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# Treatment of eating disorders in primary care: A systematic review

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## Abstract

This review evaluated psychological treatments for Anorexia Nervosa, Bulimia Nervosa, and Binge Eating Disorder conducted in primary care. Five studies met inclusion criteria. Guided self-help cognitive-behavioral therapy via a self-help book may be a beneficial, first-line treatment for reducing bingeing and purging symptoms. Outcomes combining self-help with antidepressants remain unclear, although antidepressants alone may provide reduction of symptoms. High attrition and non-compliance rates among studies reviewed indicate the importance of a strong therapeutic alliance between provider and patient. Further research in primary care is needed to develop a standard of care for patients with eating disorders.

## Keywords

behavioral health, brief interventions, eating disorders, primary care, self-help

Eating disorders are characterized by patterns of disturbances in eating behavior often accompanied by feelings of distress and/or concern about body weight or shape. Anorexia Nervosa (AN), Bulimia Nervosa (BN), and Eating Disorders-Not Otherwise Specified (ED-NOS), which includes the provisional Binge-Eating Disorder (BED), are three formal diagnostic categories (American Psychiatric Association, 2000). Eating disorders have been associated with increased mortality and suicide rates (Crow et al., 2009). Other physical and psychosocial health consequences include but are not limited to limb and joint pain, headache, gastrointestinal problems, menstrual problems, shortness of breath, chest pain, anxiety, depressive symptoms, and substance abuse (Johnson et al., 2001). Because of co-morbid physical and mental health conditions, these disorders have been further characterized as

one of the most difficult psychiatric conditions to treat (Crow et al., 2009).

Effective psychological and pharmacological treatments for eating disorders have been identified. For example, family-based therapy (i.e. Maudsley Approach) is gaining recognition as an evidenced-based treatment for adolescents with AN (Wilson et al., 2007) in both joint family sessions (Lock et al., 2005) and in 'separated' format where the individual with AN and the family attend separate sessions (Eisler et al.,

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2000). Cognitive-behavior therapy (CBT; Hay et al., 2009), dialectical-behavior therapy (Chen et al., 2008), and interpersonal therapy (Fairburn, 1997) have been successful in the treatment of BN. Further, CBT has gained support and even been recognized as the treatment of choice for both BN and BED (Hay et al., 2009).

Pharmacological treatments have also been used alone or in conjunction with behavioral health treatments (Zhu and Walsh, 2002). There is research to support pharmacological treatment for individuals with both BN and BED (Bacaltchuk et al., 2000). Specifically, antidepressants have been found to have short-term benefits in the reduction of bingeing and purging behaviors (McElroy et al., 2003; Walsh et al., 2000). Despite promise, pharmacological treatments are associated with high rates of noncompliance and relapse (Becker, 2003), and to date, there is no empirical support for the use of antidepressants among individuals with AN (Wilson et al., 2007).

While pharmacological treatments are convenient in a primary care setting, the aforementioned psychological treatments have several limitations when delivered outside a specialty setting (i.e. outpatient or inpatient mental health). For example, the delivery of family-based therapy for AN requires 10–20 hour-long family sessions over a six to 12-month period (Lock et al., 2005), and manualized CBT for BN requires 15–20 hour-long sessions over five months (Fairburn et al., 1993). Treatments for AN and BN are not only lengthy and potentially costly, but eating disorder specialty providers are limited (C.S. Mott Children's Hospital, 2008; US Department of Health and Human Resources, 2009) and only a small portion of individuals with eating disorders are treated in a specialty setting (Hoek and Van Hoeken, 2003). Research suggests individuals with eating disorders are often resistant to specialty care (Fairburn and Carter, 1996) and are more likely to present in a primary care setting (Hoek, 2006). While primary care physicians often recommend specialty treatment, there is little follow-through with referrals (Hach et al., 2003,

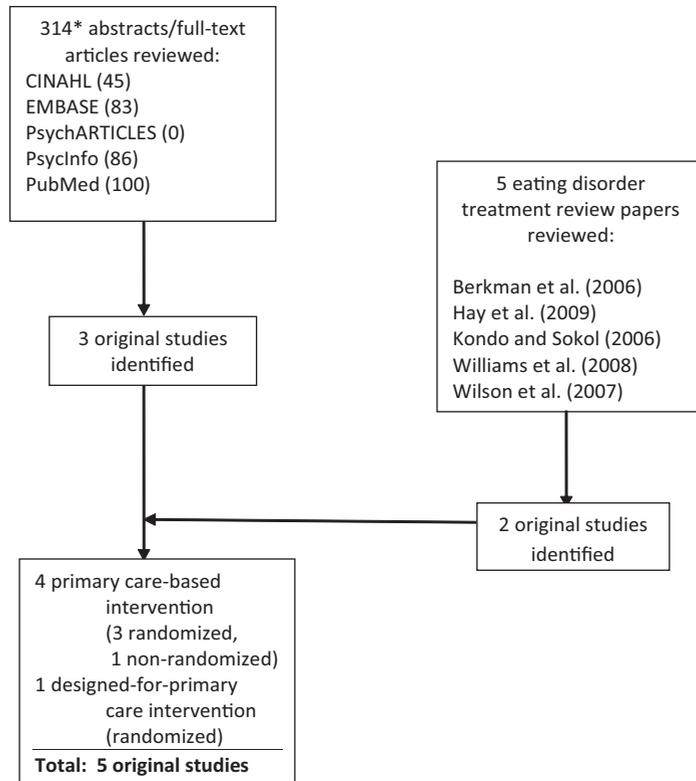
2005). Thus, the primary care setting, which has been described as the main treatment facility for those with a lifetime eating disorder diagnosis (Hudson et al., 2007), may be positioned as an ideal setting for addressing this problem.

Due to the fast-paced nature of a primary care setting, treatments need to be brief, cost-effective, and feasible. Identification of brief, effective psychological treatments for addressing eating disorders in the primary care setting is important. While numerous studies have tested the efficacy of brief treatments for AN, BN, and BED (e.g. Fichter et al., 2008; Pretorius et al., 2009; Sysko and Walsh, 2008), these treatments have not been specifically tailored to nor tested in the primary care setting. To date, there is limited information about the effectiveness or implications of psychological treatments for eating disorders in the primary care setting. Thus, the aims of the current review are to: (1) identify all studies delivering a psychological treatment for AN, BN, or BED in a primary care setting; (2) examine the characteristics and treatment outcomes of studies identified; and (3) provide directions for future research.

## Methods

### *Literature review*

The methodological approach in the current study was modeled after a review of treatments for obesity in primary care (Tsai and Wadden, 2009). Practical guidelines for conducting systematic reviews are also available (Centre for Reviews and Dissemination, 2001). Studies were identified via recent reviews on the treatment of eating disorders, lists of references included in these reviews, and electronic database searches. Databases searched included CINAHL, EMBASE, PsycARTICLES, PsycInfo, and PubMed using the terms 'anorexia nervosa' OR 'bulimia nervosa' OR 'binge eating disorder' AND 'primary care'. Figure 1 outlines the literature search and shows reference lists from five recent treatment review papers (i.e. Berkman et al., 2006; Hay et al., 2009; Kondo and Sokol,



**Figure 1.** Flow chart demonstrating identification process of selected primary care articles.  
Note: Overlap present among articles presenting in multiple databases.

2006; Williams et al., 2008; Wilson et al., 2007) and 314 abstracts of articles were reviewed for inclusion. If the design of the study was not obvious from review of the abstract then the full article was obtained.

### *Inclusion and exclusion criteria*

Primary care-based treatment studies targeting AN, BN, and BED were identified based on the following criteria. Inclusion criteria included: (1) the study incorporated a psychological treatment of AN, BN, or BED; (2) the treatment was conducted in a primary care setting (or the treatment was implemented in a setting explicitly intended to simulate primary care, as stated in the study's methodology); (3) the study was (a) published in 2009 or earlier, (b) in English, (c)

and included empirical data (i.e. no qualitative or case studies were included). Exclusion criteria included: (1) treatments conducted in settings other than the primary care setting (or not explicitly stating an intent to simulate a primary care setting in the methodology); (2) non-treatment studies (e.g. studies conducted in primary care with goals of obtaining epidemiological data); (3) treatment studies focusing on weight loss or including an obesity-oriented approach; (4) non-psychological treatments (i.e. solely pharmacological interventions). Both international and domestic studies were included in this review. Given the limited literature, studies were not excluded on the basis of whether or not participants were randomized to treatment, type of psychological treatment, sample size, duration of treatment, or participant characteristics (e.g.

gender). Five studies met criteria for the current review. No studies were found on AN. Thus, all studies included were on the treatment of BN and BED.

## Results

### *Characteristics of the studies reviewed*

Of the five studies that met inclusion criteria, four of the studies used randomization of participants (i.e. Banasiak et al., 2005; Carter and Fairburn, 1998; Durand and King, 2003; Walsh et al., 2004). All studies included were self-described as effectiveness studies. Thus, feasibility of treatment was paramount to the study. Only two of the five studies recruited participants in a primary care setting (Durand and King, 2003; Waller et al., 1996). The number of participants in the five studies ranged from 11 to 109 ( $M = 70.2$ ,  $SD = 36.9$ ). Primary care physicians (PCPs) were the sole provider of the psychological treatment in two of the five studies (i.e. Banasiak et al., 2005; Durand and King, 2003), and PCPs delivered psychological treatment in conjunction with nurses in another two of the five studies (i.e. Waller et al., 1996; Walsh et al., 2004). Minimally trained facilitators (i.e. former ballet dancer, medical secretary, and group leader) acting as potential physician extenders delivered the psychological treatment in one study (Carter and Fairburn, 1998). Three of the five studies provided at least two to six hours of training for PCPs and/or nurses carrying out the treatment (i.e. Banasiak et al., 2005; Waller et al., 1996; Walsh et al., 2004). Two of the studies did not provide separate training for those carrying out the treatment, but rather provided leaders the same educational materials distributed to the participants (i.e. Carter and Fairburn, 1998; Durand and King, 2003). One study incorporated both psychological and pharmacological treatment approaches (Walsh et al., 2004). Additionally, only one study did not deliver treatment in a primary care setting but did report efforts to reproduce conditions that may apply to delivering the specified treatments

in this setting (Carter and Fairburn, 1998). See Table 1 for additional study characteristics.

### *Treatment*

The current review identified two principal approaches to treating BN and BED in primary care. The first was for PCPs to provide counseling alone or with an augmentation (i.e. self-help book or pharmacological treatment). The second option used a collaborative approach in which a non-PCP served as the primary treatment provider with the PCP in a supporting role and again provided counseling alone or with an augmentation.

### *Guided self-help versus pure self-help*

Among all studies examined, four studies implemented cognitive behavioral self-help via the use of a self-help book (i.e. Banasiak et al., 2005; Carter and Fairburn, 1998; Durand and King, 2003; Walsh et al., 2004). *Overcoming Binge Eating* (Fairburn, 1995), *Bulimia Nervosa and Binge-Eating: A Guide to Recovery* (Cooper, 1995), and *Bulimia Nervosa: A Guide to Recovery* (Cooper, 1993) were the three books utilized. The self-help books have each been described as utilizing cognitive behavioral therapy principles and strategies (Banasiak et al., 2005; Durand and King, 2003; Walsh et al., 2004). For example, one of the techniques mentioned in the self-help books is self-monitoring. The reader is instructed to begin a food journal in an effort to help them become more aware of their intake and issues surrounding food. Psychoeducation regarding diagnosis, development of more effective problem-solving skills, and increasing self-awareness about other issues related to eating behavior are other therapeutic tools discussed in these self-help books. The books also provide 'check points' for the reader, so one may evaluate one's progress.

In the aforementioned studies, the self-help books were delivered in one of two formats: (1) guided self-help; or (2) pure self-help. Guided self-help included a PCP or other provider

**Table 1.** Characteristics of studies reviewed

Study	Participants & criteria	Recruitment	Randomized/ non-randomized	Delivery of treatment/ training	Treatment	Duration
Banasiak et al. (2005)	N = 109 (full or sub-threshold BN 'modified' DSM-IV criteria)	Community advertisements: Newspaper: 61.4% Primary care: 21.1% Community center: 12% ED center referral: 5.5%	Randomized	<ul style="list-style-type: none"> <li>16 PCPs given book &amp; attended a half-day workshop with training delivered by clinical psychologist</li> </ul>	GSH using <i>Bulimia Nervosa and Binge Eating: A Guide to Recovery</i> vs delayed treatment control	17 weeks/ 30–60-minute initial contact & 9 20–30-minute treatment sessions
Carter and Fairburn (1998)	N = 72 (full BED DSM-IV criteria, but not meeting full BN criteria)	Newspaper advertisements	Randomized	<ul style="list-style-type: none"> <li>3 facilitators: Former ballet dancer Medical secretary Group leader given book &amp; treatment of 2–3 pilot participants</li> </ul>	PSH vs GSH using <i>Overcoming Binge Eating</i> vs. wait list control	12 weeks/ 6–8 25-minute sessions
Durand and King (2003)	N = 68 (BN symptoms)	Primary care physician referral	Randomized	<ul style="list-style-type: none"> <li>32 PCPs given book, guidelines, &amp; phone no. for special concerns</li> </ul>	GSH via <i>Bulimia Nervosa: A Guide to Recovery</i> vs specialty clinic treatment	Duration of treatment varied GSH: ~ 5 visits with PCP
Waller et al. (1996)	N = 11 (full BN DSM-IV criteria)	Consecutive series of primary care patients	Non-randomized	<ul style="list-style-type: none"> <li>4 PCPs 1 nurse 2 3-hour training workshops</li> </ul>	Abridged CBT	<8 20-minute sessions in weekly intervals
Walsh et al. (2004)	N = 91 (BN symptoms)	Newspaper advertisements and referrals	Randomized	<ul style="list-style-type: none"> <li>7 PCPs 8 nurses brief 2-hour training &amp; treatment of a total of 6 pilot patients</li> </ul>	<ul style="list-style-type: none"> <li>GSH + placebo vs GSH + Fluoxetine vs placebo-only vs Fluoxetine-only</li> <li>GSH used <i>Overcoming Binge Eating</i></li> </ul>	6–8 30-minute sessions over 4–5 months

Notes: PCP – Primary Care Physician; GSH – Guided Self-Help; PSH – Pure Self-Help; ED – Eating Disorder.

'guiding' and directing the participants through the book during scheduled visits and assigning specific reading in the book to the participant. Pure self-help involved the PCP or other provider supplying a self-help book to the participant with the instructions to read it over the course of the treatment.

### *Treatment outcomes*

Three of the four studies using self-help (guided or pure) found self-help methods to be beneficial in alleviating binge eating episodes (Banasiak et al., 2005; Carter and Fairburn, 1998; Durand and King, 2003). In a study yielding no self-help benefits (Walsh et al., 2004) no differences in treatment outcomes were found between an intervention using guided self-help in conjunction with a pharmacological treatment (i.e. Fluoxetine) versus an intervention using only the pharmacological treatment. However, in this study, the pharmacological treatment alone intervention significantly decreased bulimic symptoms over the short term. These results may be interpreted with caution since this study reported a 69 percent attrition rate. Another study comparing the benefits of guided self-help, pure self-help, and wait-list control found those who received guided self-help or pure-self help to have significantly fewer binge-eating episodes at post-treatment and three-month follow-up (Carter and Fairburn, 1998). While no significant differences were obtained between guided self-help and pure self-help treatment groups at the end of treatment, the guided self-help group attained significance over the pure self-help group across post-treatment time points (i.e. three months and six months).

Waller et al. (1996) was the only study not employing a self-help component, but rather an abridged CBT treatment consisting of no more than eight 20-minute sessions. This abridged form of CBT maintained a cognitive orientation by incorporating both educational and behavioral interventions. For example, self-monitoring forms and educational handouts were provided.

However, no cognitive restructuring techniques were included in this abridged form of treatment. This treatment yielded a 55 percent improvement rate in bulimic symptoms. See Table 2 for additional outcome data on each study.

### **Discussion**

Individuals with eating disorders have some of the highest mortality rates of all psychiatric conditions (Crow et al., 2009) coupled with frequent physical and psychological co-morbid conditions (Johnson et al., 2001). Because of these co-morbid conditions, individuals with eating disorders are likely to present in a primary care setting (Hudson et al., 2007). PCPs and other health care providers are in a unique position to provide early detection and treatment. Due to time constraints along with lack of experience and training, PCPs and other providers may benefit from the development of brief, evidenced-based treatments developed for the primary care setting and that require minimal training. Results of this review expose the limited amount of research that has been conducted on treatments of AN, BN, and BED in primary care settings.

### *Effectiveness and feasibility*

The current review identified five studies (four on BN and one on BED). Four studies were randomized-controlled trials (RCTs), which are frequently recognized as the gold standard in efficacy research. Four of the five studies reviewed implemented CBT self-help in the form of a self-help book with educational components targeting bingeing and purging behaviors (i.e. Banasiak et al., 2005; Carter and Fairburn, 1998; Durand and King, 2003; Walsh et al., 2004). The other study not implementing a self-help component used abridged CBT delivered by a PCP or nurse (Waller et al., 1996). Three of the four studies using self-help treatment found the treatment to be beneficial (i.e. Banasiak et al., 2005; Carter and Fairburn,

**Table 2.** Outcome data on examined studies

Study	Outcome	Effect size	Limitations	Attrition
Banasiak et al. (2005)	60% reduction in objective binge eating in GSH vs 6% reduction in DTC 61% reduction of purging behavior in GSH vs 10% reduction in DTC	GSH vs DTC: Binging – ES: 1.96 Purging – ES: 1.47	<ul style="list-style-type: none"> <li>PCPs delivering treatment had interest in eating disorders prior to study, which may prevent generalizability of results</li> <li>Not all participants recruited from PC</li> </ul>	33% dropped out
Carter and Fairburn (1998)	Reduction in frequency of binge eating episodes significant in both PSH & GSH GSH significantly lower in dietary restraint than PSH at posttreatment & 3-month follow-up	GSH vs PSH in dietary restraint posttreatment: *ES: -.71 3-month follow-up: *ES: -.66	<ul style="list-style-type: none"> <li>34% reduction of binge eating in wait list control</li> <li>Lack of weight change</li> <li>Compliance poorer in PSH vs GSH</li> <li>Participants not recruited from PC</li> <li>Study simulated PC office</li> </ul>	12% dropped out
Durand and King (2003)	No clinical significance between self-help and specialty clinic treatment outcome. Both self-help and specialty care yielded significant improvement in bulimic symptoms indicated by BITE 55% improved substantially, 45% did not benefit	Self-help at 6-month follow-up on BITE: *ES: .56 Specialty at 6 month follow-up on BITE: *ES: .67	<ul style="list-style-type: none"> <li>Small sample</li> <li>Outcome data based on self-report scale</li> <li>Lack of specificity in magnitude of difference b/w treatment care</li> </ul>	<ul style="list-style-type: none"> <li>23% dropped out in GSH group</li> <li>17% dropped out in specialty care</li> </ul>
Waller et al. (1996)		Not able to calculate; insufficient data	<ul style="list-style-type: none"> <li>Small sample</li> <li>Long training</li> <li>Inefficient intervention</li> </ul>	18% dropped out
Walsh et al. (2004)	GSH had no significant effect on the reduction of bulimic symptoms compared to Fluoxetine. Fluoxetine had significant reduction in bulimic symptoms	GSH vs Fluoxetine: *ES: -.06 Fluoxetine vs Fluoxetine w/GSH: *ES: .02	<ul style="list-style-type: none"> <li>Noncompliance</li> <li>8 participants were reassigned conditions</li> <li>Recruitment not in PC</li> <li>No utility for GSH detected</li> </ul>	69% dropped out

Notes: GSH – Guided Self-Help; PSH – Pure Self-Help; DTC – Delayed Treatment Control; PCPs – Primary Care Physicians; PC – Primary Care; BITE – Bulimic Investigatory Test Edinburgh. \*Effect sizes (ES) calculated by article's first author using the following Cohen's *d* calculation:  $d = M_1 - M_2 / \sigma$  where  $\sigma = \sqrt{[\sum (X - M)^2 / N]}$  (Cohen, 1988). General interpretation of effect sizes are defined as small ( $d = .2$ ), medium ( $d = .5$ ), and large ( $d = .8$ ).

1998; Durand and King, 2003). One exception was Walsh and colleagues (2004) who found pharmacological treatment (i.e. Fluoxetine) but not self-help to decrease bingeing and purging symptoms over the short term.

Among studies reporting benefits of self-help, guided self-help (i.e. self-help book with direction from provider) proved to be more beneficial than pure self-help (i.e. being instructed to read a self-help book); however, pure self-help was still found to be advantageous (Carter and Fairburn, 1998). Notably, one study compared treatment in primary care to treatment in a specialty clinic, and found guided CBT self-help delivered in primary care to be as effective as traditional specialty clinic treatment (Durand and King, 2003). This finding is important given the time, cost concerns, and noncompliance with referral follow through often found in a specialty setting.

While all studies were conducted in a primary care setting or in a setting that explicitly simulated a primary care setting, only two studies recruited participants from this location (Durand and King, 2003; Waller et al., 1996). The recruitment context may limit the interpretation of the effectiveness of treatments examined given that individuals presenting in primary care may exhibit higher rates of somatization, mental illness, and chronic conditions (Jyvasjarvi et al., 2001; Toft et al., 2005). Additionally, since this was an international review, primary care settings may differ from country to country and previous research shows samples may also differ based on country of origin (Bailer et al., 2004).

Other considerations when generalizing findings to the primary care setting include the duration of treatment in the studies examined and exclusion of participants with co-morbid conditions. Duration of intervention ranged from five to 10 visits at 20–30 minutes per visit. The length of treatment could explain the high rates of attrition (i.e. 12–69%) found in the studies reviewed. However, Waller and colleagues (1996) noted the indicated treatment may not take as long as the prescribed

treatment, since participants dropping out prior to completion of treatment still benefitted. Most studies reviewed excluded participants with co-morbid disorders. Identifying the subset of individuals in which brief, primary care-based interventions will be most effective remains important. Further, while CBT self-help interventions appear to be the best form of treatment, it is unclear how patients failing to respond to these interventions should be treated in primary care.

Minimal training and delivery efficiency are important characteristics for PCPs and other health care providers (Gurney and Halmi, 2001). In this review, two studies required less than an hour of training for the PCPs and PCP extenders delivering the intervention (Carter and Fairburn, 1998; Durand and King, 2003). Training in the studies reviewed requiring more than one hour of training time ranged from two three-hour training sessions (Waller et al., 1996) to a half-day training workshop (Banasiak et al., 2005) to a two-hour training session and treating six pilot patients (Walsh et al., 2004). Given PCPs and other health care provider time restraints, minimal training time may be an important aspect for feasible implementation. Additionally, the results suggest that a variety of health care providers and even staff may be trained to intervene with patients with eating disorders. This could have additional implications for supporting both feasibility and sustainability.

None of the studies reviewed included assessment of provider adherence to treatment guidelines and studies varied in efforts to ensure treatment integrity. For example, Carter and Fairburn (1998) reported providing a treatment manual but did not require strict adherence on the part of the provider. On the other hand, Banasiak and colleagues (2005) reported contacting general practitioners every six months to provide supervision in an effort to ensure treatment integrity. The lack of focus on provider adherence to treatment guidelines may have been related to the emphasis on effectiveness and/or feasibility across studies. Nevertheless, efforts to ensure

treatment integrity may be an important consideration when interpreting findings.

### *Directions for future research*

Future research should focus on creating, identifying, and adopting a standard protocol or a manualized treatment for addressing eating disorders in a primary care setting. The 'standard' should encompass abbreviated treatment, a long-term evaluation component, and minimal training. While numerous self-help books for BN and BED have been published, few have been studied in a primary care setting and none have been used in a replicated study for treatment of BN or BED. Once an adoption of a standard protocol and manual is in place, a mechanism needs to be established to assess the adherence to the standard protocol on both the part of the patient as well as the treatment provider. In an effort to minimize the amount of face-to-face training, future studies may provide opportunities to complete some pre-training on-line or via other self-initiated approaches for continuing education or other incentives. Amount of training as well as provider motivation and interest in the protocol will be important to consider when generalizing findings.

Initial studies in this setting may focus on establishing efficacy of brief treatments including identification of specific intervention components that contribute to treatment outcomes. This may include the development of interventions systematically, examining the necessary and sufficient components for effectiveness in factorial designs. These studies should ensure a rigorous design and methodology. Among the RCTs in the current study, none fulfilled all of the criteria of the Consolidated Standards of Reporting Trials (CONSORT), a standard of a minimum set of guidelines for reporting randomized-controlled trials (Schulz et al., 2010). The first author determined that studies in the current review ranged from meeting 16 to 22 of the 25 total CONSORT standards. Specifically, when developing future RCTs researchers should report a step-by-step protocol of

treatment, assess progress of all treatment groups throughout treatment, and evaluate treatment outcomes posttreatment, three-month, six-month, and nine-month follow-up. Further, identification and use of the most appropriate outcome measures may allow for ease of comparison and interpretation of treatment outcomes.

A standard treatment protocol may be most beneficial when a variety of health care providers act as interventionists allowing for expanded delivery of treatment in a primary care setting. Mental health providers, nurses, and office staff may address some of the PCP barriers (e.g. limited time, attitudes, etc.). Additionally, studies recruiting individuals from a primary care setting and allowing individuals with co-morbid characteristics to participate in treatment interventions is important. This may allow for examination of the effectiveness of treatment and provide additional implications for which patients may be better suited for specialty treatment.

Future research may also test the efficacy and feasibility of a collaborative approach to treatment. Research suggests barriers, such as time constraints, lack of training, and negative attitudes, interfere with the treatment process (Currin et al., 2009). One way to support and aid health care providers in delivering holistic healthcare to individuals with eating disorders is to assume a collaborative approach, similar to those utilized in Walsh et al. (2000) and Waller et al. (1996). Collaborative care can involve various types of primary care staff (e.g. medical secretary, nurses, nutritionists, mental health providers, etc.). Integration of mental or behavioral health services in primary care also offers several advantages in detecting and treating eating disorders, such as routine consultation, frequent patient follow-up, and less stigmatization (Thielke et al., 2007). Mental health providers and health care providers may work as a team in assessing the eating disorder and implementing efficient brief interventions. Thus, providers electing not to provide psychological treatment to patients with eating

disorders may still play a crucial role in evaluating and treating the physical symptomatology of the eating disorder.

Pharmacological interventions with behavioral health components need further exploration, as these treatments may allow for immediate relief of BN symptoms (i.e. binge and purging). Since current research is unclear about the longevity of pharmacological benefits, future research should focus on demonstrating whether pharmacological interventions alone, behavioral interventions alone, or combined pharmacological and behavioral interventions have the most lasting benefits in reducing eating disorder symptomatology.

Studies evaluating long-term effects of brief interventions are essential to establishing whether individuals with BN and BED indeed are in need of lifetime management in a primary care setting as previously reported (Hudson et al., 2007). Finally, given the authors of this review found no studies testing the efficacy or effectiveness of treatment for individuals with AN in primary care, research focusing on developing a treatment intervention for AN in a primary care setting is needed.

### Competing Interests

None declared.

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