6 months, have you used laxatives, diet pills, or diuretics (water pills) to control your weight or shape?

4. Have you ever been treated for an eating disorder?

With a total of 680 participants in the study, twenty-one percent of the adolescents and twenty-six percent of the parents had an EAT-26 score of twenty or more or answered yes to a supplemental question indicating a positive screening result. For the adolescents with a positive screen, thirty-one percent also had a parent with a positive screen. A significant correlation was found between parents and adolescents who both had a positive EAT-26 result. Of the adolescents with a positive EAT-26, forty-one percent also had a parent with a positive EAT-26. Of the parents with a positive EAT-26, thirty-seven percent had a child with a positive result (Waasdorp et al., 2007).

There is a high prevalence of eating disorders among members of the military. Individuals in the military have pressures adhering to the military lifestyle. This study found that fifteen percent of active duty military parents feared discharge due to being overweight. Twenty-seven percent expressed the physical fitness standards were difficult to maintain. These pressures have an impact on the children of the military parent. This study illustrates that disordered eating is common among individuals in the military and their children (Waasdorp et al., 2007). The results of this study indicate that eating disorders can be learned behavior putting children of parents with an eating disorder at an increased risk for developing an eating disorder themselves.

National Screening of Adolescents with EAT-26
In 2000 the National Eating Disorders Screening Program, NEDSP, conducted a screening initiative for eating disorders in high schools throughout the United States. A screening questionnaire that included the EAT-26 was completed by over thirty-five thousand students from ninety-eight schools nationwide. Questions pertained to experiences within the past three months and included additional questions including: how often the student had vomited or exercised to lose or control their weight and if the student binge ate. Due to the data entry cost, a subsample was randomly selected that included thirty-three schools and 5,567 completed questionnaires. A score of twenty or more on the EAT-26 was seen in 14.5 percent of the girls and 3.6 percent of the boys in the study. This study found that twenty-five percent of girls and ten percent of boys reported one or more disordered eating symptom from the EAT-26 and the additional questions about excessive exercise, binge eating, and vomiting (Austin et al., 2008). These results indicate a large percentage of high school students in the United States may be suffering from an eating disorder and need further evaluation.

Race and ethnic differences were noted on the EAT-26. The study reported Latina girls were less likely than white girls to have an EAT-26 score of twenty or more while American Indian girls were more likely than white girls to have a positive EAT-26 score. American Indian boys were more likely to have a positive screen on the EAT-26 compared with white boys (Austin et al., 2008). These findings indicate it is important for healthcare providers to remember that eating disorders occur in all races and ethnicities and that the symptoms may be slightly different across ethnic groups.

Four New England high schools participated in a follow-up study that was performed several months after the NEDSP completed their nationwide screening initiative in 2000. A thirty-five question post-screen survey was completed by 529 girls and 435 boys. Forty-nine
percent of girls and thirty-seven percent of boys reported talking to someone about their screening score after the screening initiative. Since the screening, only one girl and five boys reported seeing a healthcare professional regarding their positive screen. These findings point out that students are open to talking about their screening results with peers or adults but this does not result in their seeing a healthcare professional (D'Souza, Forman, & Austin, 2005).

The staff at the schools supported the screening program acknowledging they thought students with eating disorders were not being identified and treated. Time constraints and trouble finding help to conduct the screening were two barriers expressed by staff. In the follow-up interviews, staff reported they would have preferred screening only individuals they thought to be at risk for an eating disorder and mentioned screening only females as an example of this. However, the staff was shocked by the number of male students who screened positive. They also stated that many male students did not feel the screening pertained to them and failed to take it seriously (D'Souza et al., 2005).

A study conducted at the University of Florida with 402 college freshman women examined the types of questions primary care providers could use to detect disordered eating. A questionnaire was developed that included the EAT-26 and five additional questions developed by pediatricians. Demographic information and a body-image scale that assesses how one feels about their body were also part of the questionnaire (Anstine & Grinenko, 2000). The five additional questions tested by the pediatricians were:

1. How many diets have you been on in the past year? (Choices were >10, 6-10, 4-5, 2-3, ≤ 1)

2. Do you feel you should be dieting?
3. Do you feel dissatisfied with your body size?

4. Do you sometimes use laxatives, diuretics, or diet pills to control your weight?

5. Does your weight affect the way you feel about yourself?

The EAT-26 was used to identify college women at risk for eating disorders. Ninety-one percent of the sample reported a desire to lose weight. EAT-26 scores of twenty or more were found in seventeen percent of the surveyed women suggesting the possible presence of an eating disorder. Significant correlations were seen between four of the five test questions and EAT-26 scores of twenty or more. The questions concerning weight/dieting beliefs and behaviors were associated with an EAT-26 score of twenty or more while the use of laxatives, diuretics, and diet pills questions were not. Anstine and Grinenko (2000) pointed out that these four questions can be integrated into a routine medical visit and a longer more thorough screen such as a clinical interview can be added if the four question screen indicates the patient may be suffering from an eating disorder.

**Eating Disorder Inventory**

The Eating Disorder Inventory (EDI) is a standardized self-report screening tool used to help recognize individuals who are at risk for developing eating disorders. It was developed in 1983 and consists of 64 items and can be completed in about twenty minutes. The tool was designed to assess psychological and behavioral traits common in anorexia nervosa and bulimia nervosa. The EDI consists of eight subscales; drive for thinness, bulimia, body dissatisfaction, ineffectiveness, perfectionism, interpersonal distrust, interoceptive awareness, and maturity fears (Garner, Olmstead, & Polivy, 1983). The drive for thinness subscale has questions about dieting, concerns with weight, and pursuit of thinness. The bulimia subscale addresses binging and
purging. The body dissatisfaction subscale focuses on questions dealing with body shape. Items regarding insecurity, worthlessness, and control are included in the ineffectiveness subscale. Questions in the perfectionism subscale address expectations for extreme personal achievement. Examples of items included in the interpersonal distrust subscale are “I am open about my feelings” and “I have close relationships.” Interoceptive awareness deals with one’s ability to identify emotions and feelings of satiety. The maturity fears subscale examines an individual’s desire to return to their childhood years (Garner et al., 1983). All versions of the EDI use a forced choice questionnaire in which one of the following options must be picked; “always,” “usually,” “often,” “sometimes,” “rarely,” or “never (Podar & Allik, 2009).”

A second version of the EDI, the EDI-2, was released in 1991 and includes 91 items but can still be completed in twenty minutes. In this version three new subscales were added; ascetism (A), impulse regulation (IR), and social insecurity (SI). A third version of the Eating Disorder Inventory, EDI-3, is the most recent edition. This consists of the same ninety-one items but groups them differently. There are twelve primary scales, three of the scales are specific to eating disorders and the other nine are general psychological scales (Podar & Allik, 2009).

Engelsen and Laberg (2001) conducted a study comparing the EDI, the twelve item version of the EAT (EAT-12) and the EDE-Q with a sample size of 224 female eighth grade students. All of the participating students completed all three questionnaires. The study identified ten females who fulfilled the criteria for anorexia nervosa based on the EDE-Q. No subjects fulfilled the criteria for bulimia nervosa. The scores of the ten females who met criteria for anorexia nervosa from the EDE-Q were compared with the scores on the EDI and the EAT-12. The study found that females with anorexia nervosa had higher scores on the EDI and the EAT-12 compared with the individuals that did not meet the criteria for anorexia nervosa. This
study examined the scores for three of the subscales on the EDI; drive for thinness, bulimia, and body dissatisfaction. There were statistically significant differences between anorexia nervosa cases and non cases on all three of the EDI subscales. The EDI performed well in terms of specificity in that the EDI correctly rated the females without eating problems low. Even though the anorexia nervosa cases did score higher on the EDI compared to the non anorexia nervosa cases, these scores only fell in the low to moderate range. This result indicates that the instrument could produce false negatives and potentially miss individuals that might be suffering from an eating disorder (Engelsen & Laberg, 2001).

**Bulimic Investigatory Test, Edinburgh**

The Bulimic Investigatory Test, Edinburgh (BITE) is a thirty-three question self report format screening tool designed to identify individuals with symptoms of bulimia nervosa. The questionnaire takes less than ten minutes to complete. The BITE has two subscales; symptom and severity. Thirty questions make up the symptom scale while the remaining three questions comprise the severity scale (Henderson & Freeman, 1987).

The symptom scale measures the symptoms that are present (using yes/no responses) and the scores are divided into three groups; high, medium, and low scores. Obtaining a score of twenty or more is considered high, a score of ten through nineteen, medium, and a score of less than ten is considered low. A high score indicates that an individual is likely suffering from an eating disorder and will likely fulfill the diagnostic criteria for bulimia nervosa (Henderson & Freeman, 1987).
The severity scale measures the binging and purging behaviors by how frequently they occur. The three questions in the severity scale are a multiple choice format. A score of five or more on the severity scale is considered clinically significant (Henderson & Freeman, 1987).

Henderson and Freeman (1987) conducted a study to test the validity of the BITE. The subjects in the study were thirty-two females that fulfilled the DSM-III criteria for bulimia nervosa and a control group of thirty-two females without bulimia. None of the females in the control group received a symptom score of twenty or more or a severity score of five or more. All individuals with bulimia nervosa scored greater than twenty-five on their total score which is the sum of the symptom and severity scores. These results indicate the BITE is able to differentiate individuals with or without bulimia nervosa (Henderson & Freeman, 1987).

**Bulimia Test – Revised**

The bulimia test – revised (BULIT-R) is a twenty-eight item questionnaire used as a screening measure to detect individuals with bulimia nervosa. A score of 104 or greater on the BULIT-R is considered high, a score of 60 through 104, medium, and below 60 is considered low (Welch, Thompson, & Hall, 1993).

A study was performed to validate the BULIT-R as an instrument to identify individuals that meet DSM-IV criteria for bulimia nervosa. The sample consisted of twenty-three females with bulimia nervosa and a control group of 124 females. The participants with a diagnosis of bulimia nervosa completed the BULIT-R while the control group completed the BULIT-R and had a structured diagnostic interview. Twenty-one of the twenty-three individuals with bulimia nervosa had a BULIT-R score of 104 or greater indicating a sensitivity of ninety-one percent. The specificity of the instrument was ninety-six percent with 119 of the 124 control subjects
obtaining a BULIT-R score less than 104. The five individuals with the positive screen from the control group were classified as eating disorder not otherwise specified by the structured interview. These results indicate the BULIT-R is an effective screening tool to identify females who meet the criteria for bulimia nervosa in the DSM-IV (Thelen, Mintz, & Vander Wal, 1996).

A study was performed with 243 females in tertiary education to evaluate the psychometric properties of the BULIT-R. The students completed the BULIT-R, the BITE, and the eating disorder inventory (EDI). Some of the subjects also completed a clinical interview which was the definitive measure used to identify the presence of bulimia nervosa. Of the 243 subjects in the study, six subjects had scores on the BULIT-R greater than 104 falling into the high category. Of these individuals five completed a clinical interview and four were found to have bulimia nervosa. Medium scores were obtained by fifty-three students with forty-six of them completing a clinical interview and only one was found to have bulimia nervosa. Of the individuals who had low scores, none were found to have bulimia nervosa in the clinical interview. For the five individuals found to have bulimia nervosa in this study, all five had a BITE symptom score of twenty or more indicating the BULIT-R and the BITE are effective screening instruments for bulimia nervosa. The BULIT-R was found to have a sensitivity of 80 percent and a specificity of 99.5 percent. Welch, Thompson, and Hall (1993) concluded that a cutoff score of ninety-eight to obtain a high score on the BULIT-R would produce a sensitivity of 100 percent and a specificity of 99 percent.
Discussion

Eating disorders are psychiatric illnesses that should be attended to in primary care settings due to the significant morbidity and mortality associated with these disorders. In order to screen for an eating disorder a clinician must be familiar with the diagnostic criteria for anorexia nervosa, bulimia nervosa, and eating disorder not otherwise specified and the available screening tools. Healthcare providers must remember that a positive screen suggests the presence of an eating disorder and is not meant to diagnose one. Numerous screening tools for eating disorders exist, yet only some are appropriate for use in a primary care setting.

Both the SCOFF and the Eating Disorder Screen for Primary Care are quick and simple five question screening instruments used to help identify individuals with any type of eating disorder. The scoring is very straightforward and obtaining a score of at least two on either screen indicates a positive result. The EAT-26 is a twenty-six item questionnaire used to screen for any type of eating disorder. A score of at least twenty indicates an eating disorder may be present. The Eating Disorder Inventory is a ninety-one item self report questionnaire that takes twenty minutes to complete. This instrument has several different scales and screens for all types of eating disorders. The BITE and the BULIT-R are screening tools that are solely used for bulimia nervosa.

The SCOFF and ESP are excellent screening tools to use in a primary care setting. They are able to screen for all three types of eating disorders in a short amount of time. The five questions can easily be administered in a written questionnaire format which results have shown to be just as effective in screening compared to oral delivery. The written questionnaire format will save the clinician time compared to delivering the screen orally. Both the EAT-26 and EDI
are significantly longer screening instruments compared to the SCOFF and ESP and are less appropriate for a busy primary care setting because of this. Since the BITE and BULIT-R are designed to only screen for bulimia nervosa they would not be an ideal choice to use as a screening instrument for all types of eating disorders. These instruments can be used as a more focused screen if a clinician is concerned or suspicious that binge eating may be occurring.

Screening for eating disorders in the primary care setting has been found to be feasible and efficient and should be implemented into a clinician’s routine practice. Healthcare providers must remember that eating disorders affect males and females of all ages and ethnicities and screening should be implemented in all of these populations, with an awareness that ones gender or ethnicity might influence how screening questions are answered. An appropriate time to screen adolescents and young adults would be at an annual or sports physical since most eating disorders develop in the young. Many young adults do not see a healthcare provider for annual physicals but women are likely to come in contact with a provider when seeking annual woman’s care. These annual visits would be an appropriate time to administer a screen. Military personnel and their families should be screened due to the high percentage of disordered eating found in this group. Making eating disorder screening a routine part of medical office visits would eliminate the need for the healthcare provider to decide “who” should receive the screen and would likely identify individuals the provider might not suspect of having an eating disorder problem.

Based on this review, the SCOFF or the ESP would be the most appropriate initial screening instruments to use in the primary care setting due to their psychometric properties (sensitivity and specificity) and the time it takes to administer them. It is convenient for the clinician to remember the five items in the SCOFF questionnaire due to the pneumonic title of
the tool. The ESP was found to have higher sensitivity but lower specificity compared to the SCOFF. Much less research exists on the ESP compared to the SCOFF. Due to this it is not possible to recommend one measure over the other except to say that the SCOFF currently has more empirical support because it has been around longer. Most patient visits in family practice or internal medicine are ten to fifteen minutes and both of these tools can easily be implemented in that time period. If a positive screen is found on one of these instruments, one might then ask the patient to complete one of the longer instruments – the EAT-26 or EDI - or make a referral to a mental health professional.

The EAT-26 and EDI are good screening instruments for eating disorders but the time it takes to administer and complete them make them less practical to use in a primary care setting. The scoring for the instruments adds another step to the screening process for the individual administering them. If a patient obtained a positive screen on the SCOFF or the ESP and the clinician wanted an additional screen performed, the EAT-26 would be a good second line option. The EAT-26 would be a better option compared to the EDI. The EAT-26 has been studied in a variety of populations and has adequate sensitivity and specificity. The tool itself is fairly straightforward and the scoring is quite simple. The EDI has several subscales specific to eating disorders and other general psychological scales that would best be interpreted by a specialized clinician. Research indicates the EDI produces false negatives and in psychiatric illnesses with high morbidity and mortality it is important that these individuals be identified and helped. Overall the EAT-26 would be appropriate to use in either primary care or mental health settings whereas the EDI would best be used in mental health settings where clinicians are highly trained in psychiatric illnesses and are more familiar with the instrument.
The BITE and BULIT-R are specialized instruments in that they only screen for bulimia nervosa. Using these tools in a primary care setting would not be an ideal first line choice because they could not identify anorexia nervosa or eating disorder not otherwise specified. If a clinician is suspicious that binging behaviors are occurring one can use these instruments after the initial screen with the SCOFF. These screens are more appropriate to use in a specialized mental health setting when one is determining the exact eating disorder diagnosis.

Regardless of the screening tool result it is important to remember that a clinician’s judgment remains paramount. Research indicates that the SCOFF is not as good at detecting individuals with a sub-threshold disorder (eating disorder not otherwise specified) compared to anorexia and bulimia nervosa. This is important because fifty percent of individuals with eating disorders are diagnosed as eating disorder not otherwise specified. If suspicion for an eating disorder exists and a screening tool was administered with a negative result, referral may be necessary and appropriate.

This review has several limitations. A limited and selective review of the literature was made which served to exclude hundreds of potential articles. It is possible that the selective review biased the conclusions made. Despite this limitation, the review did focus on the most used eating disorder screens. Many of the studies examined used small samples and primarily younger populations. The studies using the EAT-26 also had supplemental questions added to the screening tool that are not part of the EAT-26 screening assessment which may have influenced results. Further research is needed to discern whether the EAT-26 itself or the additional questions were more effective at screening for eating disorders.
More eating disorders screening research is needed. Studies using larger sample sizes in a variety of populations (middle age and older adult and more ethnically diverse populations) are needed to see if eating disorders are occurring in these other population clusters in addition to adolescents and young adults. Being a relatively new instrument, additional research is needed on the ESP. This tool seems promising with questions that can easily be incorporated into a patient history but there is a need for additional validation studies.

Eating disorders can be life threatening and their prevalence is on the rise. Primary care providers can play a major role in reducing morbidity and mortality by incorporating screening tools into their regular practice. When a screen is completed it is important to follow through, documenting the screen in the medical record and following up on a positive screen. Early detection and intervention are vital in treating and improving the prognosis associated with eating disorders.
References


Abstract

Objective: Examine 6 eating disorder screening instruments to determine which might be most appropriate for use in a primary care setting.

Method: A selective literature review was conducted using PubMed, PsycINFO, and MEDLINE databases.

Results: The commonly used and empirical validated screening instruments identified in Epocrates were reported on. These included the: SCOFF, Eating Disorder Screen for Primary Care (ESP), Eating Attitudes Test-26 (EAT-26), Eating Disorder Inventory (EDI), Bulimic Investigatory Test, Edinburgh (BITE), Bulimia Test – Revised (BULIT-R). The sensitivity/specificity, time for administration and other special factors (race, disorder specificity) were reported and compared.

Conclusion: Screening for eating disorders in primary care should be implemented due to the significant morbidity and mortality associated with these psychiatric illnesses. The SCOFF and ESP are the most appropriate first line screening instruments to use in a primary care setting.