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Symptoms of Attention Deficit Hyperactivity Disorder (ADHD) in Women with Bulimia Nervosa: An Exploration

by

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Abstract

The purpose of this study was to explore symptoms of attention deficit hyperactivity disorder (ADHD) in women with bulimia nervosa. Twenty-nine adult females with a mean age of 27.7 years participated in this study; 18 currently had bulimia, and 11 had a history of bulimia.

Participants completed the Wender Utah Rating Scale (WURS) and the Brown Attention Deficit Disorder Scales - Adult Form (BADDS).

Results indicated that at least half of the participants had childhood and adulthood symptoms which may be indicative of ADHD. This is higher than general adult prevalence estimates for ADHD in adults of only 1 - 2%.

However, because the scores on the WURS and the BADDS were not correlated and adulthood symptoms of ADHD appeared to diminish relative to the years recovered, the existence of ADHD in these participants is questionable. The ADHD symptoms reported by participants may be related to bulimia and not indicative of ADHD.

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Dedication

I would like to dedicate this thesis to those women who have had an eating disorder. May each of you come to believe in and know the Beauty, Power, and Love that lies within your Soul.

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INTRODUCTION

Bulimia Nervosa is an eating disorder that affects between 1.0 and 3.8% of the adolescent and young adult female populations (American Psychological Association [APA], 1994). Biological, personality, familial, and socio-cultural factors are all believed to contribute to the development of bulimia nervosa (Striegel-Moore, Silberstein, & Rodin, 1986). This disorder, henceforth referred to as bulimia, has three primary characteristics: 1) binge eating; 2) the use of extreme methods to compensate for these eating binges (e.g., self-induced vomiting, use of laxatives, fasting, and excessive exercise); and 3) an over-concern with one's body weight and shape. Physical complications which can arise from bulimia include electrolyte imbalances, gastro-intestinal problems, dental erosion, stomach rupture, heart problems, and hair and tooth loss (APA, 1994; Levine, 1987). Bulimia can also result in death, often the result of suicide or electrolyte imbalances (APA, 1994).

In addition to the physical complications which can arise from bulimia, those who suffer from bulimia often have other mental disorders. Comorbidity studies on bulimia have indicated that affective disorders, anxiety disorders, substance abuse, and personality disorders may occur in those with bulimia (Braun, Sunday, & Halmi, 1994; Brewerton, Lydiard, Herzog, Brotman, O'Neil, & Ballenger, 1995; Bushnell, Wells, McKenzie, Hornblow, Oakley-Browne, & Joyce, 1994; Herzog, Keller, Sacks, Yeh, & Lavori, 1991; Holderness, Brooks-Gunn, & Warren, 1994; Margolis, Spencer, Depaulo, Simpson, & Andersen, 1994). A disorder which is not noted in these studies is Attention-Deficit/Hyperactivity Disorder (ADHD).

To date, no one appears to have directly investigated whether bulimia is linked to ADHD. However, Biederman, Faraone, Spencer, Wilens, Mick, and Lapey (1994) conducted a study examining the gender differences and

comorbidity patterns in a sample of adults with ADHD. In a table listing disorders commonly found in conjunction with ADHD, women with ADHD appeared to be more likely to have bulimia than the control women. Twelve percent of the females with full ADHD also had bulimia, while only 3% of the normal control females had bulimia. This discrepancy was not apparent in those having anorexia nervosa, an eating disorder with self-starvation as the major feature, or in male subjects.

Other researchers have noted the occurrence of bulimia in those with ADHD. Shekim, Asarnow, Hess, Zaucha, and Wheeler (1990) found that 4% of their subjects with ADHD (Residual State) also had bulimia. Ratey, Greenberg, Bemporad, and Lindem (1992) reported that eating disorders were present in their sample of adults with previously unrecognized ADHD. However, they did not clarify whether they were referring to anorexia nervosa, bulimia, or both. Heiligenstein and Keeling (1995) noted that some women with bulimia who used mental health services on a university campus also had ADHD. While the rate of bulimia in these three studies is not higher than one might find in the general population, the studies are noteworthy because they are the only ones which appear to have noted bulimia and ADHD in a comorbidity spectrum. None of the studies on comorbidity patterns associated with bulimia appeared to examine occurrence of ADHD in subjects.

Perhaps one of the reasons such a connection has not been examined in depth is that these disorders may appear to researchers and clinicians to have little in common. Bulimia, an eating disorder, may appear to have little relationship to ADHD, a neurobiological disorder with impulsivity, inattention/distractibility, and hyperactivity as the key features (APA, 1994; Hallowell & Ratey, 1994; Solden, 1995). However, in a close examination of the literature, I found that these two disorders did in fact share several

characteristics. Three similarities were particularly noteworthy.

First, those with bulimia or ADHD often have other forms of psychological disturbances (Biederman et al., 1993, 1994; Biederman, Newcorn, & Sprich, 1991; Biederman, Wilens, Mick, Milberger, Spencer, & Faraone, 1995; Braun et al., 1994; Brewerton et al., 1995; Bushnell et al., 1994; Herzog et al., 1991; Holderness et al., 1994; Lavenstein, 1995; Jones, Duncan, Brouwers, & Mirsky, 1991; Margolis et al., 1994; Milberger, Biederman, Faraone, Murphy, & Tsuang, 1995; Ratey et al., 1992; Wilens, Prince, Biederman, Spencer, & Frances, 1995; Schubiner, Tzelepis, Isaacson, Warbasse, Zacharek, & Musial, 1995; Solden, 1995). The disorders which appear to be found most commonly in conjunction with bulimia and ADHD are affective disorders and alcohol/substance abuse or dependency. Many of these studies have also noted the occurrence of anxiety, personality, and anti-social disorders in those with bulimia or ADHD.

Second, some who have bulimia or ADHD respond favourably to similar psychopharmacological interventions (Ambrosini, Bianchi, Rabinovich, & Elia, 1993; Barlow, Blouin, Blouin, & Perez, 1988; Goldbloom & Olmsted, 1993; Goodman & Charney, 1985; Hallowell & Ratey, 1994; Holmes, 1995; Hudson & Pope, 1990; Trygstad, 1990; Walsh, Hadigan, Devlin, Gladis, & Roose, 1991; Warneke, 1990; Wilens, Biederman, Spencer, & Prince, 1995). Based on the success of anti-depressants in the treatment of bulimia, ADHD with hyperactivity, and other disorders (major depression, panic disorder, obsessive-compulsive disorder, cataplexy, migraine, and irritable bowel syndrome), Hudson and Pope (1990) have suggested that a biological link may exist among this group of disorders, which they have labelled "Affective Spectrum Disorder."

Finally, those with bulimia often demonstrate tendencies toward

impulsivity (Casper, Hedeker, & McClough, 1992; Fahy & Eisler, 1993; Fichter, Quadflieg, & Rief, 1994; Lacey & Evans, 1986; Newton, Freeman, & Munroe, 1993; Schmidt & Telch, 1990; Sohlberg, 1991; Sohlberg, Norring, Holmgren, & Rosmark, 1989; Wiederman & Pryor, 1996). Impulsivity also is considered a hallmark of the predominantly hyperactive-impulsive and the combined types of ADHD (APA, 1994; Hallowell & Ratey, 1994; Quinn, 1995; Solden, 1995).

Other similarities between those with bulimia or ADHD exist. However, these are not as well-documented and may be related to difficulties in those with psychological disorders in general. For example, those with bulimia or ADHD also demonstrate poor problem solving skills and coping mechanisms (Hallowell & Ratey, 1994; Mizes, 1988; Nadeau, 1995; Solden, 1995; Troop, Holbrey, Trowler, & Treasure, 1994), emotional lability (Hallowell & Ratey, 1994; Fichter et al., 1994; Solden, 1995), attention problems (APA, 1994; Hallowell & Ratey, 1994; Jones et al., 1991; Solden, 1995), low self-esteem (APA, 1994; Hallowell & Ratey, 1994; Schmidt & Telch, 1990; Solden, 1995), and difficulties with interpersonal relationships (Fichter et al., 1994; Hallowell & Ratey, 1994; Solden, 1995).

Although bulimia can occur in males, females out-number males at a ratio of about 10:1 (APA, 1994; Garfinkel et al., 1995; Heatherton, Nichols, Mahamedi, & Keel, 1995; Olivardia, Pope, Mangweth, & Hudson, 1995; Powers & Spratt, 1994). For these reasons, further references will be made to females, and feminine pronouns will be used where necessary. Furthermore, only female participants were used in this research project. While bulimia does not appear to be qualitatively different in the two genders (Powers & Spratt, 1994), this may not be true of ADHD (Brown, Madan-Swain, & Baldwin, 1991; Hallowell & Ratey, 1994; Solden, 1995).

With the similarities between bulimia and ADHD considered, one may wonder whether a connection between these two disorders exists. The purpose of this study was to explore the possibility of the existence of this link. To accomplish this goal, I investigated symptoms of ADHD in women with bulimia.

Please note the use of the following terms throughout this thesis. First, while seeming excessive, the term "participants" or "females with bulimia" will be utilized rather than the single word "bulimics." By labelling someone as "bulimic," I believe that the person is viewed as being the disorder, rather than as someone who simply has the disorder. Physical illnesses are not referred to in this way. Someone has cancer, they are not cancer. Second, to maintain consistency, I will use the abbreviation ADHD in reference to this research project. The abbreviations ADHD and ADD both appear in the literature and seem to be used interchangeably.

Review of the Literature

The literature review consists of the following elements. First, bulimia and ADHD are discussed in order that the reader may gain a better understanding of these disorders. The diagnostic criteria according to the Diagnostic and Statistical Manual of Mental Disorders - Fourth Edition (DSM-IV) (APA, 1994), prevalence rates, etiological factors, and treatment of bulimia and ADHD will be highlighted. Second, the research on comorbidity patterns, anti-depressant treatment, and impulsivity as it relates to each of the disorders will be discussed. Finally, the research questions investigated in this thesis are outlined.

Bulimia Nervosa

Definition The DSM-IV (1994) lists the following diagnostic criteria for bulimia nervosa. To achieve a diagnosis of bulimia, all items "A" through

"E" must be present.

A. Recurrent episodes of binge eating. An episode of binge eating is characterized by both of the following:

(1) eating, in a discrete period of time (e.g., within any 2-hour period), an amount of food that is definitely larger than most people would eat during a similar period of time and under similar circumstances

(2) a sense of lack of control over eating during the episode (e.g., a feeling that one cannot stop eating or control what or how much one is eating)

B. Recurrent inappropriate compensatory behaviour in order to prevent weight gain, such as self-induced vomiting; misuse of laxatives, diuretics, enemas, or other medications; fasting; or excessive exercise.

C. The binge eating and inappropriate compensatory behaviour both occur, on average, at least twice a week for 3 months.

D. Self-evaluation is unduly influenced by body shape and weight.

E. The disturbance does not occur exclusively during episodes of Anorexia Nervosa.

Specify type:

Purging Type: during the current episode of Bulimia Nervosa, the person has regularly engaged in self-induced vomiting or the misuse of laxatives, diuretics, or enemas

Nonpurging Type: during the current episode of Bulimia Nervosa, the person has used other inappropriate compensatory behaviours, such as fasting or excessive exercise, but has not regularly engaged in self-induced vomiting or the misuse of laxatives, diuretics, or enemas

(APA, 1994, pp. 549 - 550)

Those with bulimia may also have a depressed affect, poor problem solving skills and coping mechanisms, low self-esteem, and difficulties with interpersonal relationships (APA, 1994; Fichter et al., 1994; Mizes, 1988; Schmidt & Telch, 1990; Troop et al., 1994). They may also demonstrate emotional lability, attention difficulties, and problems with impulse control (APA, 1994; Casper, Hedeker, & McClough, 1992; Fahy & Eisler, 1993; Fichter et al., 1994; Jones et al., 1991; Lacey & Evans, 1986; Newton et al., 1993; Schmidt & Telch, 1990; Sohlberg, 1991; Sohlberg et al., 1989).

Prevalence According to the DSM-IV (1994), approximately 1.0 to 3.8% of the adolescent and young adult female population have bulimia, with results from several studies supporting this figure (Garfinkel et al., 1995; Kurth, Krahn, Nairn, & Drewnowski, 1995). Studies conducted on college or university populations tend to reveal higher rates, which range from 5.1% (Heatherton, et al., 1995) to 11.3% (Coric & Murstein, 1993). Because of the secretive nature of the disorder, actual figures may be difficult to obtain, and the true prevalence may be higher (Levine, 1987). The literature reveals some debate as to whether or not the prevalence of bulimia is increasing or decreasing (Halmi, 1995; Heatherton et al., 1995).

Drewnowski et al. (1994) suggest that abnormal eating patterns exist on a continuum, with bulimia being at the more severe end. Those who would not be diagnosed as having bulimia by DSM-IV (1994) standards may still demonstrate pathological eating behaviours such as binging, self-induced vomiting, and chronic dieting. Adolescent females demonstrate an alarmingly high rate of disturbed eating patterns (Phelps, Andrea, & Rizzo, 1994).

Bulimic behaviours and/or partial syndrome bulimia, in which one or more of the core features are not present, are also very common. Mintz and Betz (1988) found that 61% of an undergraduate female population reported

disturbed eating behaviours or patterns such as chronic dieting, binging or purging alone, or what can be referred to as "sub-clinical" eating disorders. According to Fairburn and Garner (in Mintz & Betz, 1988) these sub-clinical eating disorders are of two types: "atypical" and "sub-threshold." In those with atypical eating disorders, one or more of the symptoms required to meet the DSM-IV (1994) guidelines for bulimia or anorexia nervosa are not present. Included in this group would be individuals who binge, but do not purge; do not place an extreme importance on body weight or shape; or diet chronically. Those with sub-clinical eating disorders demonstrate all the diagnostic features of bulimia (or anorexia nervosa), but one or more of the symptoms are not of clinical severity. An individual who binges and purges only once a week would be included in this category.

Etiology A large body of research on bulimia exists, particularly in regards to the etiology of the disorder. Although several key characteristics, issues, and theories emerge, many studies also support evidence to the contrary. These conflicting results serve to highlight the complexity of bulimia.

Biological factors, personality variables, familial patterns, and socio-cultural influences are believed to contribute to the development of bulimia. Biochemically, neurotransmitter and neuroendocrine/hormonal anomalies have been found in conjunction with bulimia (Goldbloom, Garfinkel, & Shaw, 1991; Hudson & Pope, 1987; Striegel-Moore et al., 1986; Trygstad, 1990). The roles of serotonin, dopamine, norepinephrine, opioids, and various hormones in bulimia are well documented and researched, either as predisposing factors to or results of the disturbed eating patterns. A major challenge lies in determining the relationship between biochemical abnormalities and eating disturbances (Goldbloom et al., 1991). That is, are

these abnormalities present before the onset of the dysfunctional eating patterns or are they the result of such patterns?

In addition to these chemical abnormalities, Striegel-Moore et al. (1986) propose that females who are genetically predisposed to have larger bodies are more at risk for developing bulimia because they do not match the slim body idealized by first-world cultures. This often leads to dieting, which may disrupt the regulation of serotonin, a neurotransmitter which appears to have a large role in bulimia (Goldbloom et al., 1991).

All major theories of bulimia and other eating disorders suggest that personality variables play a fundamental role in the development of these disorders (Vitousek & Manke, 1994). Mizes (1988) found that females with bulimia were more anxious and depressed than control subjects. These subjects also demonstrated cognitive distortions concerning their weight, body-image, and control over eating. As with the understanding of the biological aspects of bulimia, determining cause and effect with regards to personality variables is difficult (Braun et al., 1994). For example, are those who are more anxious or depressed more prone to developing bulimia or does having bulimia make one more anxious or depressed? Despite the difficulty with this type of research, personality is nevertheless acknowledged as one of the major factors in the development and maintenance of bulimia and other eating disorders (Vitousek & Manke, 1994).

While dysfunctional patterns of interaction in families are often noted as an antecedent to the development of bulimia, this belief is not based on a large amount of empirical evidence (Bailey, 1991; Striegel-Moore et al., 1986). Bailey (1991) attempted to mitigate some of the problems in past research by conducting a comprehensive study on the family structures associated with bulimic-like symptoms. In her examination of numerous variables, Bailey

(1991) found that lower levels of cohesion and expressiveness and higher levels of conflict were significantly related to the severity of bulimic-like symptoms. Families of females with bulimia are often noted as attempting to exert a great deal of control over their daughters' lives, but this belief was not supported in Bailey's (1991) study.

The family may contribute to the development of bulimia in two other ways. First, the genetic pool of a family may provide a biological predisposition to developing psychological disturbances, including bulimia (Fichter, 1990). Additionally, the family can also act as a vehicle for the transmission of the socio-cultural ideals concerning the "acceptable" appearance of and "appropriate" behaviours for females (Fichter, 1990; Stice, 1994; Striegel-Moore et al. 1986).

Socio-cultural factors also contribute to the development of bulimia and other eating disorders in women (Raphael & Lacey, 1992; Stice, 1994; Striegel-Moore et al., 1986; Wolf, 1990). These factors include shifting and ambiguous gender roles, the idealization of thinness, and the importance of appearance in the female gender role. Family, peers, and the mass media all serve to transmit these potentially destructive ideologies. Stice (1994), Striegel-Moore et al. (1986), and Wolf (1990) provide particularly comprehensive reviews on this topic. Although Striegel-Moore et al. (1986) acknowledge that several factors contribute to the development of bulimia, they consider socio-cultural factors to be the most important, a position with which I strongly agree.

Treatment A variety of interventions have been used successfully in the treatment of bulimia. Fairburn and Hay (1992) and Hartmann, Herzog, and Drinkmann (1991) note treatment options such as medication (especially anti-depressants), cognitive behavioural therapy, education, and

psychodynamic therapy. Therapy can be conducted on an in- or out-patient basis and in group or individual sessions (Hartmann et al., 1991). Hartmann et al.'s (1991) meta-analysis revealed that no one approach or setting appeared to be superior to another.

Attention-Deficit/Hyperactivity Disorder

Definition Attention deficit hyperactivity disorder (ADHD) is a neurobiological disorder, the main features of which are inattention, impulsivity, and hyperactivity (APA, 1994). The DSM-IV (1994) lists the following diagnostic criteria for ADHD. Criteria A through E must be present to establish a diagnosis of ADHD.

A. Either (1) or (2):

(1) Six (or more) of the following symptoms of **inattention** have persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level:

Inattention

(a) often fails to give close attention to details or makes careless mistakes in schoolwork, work, or other activities
(b) often has difficulty sustaining attention in tasks or play activities
(c) often does not seem to listen when spoken to directly
(d) often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (not due to oppositional behaviour or failure to understand instructions)
(e) often has difficulty organizing tasks and activities
(f) often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (such as schoolwork or homework)
(g) often loses things necessary for tasks or activities (e.g., toys, school assignments, pencils, books, or

tools)
(h) is often easily distracted by extraneous stimuli
(i) is often forgetful in daily activities

(2) six (or more) of the following symptoms of **hyperactivity-impulsivity** have persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level:

Hyperactivity

(a) often fidgets with hands or feet or squirms in seat
(b) often leaves seat in classroom or in other situations in which remaining seated is expected
(c) often runs about or climbs excessively in situations in which it is inappropriate (in adolescents or adults, may be limited to subjective feelings of restlessness)
(d) often has difficulty playing or engaging in leisure activities quietly
(e) is often "on the go" or often acts as if "driven by a motor"
(f) often talks excessively

Impulsivity

(g) often blurts out answers before questions have been completed
(h) often has difficulty awaiting turn
(i) often interrupts or intrudes on others (e.g. butts into conversations or games)

B. Some hyperactive-impulsive or inattentive symptoms that caused impairment were present before age 7 years.

C. Some impairment from the symptoms is present in two or more settings (e.g., at school [or work] and at home).

D. There must be clear evidence of clinically significant impairment in social, academic, or occupational functioning.

E. The symptoms do not occur exclusively during the course of a

> Pervasive Developmental Disorder, Schizophrenia, or other Psychotic Disorder and are not better accounted for by another mental disorder (e.g., Mood disorder, Anxiety Disorder, Dissociative Disorder, or a Personality Disorder).
>
> (APA, 1994, pp. 83-85)

Other features common to those with ADHD include little tolerance for frustration, emotional lability, depression, poor interpersonal relationships, and low self-esteem (APA, 1994; Hallowell & Ratey, 1994; Ratey et al., 1995; Solden, 1995). Those with ADHD often have other psychiatric disorders as well (APA, 1994; Biederman et al., 1991; 1993; 1994; 1995; Hallowell & Ratey, 1994; Milberger et al., 1995; Shaffer, 1994; Shekim et al., 1990; Solden, 1995). Comorbidity patterns associated with ADHD are discussed in greater detail below.

A person with ADHD is classified as having one of three types. If a person meets only Criteria A1, the diagnosis is "ADHD, predominantly inattentive type." This type of ADHD is often characterized by shyness, day-dreaming, shifting mental focus, and introversion (Hallowell & Ratey, 1994; Solden, 1995). Solden (1995) suggests this type of ADHD may be more common in females. If only Criteria A2 is met, the person is designated as having "ADHD, predominantly hyperactive-impulsive type." People with this type of ADHD tend to be over-active, rush through tasks, be talkative, and attempt many tasks at once (Brown, 1995; Halperin et al., 1990; Solden, 1995). Halperin et al. (1990) suggest that children with this type of ADHD are more prone to conduct problems. A person is considered to have the "combined type" if both Criteria A1 and A2 are met. All designations are based on an individual's functioning in the previous 6 months. As the designation of "type" may suggest, ADHD is not a homogenous disorder.

When one thinks of a person with ADHD, the image which may be the

most likely to come to mind is one of a disruptive young boy who cannot sit still in the classroom (Brown, 1995; Hallowell & Ratey, 1994; Jaffe, 1995). Support for this "hyperactive male child" image is well-documented in the literature on ADHD. Over the last few years, however, this image has changed substantially (Hallowell & Ratey, 1994; Jaffe, 1995). ADHD is not restricted to the classroom setting (APA, 1994; Hallowell & Ratey, 1994; Solden, 1995). Research demonstrates that females can have ADHD, although it may be qualitatively different (Brown et al., 1991; Hallowell & Ratey, 1994; Solden, 1995). Hyperactivity is not always present in those with ADHD (Hallowell & Ratey, 1994; Halperin et al., 1990; Solden, 1995). A more recent addition to this image is the recognition of ADHD in adults (Hallowell & Ratey, 1994; Jaffe, 1995; Spencer, Biederman, Wilens, Faraone, & Li, 1994).

Jaffe (1995) notes several factors may have contributed to the delayed acknowledgement of ADHD in adults. The reduction of hyperactive symptoms as those with ADHD age, the empirical focus on children, misconceptions about stimulants, and the focus on the behavioural, rather than the cognitive, aspects of the disorder have all contributed to the delay in recognizing ADHD in adults. Furthermore, ADHD is still listed under "Disorders Usually First Diagnosed in Infancy, Childhood, or Adolescence" in the DSM-IV (1994), but the criteria have been adjusted to permit a diagnosis of ADHD in adults.

Prevalence To date, no epidemiological studies have been conducted to determine the actual prevalence of ADHD in adults (Shaffer, 1994). If one extrapolates from childhood prevalence estimates of approximately 3% to 5% and takes into account the reduction of symptoms in approximately 30% to 50%, the prevalence rate of ADHD in adults can be considered to be approximately 1% to 2% of the general adult population (Shekim et al., 1990).

Perhaps some of the difficulty in determining actual adult prevalence rates is due in part to the difficulty in identifying ADHD in adults. Although Spencer et al. (1994) state that ADHD can be diagnosed in adults, recognizing the disorder in an individual is not a simple task (Hallowell & Ratey, 1994; Shaffer, 1994; Solden, 1995). Several factors contribute to the difficulty of identifying ADHD in adults (Shaffer, 1994), and Solden (1995) discusses these same reasons in reference to the increased difficulty of identifying ADHD in women.

Shaffer (1994) and Solden (1995) discuss three main reasons ADHD may be particularly difficult to diagnose in adults. First, a diagnosis of ADHD in adults requires a childhood diagnosis of ADHD (APA, 1994; Shaffer, 1994; Solden, 1995; Tzelepis et al., 1995). Imperfect recollection of one's behaviours and psychological states in childhood make retrospective diagnosis difficult (Hechtman, 1989; Shaffer, 1994). This difficulty is compounded by the fact that many women with ADHD do not demonstrate symptoms of hyperactivity (Solden, 1995), and the childhood diagnosis of this type of ADHD may be more difficult to verify (Tzelepis et al., 1995). Biggs (1995) also notes that many adults with symptoms of ADHD did not always have symptoms which would render a childhood diagnosis of ADHD. Furthermore, "protective factors," (Solden, 1995, p. 136; Tzelepis et al., 1995) such as intelligence or a very structured home life, may mask or delay the appearance of some of the ADHD symptoms. This apparently "normal" developmental history and lack of chronicity necessary for a DSM-IV (1994) diagnosis may interfere with and impede the identification of ADHD in adults.

Second, people with ADHD often demonstrate high comorbidity rates (Biederman et al., 1991, 1993, 1994, 1995; Milberger et al., 1995: Shaffer, 1994; Solden, 1995). Learning disabilities, mood disorders, personality

disorders, and alcohol or substance abuse are common in those with ADHD (Biederman et al., 1991, 1993, 1994, 1995; Milberger et al., 1995; Wilens, Prince, Biederman, Spencer, & Frances, 1995). A cause and effect challenge arises with this point. That is, are the disorders which occur in addition to the ADHD a result of the cognitive features of ADHD, such as impulsivity or inattentiveness? Or, perhaps, are the additional disorders entities unto themselves? Huttenbach (1992) strongly believes that ADHD is a major etiological factor in several emotional disorders; Shaffer (1994) and Solden (1995) agree with this point.

Third, many of the symptoms of ADHD overlap with those of other disorders, for example, mood and anxiety disorders and borderline personality disorder (Milberger et al., 1995; Shaffer, 1994; Solden, 1995). Symptoms which may be suggestive of depression, anxiety, personality disorders, obsessive compulsive disorder, or other disorders may lead clinicians away from a diagnosis of ADHD. Solden (1995) suggests that symptom overlap is the most common factor adding to the difficulty of diagnosing ADHD in women. What is, in fact, ADHD may be mistaken for another disorder. For example, a woman who presents as over-emotional may be misdiagnosed as having histrionic personality disorder.

Ratey et al. (1995) and Solden (1995) state that, in addition to these three factors, the difficulty of identifying ADHD in women is exacerbated by negative and inappropriate stereotypes about women's behaviour. For example, a particular woman's disorganization, affective lability, or tendency to talk excessively may be attributed more to her gender rather than underlying ADHD (Ratey et al., 1995).

Several instruments have been designed to assess ADHD in adults (Biggs, 1995), but no single instrument can be used to reach such a diagnosis

(Brown, 1995). However, two instruments have proven to be particularly useful in screening for ADHD: the Wender Utah Rating Scale (WURS) (Ward et al., 1993) and the Brown Attention Deficit Disorder Scales (BADDS) (Brown, 1996). The WURS and the BADDS were the two instruments used to investigate symptoms of ADHD in the participants of this study. A detailed description of these instruments is provided in the Methodology section of this thesis.

Etiology ADHD is a result of neurological abnormalities of a structural and/or chemical nature (Quinn, 1995). However, the symptoms of ADHD have not yet been linked to one specific biological defect. A family-genetic study by Faraone, Biederman, Keenan, and Tsuang (1991) and Biederman et al. (1992) provide support for the biological basis and genetic transmission of the ADHD. These studies also provided support for comorbidity patterns associated with ADHD.

Treatment Little is known about the treatment of ADHD in adults (Wilens, Spencer, & Biederman, 1995). Because adults with ADHD often experience other psychological and emotional disturbances (Biederman et al., 1991, 1993, 1994; Milberger et al., 1995; Shekim et al., 1990; Wilens, Spencer, & Biederman, 1995), determining the most effective treatment is of particular importance (Wilens, Spencer, & Biederman, 1995). Stimulants and anti-depressants have been used as a component of treatment (Goodman & Charney, 1985; Hallowell & Ratey, 1994; Hudson & Pope, 1990; Lipman & Kendall, 1992; Solden, 1995; Wilens, Biederman, Mick, & Spencer, 1995; Wilens, Prince et al., 1995; Wilens, Spencer, & Biederman, 1995).

However, Hallowell (1995) states that medication is not always necessary and discusses the benefits of other, more psychologically-based interventions, such as various forms of individual and group therapy. Helping

a woman with ADHD create structure in her life is a particularly effective component in the successful treatment of the disorder (Hallowell, 1995; Hallowell & Ratey, 1994). Nadeau (1995b) and Ratey, Greenberg, and Lindem (1991) further suggest that a multi-disciplinary approach is the most effective.

Common Features of Bulimia and ADHD

Although bulimia and ADHD share numerous features, three major characteristics emerge. First, those with bulimia or ADHD demonstrate similar comorbidity patterns. Second, anti-depressants have been used as a component in the successful treatment of both bulimia and ADHD. Finally, those with bulimia or ADHD often demonstrate tendencies toward impulsive behaviour. In the following section, the research supporting each of these similarities is discussed.

1) Comorbidity

Bulimia Comorbidity of psychological disturbance is common (Holderness et al., 1994). Investigation of comorbidity patterns in eating disorders is useful because it can provide additional information on the diagnosis, course, and treatment of these disorders (Herzog et al., 1992). The comorbidity of bulimia with other disorders is well-documented. However, studies vary in terms of definitions, sample population, subjects' ages, and family history (Holderness et al., 1994). Consequently, results vary a great deal from study to study, and not all research supports comorbidity patterns (e.g. Bushnell et al., 1994). Additionally, some have suggested that comorbidity research is somewhat problematic because much of it is conducted on clinical samples (Bushnell et al., 1994; Holderness et al., 1994). Those with multiple problems may be more likely to seek treatment, a phenomena known as "Berkson's Bias" (Bushnell et al., 1994). Exclusive use of clinical

populations may skew results, indicating higher rates of comorbidity than truly exist.

Nevertheless, many researchers have found that bulimia is often found in conjunction with affective disorders, particularly major depression (Braun et al., 1994; Brewerton et al., 1995; Bushnell et al., 1994; Herzog et al., 1991; Margolis et al., 1994), anxiety disorders (Braun et al., 1994; Brewerton et al., 1995; Herzog et al., 1991; Margolis et al., 1994), substance abuse (Braun et al., 1994; Brewerton et al., 1995; Bushnell et al., 1994; Herzog et al., 1991; Holderness et al., 1994; Margolis et al., 1994), and personality disorders (Braun et al., 1994; Herzog et al., 1991; Schmidt & Telch, 1990; Vitousek & Manke, 1994). Because comorbidity with affective disorders and substance abuse appear to be the most common to both bulimia and ADHD, only these will be discussed in greater detail.

Bulimia and other eating disorders are often associated with affective disorders, particularly major depression (Braun et al., 1994; Brewerton et al., 1995; Bushnell et al., 1994; Herzog et al., 1991; Margolis et al., 1994). However, comorbidity patterns do vary from study to study. That is, some studies find that females with bulimia are more likely than those with anorexia to suffer from affective disorders (Braun et al., 1994; Margolis et al., 1994). Other researchers have found higher rates of affective disorders among females with anorexia or combined anorexia and bulimia, although the rate of affective disorders in subjects with bulimia was still very high (Herzog et al., 1991). What is consistent, however, is that bulimia and anorexia are highly associated with affective disorders, and a trend towards greater affective dysfunction appears to exist.

In a sample of eating disordered females, Herzog et al. (1992) found that, at the time of intake, comorbidity with affective disorders was the most

common in comparison to other categories of psychological disorders, such as anxiety disorders, personality disorders, and other non-affective disorders. Half of the females with bulimia were diagnosed with at least one affective disorder, with the majority of them being diagnosed with major depression (32%) or intermittent depressive disorder (13%). Females with anorexia nervosa or a combination of anorexia and bulimia had even higher rates of affective disorders.

Several other studies have found high rates of affective disorders in females with bulimia. In a study by Braun et al. (1994), 71% of the female subjects with bulimia, either with or without a history of anorexia, were also diagnosed with an affective disorder, with 53% of the subjects having major depression. Approximately 20% were diagnosed as having dysthymia, a lower-grade depression. Brewerton et al. (1995) found that 75% of his subjects, females with bulimia, had an affective disorder, with 63% of the diagnoses being major depressive disorder. In a study examining comorbidity differences between normal controls and females with bulimia in clinical and general populations, Bushnell et al. (1994) found both populations with bulimia were more likely to suffer from an affective disorder, with rates of 84% (clinical) and 34% (general). Major depression was most common in both groups of subjects who had bulimia, with the clinical sample having a rate of 80% and the general population having a rate of 30%. However, only the clinical sample had a significantly higher rate of dysthymia, with a rate of 52%. Margolis et al. (1994) found that all of the subjects with bulimia were also diagnosed with major depression, and 25% were diagnosed with dysthymia.

Some studies examined the developmental sequence of bulimia and affective disorder, and the results appear to be comparable. The majority of the subjects in the study conducted by Brewerton et al. (1995) had an

affective (61%) or anxiety (71%) disorder prior to the onset of bulimia. Thirty-four percent developed bulimia first, and the remainder developed the disorders concurrently.

The misuse of alcohol, and perhaps other substances such as marijuana, cocaine, stimulants, and diet pills, appears to be more common in those with bulimia in comparison to control subjects or those with anorexia (Braun et al., 1994; Bushnell et al., 1994; Herzog et al., 1992; Margolis et al., 1994). Petersson (1990) suggests that bulimia, particularly the binge eating aspect of the disorder, is a form a substance abuse (see Bushnell et al., 1994 for other examples). However, the theory of bulimia as a form of substance abuse has not be supported in all studies (see Corrigan, Johnson, Alford, Bergerron, & Lemmon, 1990). A thorough review of the literature in this area has been conducted by Holderness, Brooks-Gunn and Warren (1994).

Braun et al. (1990) found that, in subjects with bulimia, the lifetime prevalences for alcohol and drug dependence were 41.9% and 51.6% respectively. Females with anorexia (with symptoms of bulimia) and females with bulimia (with a history of anorexia) had somewhat lower rates of alcohol and drug dependence. Females with only anorexia had rates significantly lower than all three of the other eating disordered groups. Statistically significant differences between groups were minimal, and lifetime prevalence rates were lower in the study by Herzog et al. (1992). These rates tend to vary a great deal; much of this variation appears to be related to the type of anorexia (i.e., restrictor or bulimic) one has (Margolis et al., 1994). For example, Margolis et al. (1994) found that females of normal weight with bulimia were more likely than both groups with anorexia (restrictor or bulimic) to be dependent on alcohol, but both subject groups with anorexia were more likely to be abusing drugs. The results of this study are questionable, however, because the sample

size was very small. In their investigation of clinical and general population females with bulimia, Bushnell et al. (1994) found substance (alcohol and drugs) abuse or dependence rates four to five times higher in the clinical population than in normal controls. These rates were somewhat lower in the females with bulimia in the general population, as compared to the clinical sample. Brewerton et al. (1995) also found that rates of substance abuse were higher than expected in their sample of females with bulimia.

Wiederman and Pryor (1996) took a slightly difference approach and rather than investigating frequency use, they looked only at whether or not the subjects had tried the substances in question: alcohol, various drugs (amphetamines, barbiturates, hallucinogens, marijuana, tranquillizers, and cocaine), and cigarettes. Subjects with bulimia were more likely to have tried or used these substances, particularly alcohol, amphetamines, and marijuana. Wiederman and Pryor (1996) also investigated the relationship between substance use and symptom severity; they found that symptom severity, measured by rate of purging, was related to having used a greater variety of substances.

ADHD Very little is known about the comorbidity patterns of ADHD (Biederman et al., 1991). This appears to be particularly true in regards to ADHD in adults; only a few empirical investigations on this topic appear in the literature. Perhaps this is due in part to the relatively recent recognization and acknowledgement of ADHD in adults. The few existing studies on comorbidity patterns in adults with ADHD reveal that this disorder is often found in conjunction with other psychological disorders (Biederman et al., 1993, 1994). The results in studies by Biederman et al. (1993, 1994) reveal similar comorbidity patterns, which are also comparable to comorbidity patterns demonstrated by women with bulimia. Furthermore, in a review of

comorbidity studies on children with ADHD, Biederman et al. (1991) found antisocial disorder, depression, anxiety, learning difficulties, and alcohol/substance abuse to be very common. Similar patterns of comorbidity in children, adolescents, and adults with ADHD provides additional support for the existence of ADHD in adults.

Depression is often found in conjunction with ADHD in adults (Biederman et al., 1993, 1994; Milberger et al., 1995; Shekim et al., 1990). Biederman et al. (1993) found that 31% of their sample of referred adults with ADHD could also be diagnosed with major depressive disorder. Seventeen percent of the non-referred ADHD subjects were diagnosed with major depressive disorder. For both groups, these results were clinically significant in comparison to the normal control group.

In a study examining gender differences in adults with ADHD, Biederman et al. (1994) found that between 36% and 38% of the females with ADHD also met the diagnostic criteria for major depression. Dysthymia was also common, though not as statistically significant. Shekim et al. (1990) also found significantly higher rates of depressive symptoms in their sample of adults with ADHD. Ten percent of their sample had a history of major depression, and 25% had a history of dysthymia.

Alcohol and substance abuse and dependency occurring in adults with ADHD is also well-documented (Biederman et al., 1993, 1994, 1995; Shekim et al., 1990; Wilens, Prince, et al., 1995). In the study by Biederman et al. (1993), 25% and 27% of the referred adults with ADHD also demonstrated alcohol abuse or dependence respectively. These rates were much higher than those for adults without ADHD, who only had rates of 8% and 13% for alcohol abuse or dependence. The rates of drug abuse (20%) and dependence (18%) were also significantly higher among the referred subjects with ADHD.

In another study, females with ADHD were more likely than normal controls to have substance abuse disorders (Biederman et al., 1994). For example, 16% of the females with ADHD were classified as abusing alcohol, and 22% were classified as being dependent upon alcohol. Rates of only 4% (alcohol abuse) and 6% (alcohol dependence) were found in the normal control females. Dependence on drugs was found in 18% of the females with ADHD, but in only 4% of the control females. The rates of drug abuse in females with ADHD and control females were not significantly different. Shekim et al. (1990) also found high rates of alcoholism (34%) and drug abuse or dependence (30%) in his sample of adults with ADHD.

Biederman et al. (1995) found much higher rates of psychoactive substance abuse in adults with ADHD (52%) than in normal control subjects (27%). However, they did not find higher rates of alcohol abuse or dependence in their subjects with ADHD, which they had found in an earlier study (Biederman et al., 1994). However, they did find that the subjects with ADHD who abused psychoactive substances were more likely to demonstrate some form of alcohol abuse. Biederman et al. (1995) suggest that those with a childhood onset of ADHD may be at greater risk for developing psychoactive substance abuse disorders.

Some have argued that symptom overlap of ADHD and various other disorders, for example, affective disorders or learning disabilities, can contribute to misdiagnosis (Weinberg & Brumback, 1992), a phenomenon which is problematic both clinically and scientifically. However, even when controlling for overlapping symptoms, Milberger et al. (1995) found that the vast majority of subjects retained both their ADHD and major depression diagnoses.

2) Anti-depressant Treatment

Psychopharmacological treatments have been used successfully with both bulimia and ADHD. Anti-depressants appear to be particularly useful in the treatment of bulimia (Goldbloom et al., 1991; Goldbloom & Olmsted, 1993; Goodman & Charney, 1985; Hudson & Pope, 1990; Lipman & Kendall, 1992; Trygstad, 1990; Walsh et al., 1991). Although stimulants such as methylphenidate (Ritalin), dextroamphetamine (Dexadrine), and pemoline (Cylert) are the most common type of medication used to treat ADHD (Hallowell & Ratey, 1994; Warneke, 1990), several studies have demonstrated that anti-depressants are also effective in the treatment of ADHD (Goodman & Charney, 1985; Hallowell & Ratey, 1994; Lipman & Kendall, 1992; Wender & Reimherr, 1990; Wilens, Biederman, Mick, & Spencer, 1995; Wilens, Biederman, Spencer, & Prince, 1995; Wilens, Spencer, & Biederman, 1995). Although stimulants have been used to treat bulimia (Messner, 1989), little research exists in this area. For this reason, only anti-depressant treatment will be discussed in the following section.

Please note that although psychopharmacology is often effective, it is not necessarily the only or most effective treatment for ADHD or bulimia (Hallowell & Ratey, 1994; Lipman & Kendall, 1992; Walsh et al, 1991). Some medications may produce undesirable side effects and the positive results achieved with medications are not always long-term (Hallowell & Ratey, 1994; Lipman & Kendall, 1992; Wilens, Spencer, & Biederman, 1995; Walsh et al., 1991). Many non-pharmacological treatment options are available for those with bulimia and ADHD (Fairburn & Hay, 1992; Hallowell, 1995; Hallowell & Ratey, 1994; Hartmann et al., 1991; Murphy, 1995; Nadeau, 1995b).

Anti-depressants have been used to treat other psychological disorders

in addition to bulimia and ADHD (Goodman & Charney, 1985; Hudson & Pope, 1990). Based on their research and review of the literature, which includes investigation on treatment response and family and comorbidity studies, Hudson and Pope (1990) have suggested that a strong relationship may exist between bulimia, ADHD, panic disorder, obsessive-compulsive disorder, and depression. Some evidence indicates that cataplexy (a sleep disorder), migraine, and irritable bowel syndrome may be included in this family of disorders, which Hudson and Pope (1990) have labelled "Affective Spectrum Disorder." Although this hypothesis has come under some scrutiny (Ahuja, 1991), Hudson and Pope (1990) have provided a strong base for their theory. Provided further investigation supports this model, Hudson and Pope (1990) believe that Affective Spectrum Disorder would be one of the most common diseases.

Bulimia Several studies have demonstrated that anti-depressants may be an effective component in the treatment of bulimia (Barlow et al., 1998; Goldbloom & Olmsted, 1993; Pope et al., 1983: Trygstad, 1990; Walsh et al., 1991). In addition to the studies noted below, the success of anti-depressants in the treatment of bulimia has been noted in reviews by Goodman and Charney (1985), Hudson and Pope (1990), and Lipman and Kendall (1992).

A class of antidepressant that appears to be particularly useful in the treatment of bulimia is known as serotonin uptake inhibitors, such as fluoxetine (Prozac) (Hudson & Pope, 1990). Goldbloom and Olmsted (1993) found that women with bulimia who received fluoxetine demonstrated a marked attitudinal improvement when compared to subjects who had received only a placebo. Over the course of treatment, the experimental subjects' scores on an eating disorder assessment device decreased. In addition, many of the

subjects who received fluoxetine also demonstrated a reduction in the major symptoms associated with bulimia, binge eating and purging.

Trygstad (1990) found similar results in his research on the use of fluoxetine in treating women with bulimia. During the course of treatment, almost half of his subjects had stopped binging and purging. The remaining subjects had reduced their binging and purging by 75%. Although the use of fluoxetine yielded positive effects, Trygstad (1990) notes that pharmacological treatment is not sufficient in and of itself, and a treatment program which includes cognitive-behavioural intervention and guidelines about food and eating is most effective.

Tricyclics, such as desimpramine (Norpramin) and imipramine (Tofranil), compose another class of antidepressant commonly used to treat bulimia (Hudson & Pope, 1990). Barlow and associates (1988) investigated the use of desipramine on women with bulimia. Women in the experimental group reported that binging and vomiting behaviours decreased during the course of treatment. The experimental subjects also experienced a gradual decrease of symptoms such as fatigue, anger, and paranoia. Not all scales revealed a reduction of symptoms of depression. However, this may have been because the dosage of desipramine was lower than would be normally used to treat depression. Barlow et al. (1988) noted that binging and vomiting increased when treatment was discontinued, and several subjects dropped out because they experienced undesirable side effects.

Walsh et al. (1991) found that subjects treated with desipramine were able to reduce their binge frequency. While this is a positive result, Walsh et al. (1991) noted that the use of desipramine alone does not appear to be sufficient to eradicate the symptoms of bulimia entirely. For example, although binge frequency was reduced by 47%, subjects were still binging an

average of 4.3 times per week. Furthermore, the relapse rate in the 4 month maintenance period was 29%. Further investigation into the usefulness of desipramine and other pharmacological treatments is warranted, as is additional research on the comparative usefulness of other forms of treatment, particularly those of a cognitive-behavioural orientation (Walsh et al., 1991).

Pope et al. (1983) investigated the use of imipramine in the treatment of bulimia and found that experimental subjects experienced a marked decrease in binge eating. The experimental subjects demonstrated other positive outcomes such as less intense binging, fewer thoughts about food, reduced depressive symptoms, and greater subjective feelings of well-being. Follow-up investigations revealed that these positive results were maintained with continued use of imipramine. In fact, 35% of the subjects, almost all of whom had had unremitting bulimia for 2 to 14 years, stopped binge eating completely.

ADHD Anti-depressants have been found to be useful in the treatment of ADHD (Goodman & Charney, 1985; Hallowell & Ratey, 1994; Hudson & Pope, 1990; Lipman & Kendall, 1992; Solden, 1995; Wender & Reimherr, 1990; Wilens, Biederman, Mick, & Spencer, 1995; Wilens, Biederman, Spencer, & Prince, 1995; Wilens, Spencer, & Biederman, 1995). While desimpramine is the anti-depressant most commonly used, nortryptyline (Pamelor) and imipramine have been used with success. Fluoxetine also appears to be beneficial, particularly if symptoms of depression are present (Hallowell & Ratey, 1994; Solden, 1995). However, this anti-depressant does not appear to have marked effects on attention. Several reviews have also noted the success of anti-depressants in the treatment of ADHD (Goodman & Charney, 1985; Hudson & Pope, 1990; Lipman & Kendall, 1992; Wilens, Biederman, Spencer, & Prince, 1995). The body of

evidence to support the use of anti-depressants in the treatment of ADHD is not large, but experts on ADHD, such as Hallowell and Ratey (1994), acknowledge the effectiveness of this type of medication. One study highlights the use of desimpramine (Wilens, Biederman, Mick, & Spencer, 1995), which has also been useful in the treatment of bulimia (Walsh et al., 1991).

Wilens, Biederman, Mick, and Spencer (1995) investigated the use of two tricyclics, desimpramine and nortriptyline in the treatment of ADHD. Over half (68%) of the subjects who were given desimpramine demonstrated a marked improvement; several (42%) of the subjects who were given nortriptyline also improved greatly. However, the descrepancy in response to the two anti-depressants was significant, with desimpramine producing a more favourable outcome. This positive response appeared to be independent of comorbidity, but longer treatment produced greater improvements.

Although Hudson and Pope (1990) note several other studies in which anti-depressants have been used to treat ADHD, these studies were conducted on children. While little evidence exists that would suggest that these anti-depressants would not be effective in the treatment of adult ADHD, further research needs to be conducted to support the use of this type of drug in the treatment of ADHD in adults.

3) Impulsivity

Bulimia Although not a diagnostic feature of bulimia, impulsivity is common in women with bulimia (Casper et al., 1992; Schmidt & Telch, 1990). Several researchers suggest that the investigation of impulsivity is complicated by the obscurity of the meaning of the word (Fahy & Eisler, 1993; Newton et al., 1993). Newton et al. (1993) suggest that impulsivity is comprised of tendencies toward making decisions quickly, acting without thinking, and engaging in risk-taking behaviour (also see Fahy & Eisler, 1993).

Binging on food may be considered an impulsive behaviour (Fahy & Eisler, 1993), the function of which appears to be tension reduction (Newton et al., 1993; Sohlberg et al., 1989). Sohlberg et al. (1989) found that the most significant indicator of prognosis in their sample of eating disordered women was impulsivity. Those who were more impulsive tended to have a less favourable outcome.

Although studies have revealed that women with bulimia have an increased tendency to behave impulsively (Casper et al., 1992; Fahy & Eisler, 1993; Newton et al., 1992; Schmidt & Telch, 1990), the exact nature of this behaviour in relation to the course of their disorder remains unclear. With the exception of a few studies noting or measuring impulsivity in those with bulimia (Casper et al., 1992; Schmidt & Telch, 1990), the majority of the research appears to be based on the work of Lacey and Evans (1986). Based on their review of the literature on impulsivity and its relation to substance abuse disorders, eating disorders, personality disorders, self-injury, and a variety of other disorders of impulse control such as shoplifting, arson, and pathological gambling, Lacey and Evans (1986) proposed that a separate disorder, "multi-impulsive personality disorder," be established. Lacey and Moureli (1986) suggested the term "multi-impulsive bulimia" in reference to women with bulimia and additional impulsive behaviours. These women are in contrast to those with "uni-impulsive bulimia," whose only impulsive behaviour is their binge eating. In addition to their binge eating, these women with "multi-impulsive bulimia" may engage in one or more of the following impulsive behaviours: 1)stealing; 2) excessive use of alcohol and drugs; 3) promiscuity; 4) self-injury, for example, cutting and burning; and 3) attempting suicide (Fichter et al., 1994; Lacey & Evans, 1986; Wiederman & Pryor, 1996). According to Lacey and Evans (1986), these women

demonstrate greater pathology, have a less favourable prognosis, and require different treatment from those women whose only impulsive behaviour is their binge eating (also see Fichter et al., 1994).

Further investigation on the proposed "multi-impulsive bulimia" has yielded mixed results. Fahy and Eisler (1993) investigated impulsivity in a sample of women with eating disorders. When impulsivity was measured by number of impulsive behaviours, results indicated that women with bulimia who engaged in multiple-impulsive behaviours (multi-impulsives) did not respond as well to treatment as their less-impulsive counterparts (uni-impulsives), whose only impulsive behaviour was their binge eating. However, in 16-week and 1-year follow-ups, no differences between these two groups were detected. Additionally, when impulsivity was measured by a questionnaire, there were no differences in treatment response between those with high- and low-impulsivity scores. Fahy and Eisler (1993) concluded that women with "multi-impulsive bulimia" were not a distinct subgroup, but that women with bulimia did tend to engage in more impulsive behaviour than would be considered normal or average.

A study by Fichter et al. (1994) compared those with "multi-impulsive bulimia" and those with "uni-impulsive" bulimia after an in-patient treatment program. At the time of discharge, those with multi-impulsive bulimia demonstrated increased levels of anxiety, anger, hostility, and depression when compared to those subjects with uni-impulsive bulimia. Anger and hostility continued to be problematic for those with multi-impulsive bulimia, even two years after discharge. Subjects with multi-impulsive bulimia also tended to have higher rates of psychiatric comorbidity. Fichter et al. (1994) propose that those with multi-impulsive bulimia may form a distinct subgroup, and findings by Wiederman and Pryor (1996) support this notion.

Newton et al. (1993) also found higher rates of impulsivity in women with bulimia. Approximately half of these subjects met Lacey and Evans (1986) criteria for multi-impulsive bulimia. However, after controlling for bulimic symptoms, those who could be classified as having multi-impulsive bulimia did not demonstrate higher rates of impulsivity, obsessionality, or depression. Newton et al. (1993) concluded that impulsivity is a major component of bulimia. However, it is not a separate occurrence and is related to greater psychopathology in general. Furthermore, although many women with bulimia engage in what are labelled as "impulsive" behaviours, many of these behaviours may actually be planned, and cognitive behavioural interventions may be beneficial.

Although not all studies (e.g., Fahy & Eisler, 1993; Newton et al., 1993) on "multi-impulsive bulimia" supported the initial work of Lacey and Evans (1986), some support for increased difficulties in women with bulimia and other impulsive behaviours is evident (Fichter et al., 1994; Wiederman & Pryor, 1996). Because these women have multiple problems, adjustments in treatment may be necessary to be effective. Newton et al. (1993) suggest cognitive behavioural treatment may be particularly useful.

ADHD Impulsivity is one of the key characteristics of two of the three types of ADHD (APA, 1994; Hallowell & Ratey, 1994). Much research has been conducted on impulsivity as it relates to childhood ADHD, particularly in boys. However, research on impulsivity as it relates to adults with ADHD appears to be limited, particularly for females. Perhaps the lack of research on this specific topic is due in part to the fact that impulsivity is considered to be so central to ADHD.

The investigation of the hyperactive-impulsive and the combined types of ADHD in adults, particularly adult females, may be complicated by two

factors. First, childhood symptoms of hyperactivity and impulsivity may disappear or present in a different manner in adulthood (APA, 1994; Brown, 1995). For example, impulsivity in a child may be evidenced as speaking out of turn, expressing anger inappropriately, or beginning a task before hearing all the instructions. Adults with ADHD may demonstrate these as well as other impulsive behaviours, such as gambling, stealing, or reckless driving (Hallowell & Ratey, 1994). Some adults with ADHD may turn to alcohol or drugs to ease the mental restlessness they feel (Murphy, 1995). When the focus is on the maladaptive behaviours, ADHD may not be considered as an underlying reason for the occurrence of these behaviours.

Second, the hyperactive-impulsive type of ADHD may occur less frequently in females than in males, with more females having the inattentive type of ADHD (Hallowell & Ratey, 1994; Solden, 1995). This provides a smaller research base on which to investigate this form of ADHD in adult females. As little is known and has been reported about impulsivity as it is directly related to ADHD in adult females, detailed information is scarce.

Summary

Bulimia and ADHD are two psychological disorders with differing central behavioural patterns which may suggest that the disorders are quite distinct. However, a thorough investigation of the literature reveals that bulimia and ADHD share several characteristics. Three major commonalities emerge. First, those with bulimia and ADHD have several comorbid disorders in common. Affective disorders, particularly major depression, and substance abuse or dependence appear to occur the most frequently, but personality disorders, anxiety disorders, and antisocial disorders have also been noted to occur in those with bulimia or ADHD. Second, those with bulimia or ADHD tend to respond favourably to treatment with anti-depressant medication.

Third, impulsivity is a common feature in bulimia and ADHD.

Purpose

With these similarities considered, one may wonder whether bulimia and ADHD are connected. The purpose of this study was to explore the possibility of this link. To accomplish this goal, symptoms of ADHD were investigated in women with bulimia. This project comprised of two components. The first was to examine women with bulimia for childhood indications of ADHD. As noted in the DSM-IV (1994), in order be considered as having ADHD as an adult, one must have demonstrated symptoms of ADHD as a child. The Wender Utah Rating Scale (Ward, Wender, & Reimherr, 1993) was used to examine childhood indicators of ADHD in the participants in this research project. In the second component, the current ADHD symptomatology in women with bulimia was examined. The Brown Attention Disorder Scales - Adult Form (Brown, 1996) was the instrument used to accomplish this goal.

Please note that the purpose of this project was not to diagnose ADHD in the participants. Achieving a diagnosis of ADHD in adults, as well as in children, is a complex and lengthy process. This project was exploratory in nature with the intent of determining whether women with bulimia exhibit some of the features often associated with ADHD.

Research Questions

Based on the review of the literature, two major research questions emerged initially.

Research Question 1 What percentage of women with bulimia have enough symptoms of ADHD to suggest that they may have ADHD?

To examine the possible existence of ADHD in women with bulimia, I needed to examine both their historical and current symptomatology. Recall,

in order to establish the existence of ADHD in adulthood, indications of ADHD must be present in childhood (APA, 1994). The Wender Utah Rating Scale (WURS) (Ward et al., 1993) was used to investigate these childhood symptoms. The Brown Attention Deficit Disorder Scales - Adult Form (BADDS) (Brown, 1996) were used to determine the percentage of women with bulimia who had symptoms suggestive of ADHD. The obtained percentages were compared to ADHD prevalence estimates of 1 - 2% suggested by Shekim et al. (1990).

Research Question 2 Is there a positive relationship between childhood and adult measures of ADHD?

According to the DSM-IV (1994), a childhood diagnosis of ADHD needs to be established before an adult diagnosis of ADHD can be reached. While the purpose of this study was not to diagnose participants with ADHD, a positive correlation between the two scales would lend additional support to the possibility of the existence of ADHD in women with bulimia.

Although only two research questions were established at the beginning of the study, the emergence of a second group of participants (women who had recovered from bulimia) and the consequential data exploration led to two additional research questions.

Research Question 3 Do those who currently have bulimia have more symptoms of ADHD than those who have a history of bulimia?

Several women who claimed to have recovered from bulimia responded to the ads I placed for this study. While I had not anticipated contact from this population, these women were included in the study because I thought that additional information could be obtained. However, this required me to examine the data for differences between those women who currently had bulimia and those who claimed to have recovered. A significant difference

between the two groups on measures of ADHD would require that I conduct my analysis on the groups separately rather than on the group as a whole. Discrepancies between groups might indicate that the ADHD symptomatology may be related to the bulimia rather than ADHD.

Research Question 4 Do symptoms of ADHD diminish over the length of time one has been recovered from bulimia?

Because some participants claimed to have recovered, I was able to investigate ADHD symptomatology in relation to recovery. If characteristics generally associated with ADHD remained constant in relation to the number of years a woman had been recovered from bulimia, this would lend support to the possibility that the symptoms reported were indicative of ADHD. However, if symptoms diminished over time, this might suggest that they were related to the bulimia, rather than being indicative of ADHD.

Significance of the Study

This project has several implications and possible contributions in the understanding of bulimia. First, this project adds to the current body of knowledge on bulimia. Second, it may add to the current knowledge of risk factors associated with bulimia. Third, it may provide additional considerations for the treatment of bulimia. In addition, it may add to the current body of knowledge of ADHD in adults.

METHODOLOGY

Participants

The subjects required for this research project were females who had bulimia nervosa as described in the DSM-IV (1994). Only individuals over the age of 18 were permitted to participate in the study. A total of 29 women participated in all components of the study. Eighteen currently had bulimia, and 11 claimed to have recovered from bulimia.

Subjects were solicited by two means. First, advertisements were placed in the classified sections of Calgary's two major newspapers, "The Calgary Herald" and "The Calgary Sun," and in two minor publications, "Neighbours" and "FFWD" (Appendix 1). The ads ran in these publications for various lengths of time, ranging from a week to several months. Second, notices briefly describing the subjects required were posted in public areas (Appendix 2). In order to ensure a cross-section of prospective subjects, posters were placed in a variety of settings, such as post-secondary institutions, community centres, grocery stores, fitness centres, pharmacies, health professionals' offices, and community information boards. An announcement was also placed on a local cable television community information board. For both of these methods, prospective participants were asked to contact me at home by telephone.

In addition to the above methods, I had the opportunity to appear briefly on a local cable television program, "City Week," which provides the local public with information about current events in the community. During this appearance, I discussed various aspects of bulimia, such as, etiology, prevalence, and treatment options available in Calgary. I informed people that I was a graduate student at the University of Calgary and required subjects for my thesis research project. My telephone number was displayed on the

television screen, and those who were interested in or had questions about the study were encouraged to reply.

A total of 36 individuals responded to the methods discussed above. One of these individuals was a male who claimed to have recovered from bulimia. Because this study required only females subjects, he was not permitted to participate. However, I asked him if he would like a treatment resource list (Appendix 3), to which he agreed. This document was mailed to him. One female chose not to participate after learning what would be required of her. I asked her if she would like a treatment resource list, but she declined.

A total of 34 questionnaire packages were mailed to potential participants. Twenty-three of these women currently had bulimia, and 11 claimed to have recovered from bulimia. Initially this study was to include only females who currently had bulimia. However, those with a history of bulimia were included because I thought that data from this population might provide additional information in the research areas of bulimia and ADHD.

Twenty-nine of the 34 participants who had initially agreed to participate in the study completed and returned the consent forms and questionnaires. Eighteen (62.7%) of these 29 participants currently had bulimia, and 11 (27.3%) claimed to have recovered. Five (14.7%) of the 34 initial participants did not complete or return the consent forms and/or questionnaires.

Materials

The materials used in the completion of this study were as follows:

1) a screening questionnaire used during the initial telephone contact to confirm the existence of bulimia in potential participants and to obtain demographic information about the

participants and their history of bulimia (Appendix 4),

2) the Wender Utah Rating Scale (WURS) (Ward et al., 1993), a self-report questionnaire for adults which examines symptoms of ADHD in childhood,

3) the self-report component of the Brown Attention Deficit Disorder Scales (BADDS) (Brown, 1996), a device used to examine the current symptoms of ADHD in adults,

Other materials included a cover letter (Appendix 5), a consent form (Appendix 6), and an instruction sheet (Appendix 7). Because of the potential risks associated with bulimia, participants were provided with a treatment resource list.

Wender Utah Rating Scale (WURS)

The Wender Utah Rating Scale (WURS), developed by Ward et al. (1993), is a self-report inventory for adults which examines childhood symptoms of ADHD. Individuals rate their behaviour on a Likert-type scale. Although the original questionnaire contains 61 questions, Ward et al. (1993) found that a sub-set of 25 questions was particularly useful in distinguishing between adults with ADHD, adults with depression, and normal controls. Scores are calculated by summing the responses for these 25 distinguishing questions. A score of 46 or more indicates that an individual may have had ADHD as a child.

According to the results obtained by Ward et al. (1993), female participants with ADHD obtained a mean score of 65.8 (SD = 14.3). This was higher than the mean scores obtained by women with unipolar depression (M = 30.5, SD = 15.8) and female control subjects (M = 15.0, SD = 8.5). The scores for subjects with depression were significantly lower than those for subjects with ADHD but higher than the scores of the control subjects.

The validity and reliability of the WURS has been established by several investigators (Rossini & O'Connor, 1995; Stein et al., 1995; Ward et al., 1993; Weyandt, Linterman, & Rice, 1995). Several factors support the validity of the WURS (Ward et al., 1993). Items on the scale are based on the DSM-IV (1994) diagnostic criteria for ADHD. Scores obtained on the WURS can distinguish among those with ADHD, unipolar depression, and no psychological disorder. Pearson correlation coefficients between the WURS and the Parent's Rating Scale (a well-established measure of ADHD) indicate a moderate correlation (r = .41, p = .0005). Finally, treatment outcome was predictable through the use of the WURS.

The reliability of the WURS is also well-documented. Rossini and O'Connor (1995) found that the WURS demonstrated good internal consistency (Cronbach's alpha = .89). Comparable reliability results were obtained by Ward et al. (1993) (r = .90) and Weyandt et al. (1995) (Cronbach's alpha = .87). Stein et al. (1995) divided the WURS into subscales, and their results also indicated good internal consistency (Cronbach's alpha range .69 to .89). Other measures indicate that the WURS is fairly temporally stable. Weyandt et al. (1995) obtained a Cronbach's alpha of .86. Based their factor structure, Stein et al. (1995) found Cronbach's alphas ranging from .84 to .90 for each of the factors. This scale appears to be useful in recognizing childhood symptoms of ADHD in adults (Ward et al., 1993).

Stein et al. (1995) examined the WURS for gender differences and found different factor structures for males and females. Questions relevant for diagnosing ADHD in women loaded on five factors: Dysphoria, Impulsive/Conduct, Learning Problems, Attention and Organization Problems, and Unpopular. Two of these factors, Dysphoria and Attention and

Organization Problems are similar to two clusters, Affect and Attention, included in BADDS. Although Stein et al.'s (1995) method of scoring the WURS may demonstrate good validity and reliability, the current usefulness of this method is limited because norms and cut-off scores have not yet been established. Ward et al.'s (1993) scoring method is well-established and was used for the purposes of this study.

Because the norms and cut-off scores provided by Ward et al. (1993) are based on the 25-question sub-set, only these questions were used to obtain scores for the participants in this study. However, the full questionnaire was given to the participants in order to maintain methodological consistency with Ward et al. (1993) and others who have used the WURS for research (Rossini & O'Connor, 1995; Stein et al., 1995; Weyandt et al., 1995).

Although the WURS is useful in establishing the existence of symptoms of ADHD in childhood, Brown (1995) notes that the instrument is somewhat limited because it focuses only on the hyperactive type of ADHD. Because the predominantly inattentive type of ADHD may be more common in females (Hallowell & Ratey, 1994; Solden, 1995), this may somewhat limit the effectiveness of the WURS for this study. However, the WURS is currently the only instrument specifically designed and normed to investigate the childhood symptoms of ADHD of any type in adults.

A sample of questions from the WURS is provided in Appendix 8.

Brown Attention Deficit Disorder Scales (BADDS)

The Brown Attention Deficit Disorder Scales (BADDS) are two self-report inventories used to assess various characteristics associated with ADHD in adolescents and adults (Brown, 1995, 1996). Because the participants in this study were adults, only the adult version was used for this study.

Individuals rate current cognitive and behavioural characteristics on a

Likert-type scale. Forty questions are used to calculate a total score. The questions are further divided into five symptom clusters: Activation, Attention, Effort, Affect, and Memory. The Activation Cluster focuses on difficulties concerning the organization and activation of activities necessary for work. Questions in the Attention Cluster are related to maintaining attention and mental focus. The Effort Cluster contains questions regarding one's ability to maintain energy and effort for task completion. Questions in the Affect Cluster concern mood management and associated social interactions which may impact one's affect. Finally, the Memory Cluster contains questions which are related to memory functions such as forgetfulness and encoding information. For a sample of questions from the BADDS, please refer to Appendix 9.

Scores are summed to achieve a total score. A total score lower than 40 suggests that ADHD is unlikely, but still possible. A total score between 40 and 54 suggests that ADHD is not certain, but probable. A total score of 55 or higher suggests a high probability of the person having ADHD. Each cluster has a cut-off score indicating the possibility of statistically significant impairment in the function of that domain.

According to Brown's (1996) normative research, adults with ADHD obtained a mean BADDS Total score of 77.9 (SD = 16.3). This is much higher than the mean BADDS Total score obtained by normal controls (M = 30.9, SD = 15.8). Scores obtained by males and females were not significantly different from each other.

Normative research provides good support for the validity and reliability of the BADDS. Like the WURS, some questions on the BADDS are based on the DSM-IV (1994) diagnostic criteria for ADHD. Other questions are related to additional symptoms associated with ADHD which are not included in the

DSM-IV (1994) criteria. Scores obtained on the BADDS by those with ADHD (M = 77.9, SD = 16.3) and normal controls (M = 30.9, SD = 15.8) are significantly different (t = 24.7, df = 183, $p < .001$). Furthermore, comparisons with Wechsler IQ scores and Bannatyne Index scores support the concurrent validity of the BADDS.

Brown's (1996) normative research also provides support for the reliability of the BADDS. The internal consistency for the instrument was high, with a Cronbach's coefficient alpha of .96. The Cronbach's coefficient alphas for the Clusters ranged from .79 to .92. Although Brown (1996) did not measure the temporal stability of the adult version of the BADDS, the correlation for the adolescent version was .87, indicating satisfactory reliability.

The BADDS has two major advantages over other means of assessing ADHD in adults. First, the BADDS can be used to assess both types of ADHD, the predominantly hyperactive-impulsive type and the predominantly inattentive type (Brown, 1995). Normative research by Brown (1996) demonstrated that there were no significant differences in total scores for these two types of ADHD. Second, the BADDS is one of the only scales which has been normed to measure adult functioning (Biggs, 1995). Although other instruments are available to assess ADHD in adults, for example, the Adult ADD Questionnaire and the Copeland Symptom Checklist for Adults Attention Deficit Disorder, these scales have not yet been normed or undergone clinical investigation.

Procedure

After potential participants contacted me by telephone, any questions they had about the study were answered. I discussed all aspects of informed consent with the potential participants by reading the consent form to them.

The information included who I was, what I was doing, what would be required of the participants, withdrawal rights, and conditions of confidentiality. A screening interview was conducted to confirm the existence of bulimia in the potential participants. Participants who stated that they had received a professional diagnosis were not required to complete this portion of the telephone screening, except to report the number of years that they had had bulimia. Only those potential participants meeting the DSM-IV (1994) criteria for bulimia nervosa were included in the study, with one exception. One of these women binged only once a week instead of the two times designated in the DSM-IV (1994). However, she met all other criteria and had been engaging in this behaviour for two years. While this sub-clinical behaviour pattern would render a diagnosis of "Eating Disorder Not Otherwise Specified," I thought that the duration of this behaviour indicated a problem severe enough for this participant to be included in the study.

Questionnaire packages were mailed to participants after their suitability for the study had been established. That is, they had bulimia and wished to complete the questionnaires. These packages consisted of the cover letter, two consent forms, instruction sheet, WURS, self-report scale of the BADDS, the treatment resource list, and a stamped envelope addressed to me. Participants were required to complete and sign the consent forms and the questionnaires. They were then required to mail one of the completed and signed consent forms and the completed questionnaires to me using the stamped and addressed envelope enclosed in their package.

Pending approval of this thesis, I will mail a summary of these results (Appendix 10) to those participants who indicated on their consent form that they wished to receive such a summary.

Data Analysis

Descriptive statistics and demographics with regards to the participants and their history of bulimia were calculated and are reported in the "Results" section. Demographic information included age and occupation. With regards to their bulimia, professional diagnosis, meeting the DSM-IV (1994) criteria for bulimia, having a history of anorexia nervosa, number of years having had bulimia, and number of years recovered (if relevant) are discussed.

Demographic information and questionnaire scores were determined. The following data analysis was conducted on the WURS and the BADDS, including the BADDS Clusters.

1. Pearson Correlation between WURS and BADDS Scores,
2. Chi-square tests to test for differences on the WURS and the BADDS between those who currently had bulimia and those who claimed to have recovered from the disorder,
3. Pearson Correlations among BADDS Cluster Scores,
4. MANOVA for BADDS Cluster Scores,
5. Pearson Correlation between BADDS Total score and number of years recovered for those participants who claim to have recovered from bulimia.

Where required, a significance level of .05 was set. Data analysis was conducted with the *Statistical Program for the Social Sciences (SPSS) for Windows - Version 7.*

RESULTS

A total of 34 questionnaire packages were mailed to potential participants. Twenty-nine (85.3%) (ALL) of the initial 34 participants completed and returned the consent forms and questionnaires. Eighteen (62.7%) of these 29 participants currently had bulimia (BUL) and 11 (27.3%) claimed to have recovered from bulimia (REC).

Five (14.7%) of the 34 initial participants did not return the consent forms and/or questionnaires. Subsequent telephone calls to these women were unsuccessful. Two had had their telephones disconnected, and 3 did not return answering machine messages. These 5 subjects were not included in any portion of the data analysis, but demographic information on this group is reported.

Please note that some information and scores are unavailable due to incomplete questionnaires and participants' choice to not respond to some questions. Because of this, the number of cases used to calculate final results varies. Additionally, all reported percentages are based on only the valid, that is, fully completed, cases.

Demographic Information

Participants Who Did Not Return Questionnaires Five (14.7%) of the 34 initial participants did not return their consent forms or completed questionnaires. One of these participants met all the criteria for bulimia except for the purging component of the disorder. That is, while she had binged and purged in the past, at the time she was screened, she only binged.

The means and standard deviations of the demographic information for the participants were as follows. Participants were 24.0 years old (SD = 2.6) and had had bulimia for an average of 7.2 years (SD = 4.8). Four (80%) of these participants were post-secondary students. Perhaps they had been

occupied with school and either forgot about or did not have time to complete the questionnaires. Two of the telephone numbers had been disconnected. Perhaps these women moved, and the documents were lost or forgotten in the process.

ALL Participants The average age of the participants was 29.1 years (SD = 10.0). Ten (34.4%) were students in a post-secondary institution, 1 (3.5%) was a working student, 14 (48.3%) were employed in various occupations (for example, fitness co-ordinator, account clerk, secretary, business owner, dental assistant), 2 (6.9%) were home-makers, and 2 (6.9%) were unemployed.

Twenty (69.0%) of the participants had been diagnosed as having bulimia by a professional. The remaining participants were screened using DSM-IV (1994) criteria, and all but one participant met the full criteria as was previously discussed in the "Methodology" section.

Participants developed bulimia when they were 18.2 years of age (SD = 7.8) and had had bulimia for 8.0 years (SD = 6.4). Eleven (37.9%) had a history of anorexia nervosa, and 1 (3.4%) developed bulimia first, but did not have anorexia at the time of the study.

Twenty-seven (93.1%) of the participants discussed treatment. Twelve (44.4%) of these 27 participants were currently receiving professional treatment, and 5 (18.5%) had received treatment in the past. One (3.7%) expected to begin treatment in the summer. The 9 (33.3%) remaining participants were currently not in treatment or had not received treatment in the past.

Of the eighteen participants who had undergone or were undergoing treatment, 9 (50.0%) thought that the treatment that they had received or were receiving was helpful, and 4 (22.2%) said that it was "somewhat" helpful

or helpful for the underlying causes of disorder, but not the binging and purging behaviours. Five participants (27.8%) did not believe that the treatment was effective or beneficial.

Treatment methods included individual counselling by a psychologist, psychiatrist, or other professional (social worker, nutritionist) (5 cases - 27.8%), group treatment (1 case - 5.6%), pharmacotherapy (1 case - 5.6%), or a combination of the above methods (2 cases - 11.1%). One participant (5.6%) found the 12-Step program utilized by Overeaters Anonymous to be most helpful, and 1 participant (5.6%) attended a residential treatment program. Three (16.7%) participants believed that a family member, friend, or boyfriend had been the most helpful. Four (22.2%) of these participants did not discuss the type of treatment in which they had engaged.

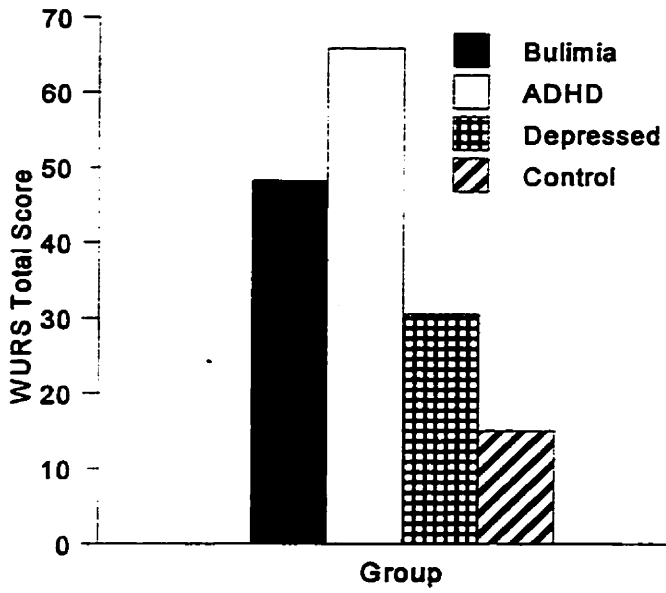
Subjects were not questioned on medications they had been prescribed by professionals, their use of alcohol and/or other substances, or their history of psychological health (i.e., comorbidity). However, some subjects volunteered information on these topics. One participant was taking Ritalin, a stimulant commonly used to treat ADHD. One participant stated that she had used amphetamines (stimulants) in the past. One participant stated that she also had obsessive-compulsive disorder and sleep problems. One participant said that she had been diagnosed as "manic depressive." Finally, one subject said that she had problems with stealing.

WURS Scores

The average WURS score was 48.2 (SD = 16.2), with 26 valid cases. Please see Figure 1 for a graphical representation of this information and a comparison with Ward et al.'s (1993) normative data. Fourteen (53.8%) of these participants achieved a score of 46 or higher, the ADHD cut-off score designated by Ward et al. (1993).

Figure 1

Wender Utah Rating Scale Scores: Comparison of Bulimia, ADHD, Depressed, and Normal Controls



Note: Bulimia group (n = 26) scores based on participants from this study. ADHD (n = 81), Depressed (n = 70), and Control (n = 100) groups' scores are based on Ward et al.'s (1993) normative female sample subjects.

BADDS Scores

Total Score The average BADDS Total score was 57.5 (SD = 24.9), with 26 valid cases. Please see Figure 2 for a graphical representation of this data in comparison with Brown's (1996) normative sample. Thirteen (50.0%) of the participants achieved a score of 55 or higher, putting them in the range in which ADHD is highly probable. Five (19.2%) participants' scores were between 40 and 54, and 8 (30.8%) participants had scores below 40.

Cluster Scores Please see Table 1 for the means and standard deviations for each of the Cluster scores achieved by the participants in this study. Table 1 also provides a comparison with the scores achieved by subjects with ADHD and a normal control sample (Brown, 1996). Figure 3 provides a graphical representation of this data in comparison with Brown's (1996) normative sample.

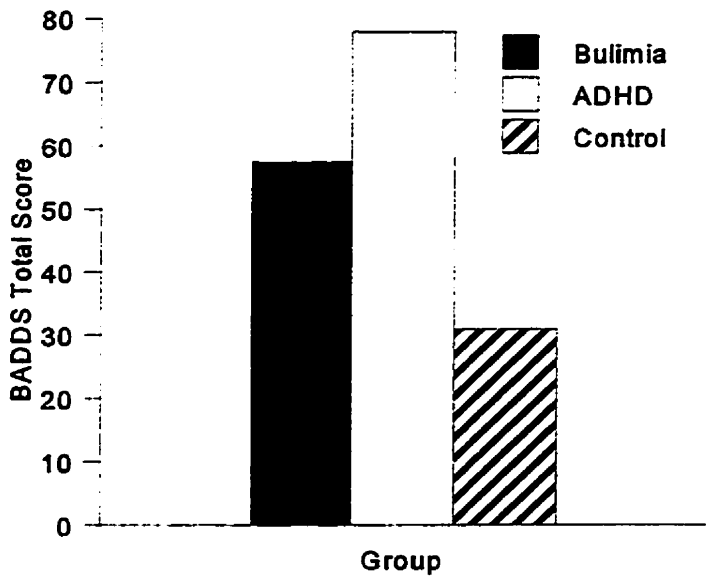
Chi-Square Tests for Differences

Some participants claimed to have recovered from bulimia. Chi-square tests were performed to ensure that the participants who currently had bulimia (BUL) and those who claimed to have recovered (REC) were comparable or significantly different. That is, were there differences in the percentage of BUL or REC participants who reached or surpassed the ADHD cut-off scores designated for the WURS or the BADDS? Differences between the BUL and REC groups would require separate data analysis be conducted on these groups.

The chi-square result for the WURS was X^2 (1, N = 26) = 0.097, p = .756 (two-tailed). The chi-square result for the BADDS was X^2 (1, N = 26) = 1.529, p = .216 (two-tailed). These results indicate that the BUL and the REC groups were not significantly different in their attainment of cut-off scores on the WURS and the BADDS.

Figure 2

Brown Attention Deficit Disorder Scales Total Scores: Comparison of Bulimia, ADHD, and Normal Controls



Note: Bulimia group (n = 26) scores based on participants from this study. ADHD (n = 142) and Control (n = 143) groups' scores are based on Brown's (1996) normative sample subjects.

Table 1

Brown Attention Deficit Disorder Scales Cluster Scores: Comparison of Bulimia, ADHD, and Normal Controls

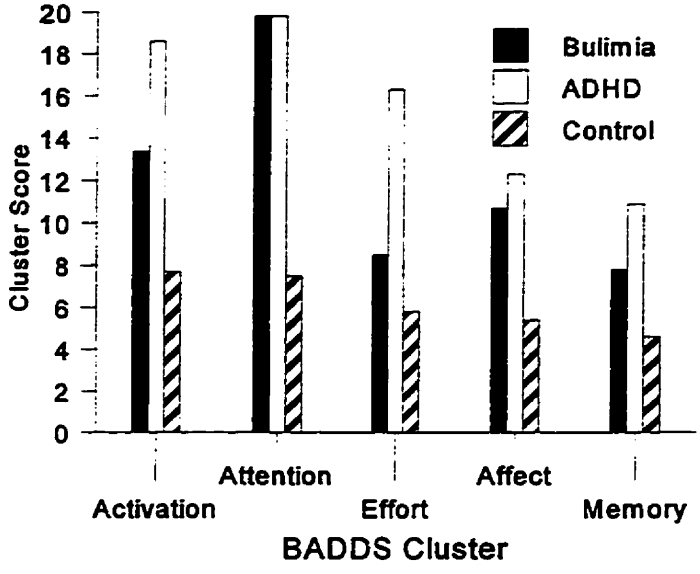
	Group		
Cluster	Bulimia n = 26 - 29[1]	ADHD[2] n = 142	Control[2] n = 143
Activation			
M	13.4	18.6	7.7
SD	5.9	4.7	4.2
Attention			
M	19.8	19.8	7.5
SD	8.7	4.5	4.6
Effort			
M	8.5	16.3	5.8
SD	6.0	5.4	4.0
Affective			
M	10.7	12.3	5.4
SD	4.6	3.9	3.2
Memory			
M	7.8	10.9	4.6
SD	3.5	3.7	2.9

Note: [1] The number of participants with bulimia varies between 26 and 29 for each of the BADDS Clusters.

[2] ADHD and Control based on Brown's (1996) normative sample.

Figure 3

Brown Attention Deficit Disorder Scales Cluster Scores: Comparison of Bulimia, ADHD, and Normal Controls



Note: Bulimia group (n = 26 - 29) scores based on participants in this study. ADHD (n = 142) and Control (n = 143) groups' scores are based on Brown's (1996) normative sample subjects.

MANOVA of BADDS Cluster Scores between BUL and REC Participants

While the chi-square test conducted on the BADDS Total score did not reveal any significant differences between the BUL and REC participant groups, I wanted to ensure that the BADDS Cluster scores were also comparable. Cluster scores were correlated to determine the most appropriate means of evaluating possible differences on the BADDS Cluster scores. Results from the Pearson correlation indicated the Clusters were highly correlated ($.479 \leq r \geq .886, p \leq .01$). These significant correlations indicated that a MANOVA would be the most appropriate method of evaluating possible differences on the BADDS Cluster scores..

Based on the MANOVA results, no significant differences were detected (Wilk's Lambda = .866, F (5, 20) = 0.621, p = .685). One group (BUL or REC) did not score higher than another on any of the BADDS Cluster scores.

Correlation Between WURS and BADDS

A correlation was calculated between the WURS and the BADDS Total scores. The Pearson correlation obtained was r = .254 (p = .230). This indicates that the WURS and the BADDS scores were unrelated.

Correlation Between Years Recovered and BADDS Total Score

A correlation was calculated between the BADDS Total score and the number of years participants who claimed to have recovered had been recovered (REC). The Pearson correlation obtained was r = - .641 (p = .063). This figure is not significant but may indicate a negative trend towards fewer ADHD-like symptoms being associated with longer years of recovery.

DISCUSSION

Interpretation

The average WURS score obtained by the participants in this study (M = 48.2, SD = 16.2) is 2 points higher than the cut-off score of 46 designated by Ward et al. (1993). This score is higher than those achieved by the female normal control (M = 15.0, SD = 8.5) and depressed (M = 30.5, SD = 15.8) subjects in Ward et al.'s (1993) investigation, though not as high as that achieved by the female subjects with ADHD (M = 65.8, SD = 14.3). Furthermore, 53.8% of the women with bulimia achieved scores which may be indicative of ADHD, whereas the rate of ADHD in the general adult population is estimated to be approximately 1 - 2% (Shekim et al., 1990).

The average BADDS Total score obtained by the participants in this study (M = 57.54, SD = 24.89) is within the range which indicates a high probability of ADHD. This average score is higher than that reported by Brown (1996) for his normative control subjects (M = 30.9, SD = 15.8). However, this score is not as high as that obtained by his normative ADHD subjects (M = 77.9, SD = 16.3).

Thirteen (50.0%) of the participants achieved a score of 55 or higher, putting them into a range in which ADHD is considered highly probable. This is much higher than the 1 - 2% general population prevalence estimate for ADHD suggested by Shekim et al. (1990).

The BADDS Cluster scores further highlight the specific areas of dysfunction demonstrated by the participants in this study. Of particular note is the high score on the Attention Cluster. The average score obtained by the participants in this study appears to be very similar to, if not the same as, that obtained by the ADHD participants in Brown's (1996) normative investigation. As possible support for this finding, Jones et al. (1991) found

that those with eating disorders have subtle indications of attentional difficulties. Normal weight females with bulimia had particular difficulty on tests of focus and execution. The women with bulimia in this study also appear to have other cognitive difficulties. This is in contrast to the results obtained by Jones et al. (1991), who did not find significant deficits in other areas of cognitive functioning, such as memory.

These figures appear to indicate that the participants in this study have several characteristics associated with ADHD. Whether this is because they have ADHD is not determinable from this study. Additional data analysis indicates that such an interpretation be made with caution. Recall, in order to be considered as having ADHD as an adult, one must demonstrate symptoms of ADHD as a child (APA, 1994). If these participants were likely to have ADHD, the scores on the WURS and BADDS would be expected to be correlated. The non-significant Pearson correlation of $r = .254$ ($p = .230$) indicates that those who have higher scores on the WURS do not necessarily have higher scores on the BADDS. This lack of relationship may suggest that the characteristics of ADHD present in these participants may not necessarily be related to ADHD.

However, this lack of relationship may also exist because the WURS and the BADDS do not measure identical symptoms of ADHD. Recall, the WURS only screens for the hyperactive-impulsive type of ADHD, while the BADDS can be used to evaluate both the hyperactive-impulsive and the inattentive types of ADHD (Brown, 1995, 1996). Those with the inattentive type of ADHD may not have WURS scores indicative of ADHD (Brown, 1995).

The slightly negative relationship between BADDS scores and the number of years REC participants had been recovered also calls the possibility

that these women have ADHD into question. Recall, one of the difficulties in establishing the existence of ADHD in adults is the fact that the symptoms of ADHD are also common to other disorders, particularly depression (Milberger et al., 1995; Shaffer, 1994; Solden, 1995), which commonly occurs in those with bulimia (Braun et al., 1994; Brewerton et al., 1995; Bushnell et al., 1994; Herzog et al., 1991; Margolis et al., 1994). The non-significant negative trend ($r = -.641$, $p = .063$) between the BADDS Total scores and the number of years recovered may indicate that maladaptive behaviours may diminish with time. Perhaps the reported ADHD symptoms are merely artifactual. As the dysfunctional patterns (i.e., binging and purging) directly associated with the bulimia decrease, so do other negative characteristics (e.g., depression or anxiety) which are not directly associated with the bulimia. This negative trend may also provide support for the lack of relationship between the WURS and the BADDS scores.

Because a diagnosis of ADHD cannot be established based on the information obtained from questionnaires alone (Brown, 1995), a diagnosis of ADHD cannot be established in the participants. However, if these symptoms are evidence for the existence of ADHD, this may support a higher than average rate of ADHD in women with bulimia. Whether this possible high rate of ADHD is isolated to bulimia or is due to higher comorbidity rates in general for those with bulimia is not determinable from this study. None of the bulimia comorbidity studies examined the presence of ADHD in the subjects (Braun et al., 1994; Brewerton et al., 1995; Bushnell et al., 1994; Herzog et al., 1991; Holderness et al., 1994; Jones et al., 1991; Margolis et al., 1994). Because this study appears to be the first which directly examines the possibility of a relationship between bulimia and ADHD, the results from this study cannot be compared to those of other studies.

The high rate of ADHD-like symptoms found in the participants with bulimia in this study may be a result of higher comorbidity rates in general for both disorders. High comorbidity rates in those with bulimia or ADHD are well-established (Biederman et al., 1991, 1993, 1994, 1995; Braun et al., 1994; Brewerton et al., 1995; Bushnell et al., 1994; Herzog et al., 1991; Holderness et al., 1994; Lavenstein, 1995; Jones et al., 1991; Margolis et al., 1994; Milberger et al., 1995; Ratey et al., 1992; Shekim et al., 1990; Wilens, Prince et al., 1995; Schubiner et al., 1995; Solden, 1995). With the exception of Biederman et al. (1994), the few studies which have examined the occurrence of bulimia in those with ADHD have not found the rate of bulimia to be higher than might be expected in the general population (Heiligenstein & Keeling, 1995; Ratey et al., 1992; Shekim et al., 1990). However, the converse may not be true. That is, ADHD may be more common in those with bulimia.

The reason that other psychological disturbances are found in conjunction with eating disorders is not known for certain (Holderness et al., 1994; Swift, Andrews, & Barklage, 1986). Biological, environmental, and social factors are all believed to contribute to such patterns (Holderness et al., 1994). In addition to comorbidity studies, pharmacological and family genetic investigations provide a great deal of support for biological commonalities which may underlie some psychological disorders (Biederman et al., 1992; Faraone et al., 1991; Hudson & Pope, 1990).

Determining causality is extremely difficult and certainly not within the scope of this research project. However, some researchers believe that ADHD may be an underlying factor in the development of several emotional disorders (Huttenbach, 1992). Perhaps ADHD increases one's vulnerability to or acts as a catalyst in the development of bulimia. Take, for example, a young woman

who, knowingly or not, has ADHD. Biologically, she may be more vulnerable to developing a psychological disorder. She may have a history of academic, social, and/or emotional difficulties. Perhaps, with a history of ADHD in the family, her home life was fraught with conflict and chaos. Even if she appeared to others to be intelligent, attractive, and friendly, perhaps she did not feel she was achieving her academic potential, thought she was fat, was uncoordinated in sports, or saw herself as "spacey." Perhaps she was very energetic or had "spunk," which her family interpreted as rebellion and disrespect, and her parents saw a need for control. These difficulties may have had a negative impact on her self-esteem, which was already a little low, due to a slight weight problem, real or perceived. Because of the social pressures to be a certain size and look a certain way, this young woman began to diet. Finally, she found something at which she could succeed. However, after a while, the dieting and deprivation became unbearable. Maybe the chemicals in her body became unbalanced. Perhaps she began to eat normally, only to find that her weight began to increase because she had reduced her metabolism through dieting. Or, maybe she began to binge. In either case, she became fearful of gaining weight. Then, by hearing about it from a friend, reading it in a magazine, seeing it on television, or stumbling on it on her own, she found a way to erase the effects of her over-eating. By taking laxatives, exercising excessively, or vomiting, she could eat massive amounts of food and not gain weight. Before long, this young woman is caught in a cycle of binging and purging.

Although the participants in this study reported high rates of ADHD-like symptoms, these symptoms may not be related to ADHD. In addition to the inability to make a diagnosis of ADHD based only on the results obtained from the questionnaires, two relationships within the data also call the possible

existence of ADHD into question. First, childhood and adulthood ratings of ADHD were unrelated. Second, the longer subjects had been recovered (measured in years), the fewer or less severe the current symptoms of ADHD were. Perhaps some of the "characteristics" of ADHD were related to the bulimia and not ADHD. Although Weinberg and Brumback (1992) do not discuss bulimia, they believe that symptoms seen as being the result of ADHD may actually be more related to some other disorder. As an example for bulimia, perhaps a woman who spends much of her time thinking about food and planning binges may appear to others or herself as distractable. If she organizes her daily activities around binging, the rest of her life may be neglected and appear to be disorganized. Perhaps she exercises for several hours and misses deadlines at work. Jones et al. (1991) raise a similar point, suggesting that some of the apparent cognitive deficits may be due to the physical effects which may result from binging, vomiting, or using laxatives.

When examining these two disorders, we must tease out which symptoms are related to bulimia and which may be related to ADHD. A study like that of Milberger et al. (1995) provides a good model. These researchers examined comorbidity by eliminating the common criteria for disorders and determining how many subjects retained their diagnoses. However, the use of such a model is not entirely possible as the diagnostic criteria for bulimia and ADHD do not overlap a great deal. Yet, before the possibility of a link is entirely put to rest, note that scores on the WURS do indicate that some childhood difficulties were present in over half (53.8%) of the participants.

The results of this study may present implications for the prevention of bulimia. If the high rate of ADHD symptomatology in these participants is indicative of ADHD, this disorder may need to be considered as risk factor in the development of bulimia. Huttenbach (1992) believes that ADHD may

underlie several emotional disorders. Perhaps ADHD makes one more vulnerable to or acts as a catalyst in the development of other disorders, including bulimia. If this is true, parents, educators, and other professionals need to take appropriate measures to ensure the best possible outcome for children with ADHD. These measures may include early identification and accurate diagnosis with effective interventions and follow-up. Such children may need additional assistance in the development of social and academic skills and a healthy self-esteem, with the latter being particularly crucial. In acknowledging that ADHD may make one more biologically, psychologically, and/or socially vulnerable to developing other difficulties, we will be better prepared to help create more positive outcomes for those children with ADHD (Huttenbach, 1992).

Those with the predominantly inattentive type of ADHD, often females (Solden, 1995), tend not to be identified as readily as those who demonstrate the externalized behaviours characteristic of the predominantly hyperactive-impulsive type of ADHD. Because the behaviours of disruptive children often disturb others, these children who "act out" receive a great deal of attention. However, in doing this, other children who may require assistance, though of a different nature, are overlooked. Parents, educators, and other professionals need to be aware of the signs which may indicate a quiet, introverted, and even highly intelligent child is at risk for developing psychological difficulties. Researchers need to provide information on accurate identification and the most effective types of interventions for these children.

The symptoms of both bulimia and ADHD exist on a continuum. That is, the disorders are diagnosed in a more dimensional, rather than in a categorical, manner. While many people may have symptoms of bulimia or ADHD, those with a clinical disorder demonstrate these symptoms more often

and/or with greater intensity. Again, early identification and intervention is crucial and may prevent a smaller challenge from becoming a life-threatening problem. For example, if a young girl states a dislike for her body, goes on an extreme diet, hits when she is angry, or has problems getting organized for school, a parent, teacher, or other adult, needs to step in. Her parents can help her appreciate her appearance and love her body. School curriculums can provide information about about healthy eating habits and a reasonable exercise program. Social skills programs can help her learn to express her anger in a more appropriate manner. A school counsellor can teach her organizational strategies. These examples are not intended to delegate these responsibilities to any specific individual or institution, only to provide suggestions for intervention. Peer counselling or tutoring may also be useful in some of these situations.

The possible connection between bulimia and ADHD may also have implications for the treatment of these disorders. Biederman et al. (1991) suggest that those with ADHD and comorbid disorders may respond differently to treatments than those who have only one disorder. When a woman's bulimia is resistant to treatment, perhaps the professional who is involved needs to consider that another disorder may underlie her bulimia. If a woman with bulimia also has ADHD, she may benefit from strategies used to cope with difficulties often associated with ADHD. Such strategies may include utilizing time managements skills, reorganizing the work environment, and reducing distractions at home and in the work place (Nadeau, 1995b). Additionally, if a woman with bulimia is unresponsive to anti-depressant treatment, perhaps the use of stimulants should be considered as a pharmacological option.

Limitations of the Study

This study has several limitations which warrant consideration. First, the sample size was small, and generalizations cannot be made based on the results of this study. The results do, however, provide additional information on two complex disorders from a novel and interesting perspective. Future studies, by myself or others, should have a larger sample size to ameliorate this difficulty. Furthermore, the chi-square tests and MANOVA did not reveal differences between the BUL and REC groups; however, had the sample size had been larger, differences may have been detected.

Second, alternative means of establishing the existence of bulimia in the participants may have been more appropriate. Some participants stated that they had been diagnosed by a professional. However, how was this diagnosis established? That is, was it reached using DSM-IV (1994) criteria, which were used to establish the presence of bulimia in the participants in this study who had not received a professional diagnosis? Having all participants complete an assessment device for bulimia, such as the Eating Disorder Inventory (EDI) (Garner & Olmsted, 1984), may have been more effective. Perhaps a relationship exists between the severity of symptoms of bulimia and ADHD. Additionally, rather than relying on participants claims of recovery, such an instrument would have provided an objective measure of such reports. Relationships between specific aspects of each of the disorders could also be examined by comparing scores on various scales, for example, the Perfectionism scale of the EDI and the Effort Cluster of the BADDS. However, if these participants do indeed have ADHD, an additional questionnaire may have been more than they would be willing or able to complete. Those conducting research on ADHD should consider the limited attention span and other possible cognitive limitations of those with the

disorder.

Third, comorbidity and the use of prescription medications were not taken into account. Although a few participants volunteered information in this area, not all participants were screened in this manner, preventing me from investigating it further. Perhaps some of the participants did have other disorders, such as affective or anxiety disorders, which may have increased the possibility that they would have higher scores on the WURS and the BADDS. Additionally, one participant was taking Ritalin. If the medication impacted symptoms of ADHD she may have had, her score may have been different.

Fourth, the type of ADHD being investigated was not defined. Recall, ADHD can be one of three types. However, because the BADDS does not enable one to make a distinction based on the results obtained from the questionnaire, such a designation was not possible in this study.

Fifth, comparing my sample to the normative samples for the WURS and the BADDS may have been inappropriate. However, the participants used in this study do not appear to be different from those used by Brown (1996) and Ward et al. (1993). Using a control group for this study may have mitigated some of this problem. Additionally, extrapolating from the WURS and BADDS to the adult ADHD prevalence estimates of Shekim et al. (1990) may have been inappropriate.

Future Research Directions

In addition to the research considerations noted with the limitations of this study, several other research possibilities exist. In relation to the results obtained in this study, the investigation of symptoms of ADHD in women with bulimia warrants further consideration. While the scores obtained by these participants appears to be lower than scores obtained by those with ADHD, women with bulimia appear to have more symptoms of ADHD than

would be considered "average" or "normal." However, are these symptoms truly related to ADHD, or are they symptomatic of the bulimia? Perhaps some women with bulimia have a less severe form of ADHD. If women with bulimia are more likely to have ADHD, what is the exact nature of this relationship? Does ADHD make a woman more biologically vulnerable to developing bulimia? Perhaps some of the subtle cognitive impairments detected in women with bulimia (Jones et al., 1991) may be related to ADHD. More in depth investigation may provide answers to these questions.

Because the existence of ADHD in adults has only recently been acknowledged, numerous research questions are open to investigation. How many people with psychological disorders also have ADHD? How does an adulthood diagnosis of ADHD impact one's career? One's marriage? Why do some people with ADHD succeed in life, while, for others, life appears to be a continual struggle? How do some people with ADHD "make it" or succeed in life, even if they do not know they have ADHD? How can ADHD be distinguished from other disorders when many of the symptoms overlap? What are the most effective treatments for adults with ADHD? How can the retrospective diagnosis of ADHD be improved? The questions are endless and waiting to be answered.

Much research has been conducted on children with the hyperactive type of ADHD, most them boys, who "act-out," with little attention given to children, most of them girls, who "act-in." Investigators need to pay more attention to the latter group in order to gain a more thorough understanding of ADHD. Because many of the children with the former type of ADHD are male, the understanding of ADHD in males is greater. More research on the predominantly inattentive type of ADHD may lead to a clearer understanding of ADHD as it occurs in females. I do not wish to imply that these types of

ADHD are gender exclusive, because, clearly, they are not. However, a research bias does exist, and a better understanding of the disorder will encompass all facets of ADHD.

Future research would greatly benefit from the clarification and standardization of the term "attention deficit hyperactivity disorder." Currently, "ADD" and "ADHD" appear to be used interchangeably in the literature (Nadeau, 1995a). Perhaps an agreement needs to be reached and guidelines established to remove some of the confusion and improve the understanding of the research being conducted. Such designation would improve the clarity of the research and increase the understanding of ADHD. In addition, the type of ADHD being investigated is not always made clear. Recall, ADHD can be one of three types, and despite the main label of ADHD, these types are very different. Such a designation would be useful in the research on and understanding of ADHD.

Finally, the WURS and the BADDS have a few limitations which may be mitigated by adjustments based on further research. The instructions for the WURS require an individual to recall behaviours and events from "childhood" without specifying any particular age. This point has been raised by Stein et al. (1995) and was also raised by two participants in this study. Such a wide age range, hypothetically from early childhood to late adolescence, may call the validity and reliability of the WURS into question. Those conducting future research on the WURS or using the WURS as a measure of ADHD may wish to establish a specific age range for subjects to consider when completing the questionnaire. Such measures were not taken in this study in order to maintain consistency with the methods used in other studies (Rossini & O'Connor, 1995; Stein et al., 1995; Ward et al.,1993; Weyandt et al., 1995).

The WURS only examines the hyperactive-impulsive type of ADHD. Some adjustments could be made to assess the inattentive type of ADHD as well, thereby increasing its empirical and clinical usefulness. If expanded in this manner, such a designation should be able to be made among the three types of ADHD. Establishing gender differences and scales (similar to the Clusters of the BADDS) for the WURS may also be useful, as suggested by Stein et al. (1995).

Although the WURS can distinguish among those with ADHD, depression, and normal controls, how do those with other disorders, such as anxiety, rate on this scale? To ensure that the WURS is indeed testing for ADHD and not symptoms common to other disorders, research on other psychiatric groups may prove useful. Please note, however, that the WURS has a great deal of research to support its validity and reliability, and these suggestions are in no way intended to undermine its usefulness.

The BADDS also has a few limitations which may be counteracted by some modifications. The BADDS has not been tested on those with other forms of psychopathology. By doing so, the instrument may be more useful in distinguishing between those with ADHD and those with ADHD-like symptoms which are a result of another disorder. Additionally, while the BADDS can identify both types of ADHD, no designation is indicated on the form. This may not be a large problem in a clinical setting, as a clinician can use observation or further testing to establish which type of ADHD is present in a given individual. However, if the BADDS is to be used for research purposes, such a designation may be beneficial. Despite these minor limitations, this recently developed assessment device appears to hold great promise.

I would like to add some cautionary notes with regards to ADHD,

particularly as it occurs in adulthood. Although ADHD is recognized as a disorder which can continue into adulthood, "true" ADHD must be separated from "pseudo" ADHD, which can be socially and culturally induced (Hallowell & Ratey, 1994). Hallowell and Ratey (1994) suggest that elements of the American culture, and I would add the Canadian culture, are ADHD-like. For example, a rapid pace, high stimulation, violence, anxiety, and disorganization are aspects of ADHD which also exist on a social level. These social elements help to shape the individuals within the society. Perhaps we as members of society need to recognize that this frantic pace can have a negative impact on our lives. With this realization, we can begin to take the necessary actions to create a more balanced pace.

An unidentified colleague of Shaffer (1994) states that ADHD has become the most self-diagnosed condition in his practice and believes that many may use this "diagnosis," real or imagined, as an excuse for some of the difficulties in their lives. This is a valid concern, and one that warrants serious consideration. However, when ADHD goes unrecognized, the effects can be equally detrimental (Lomas, 1995). Professionals need to be aware of the possibility that ADHD may underlie an individual's problems. If a thorough psychological assessment shows that ADHD is indeed present, the appropriate interventions can then be implemented.

Summary

To summarize the findings of this study, each of the research questions posed will be answered.

Research Question 1 What percentage of women with bulimia have enough symptoms of ADHD to suggest that they may have ADHD?

Based on the results obtained from the WURS, 50.0% of the women with bulimia had enough childhood symptoms to indicate the possible

presence of ADHD. The BADDS revealed that 53.8% of these women currently had symptoms suggestive of ADHD. These figures are much higher than the adult ADHD prevalence estimate of 1 - 2% suggested by Shekim et al. (1990).

Research Question 2 Is there a positive relationship between childhood and adult measures of ADHD?

No. Scores on the WURS and the BADDS were unrelated. This result calls the presence of ADHD in the participants into question. However, this lack of relationship could be a result of differences in how the instruments measure ADHD.

Research Question 3 Do those who currently have bulimia have more symptoms of ADHD than those who have a history of bulimia?

No. Both women who currently have bulimia and those who have recovered from bulimia do not appear to demonstrate marked differences in ADHD symptomatology.

Research Question 4 Do symptoms of ADHD diminish over the length of time one has been recovered from bulimia?

Yes. A non-significant negative trend indicated that ADHD-like symptoms may diminish over time. This also calls the existence of ADHD in women with bulimia into question. If ADHD symptomatology had remained constant, this would have provided additional support for the existence of ADHD in these women with bulimia.

A substantial percentage of women with bulimia or a history of bulimia appear to have symptoms indicative of ADHD. If the high rate of ADHD-like symptoms are truly related to ADHD, this may indicate that ADHD is more common in women with bulimia than in women in the general population. This may be specific to bulimia or simply a component of higher comorbidity

rates for those with psychological disorders in general. Evidence from pharmacological and family studies support the possibility of a biological link between bulimia and ADHD. Another possibility is that other emotional, cognitive, or social aspects of ADHD may make an individual more vulnerable to developing bulimia. For example, impulsivity may make one more prone to going on food binges. Social isolation may cause a young woman to turn to food for solace and comfort. However, the characteristics of ADHD found in these women with bulimia may be directly related to the bulimia itself and not indicative of ADHD at all. Limitations of the study and directions for future research are discussed.

Concluding Remarks

I had several reservations about examining the topic of bulimia in this manner due to my personal views on the topic. Research indicates that biological, psychological, familial, and socio-cultural factors all contribute to the development and maintenance of bulimia. Striegel-Moore et al. (1986) believe that the socio-cultural factors are primary, a theory with which I wholly agree. The changing role of women, the devaluation of various aspects of femininity, and the glorification of thinness and beauty in the media all contribute to the development and maintenance of bulimia and other eating disorders, with the idealization of thinness and beauty being particularly significant. The need to modify these destructive factors and ideologies cannot be stressed enough.

However, this study indicates that women with bulimia also have a high rate of ADHD symptomatology. Further research may clarify the exact nature of this relationship. If, as Huttenbach (1992) believes, ADHD does in fact underlie some emotional disorders, researchers and clinicians may need to consider that bulimia is one of these disorders. With this in mind, additional

measures can be taken to prevent, treat, and hopefully some day eliminate, this devastating eating disorder.

References

Ahuja, N. (1991). Affective spectrum disorder: Does anti-depressant response identify a family of disorders with a common pathophysiology?": Comment. American Journal of Psychiatry, 148(4), 548.

Ambrosini, P.J., Bianchi, M.D., Rabinovich, H., & Elia, J. (1993). Antidepressant treatments in children and adolescents: II. Anxiety, physical, and behavioural disorders. Journal of the American Academy of Child and Adolescent Psychiatry, 32(3), 483 - 493.

American Psychological Association. (1994). Diagnostic and statistical manual of mental disorders (4th ed.). Washington, D.C.: Author.

Bailey, C.A. (1991). Family structure and eating disorders: The Family Environment Scale and bulimic-like symptoms. Youth and Society, 23(2), 251 - 272.

Barlow, J., Blouin, J., Blouin, A. & Perez, E. (1988). Treatment of bulimia with desipramine: A double-blind crossover study. Canadian Journal of Psychiatry, 33(2), 129 - 133.

Biederman, J. (1991). Attention deficit hyperactivity disorder (ADHD). Annals of Clinical Psychiatry, 3(1), 9 - 22.

Biederman, J., Faraone, S.V., Keenan, K., Benjamin, J., Krifcher, B., Moore, C. (1992). Further evidence for family- genetic risk factors in attention deficit hyperactivity disorder: patterns of comorbidity in probands and relatives in psychiatrically and pediatrically referred samples. Archives of General Psychiatry, 49, 728 - 738.

Biederman, J., Faraone, S.V., Spencer, T., Wilens, T.E., Mick, E., & Lapey, K.A. (1994). Gender differences in a sample of adults with attention deficit hyperactivity disorder. Psychiatry Research, 53(1), 13 - 29.

Biederman, J., Faraone, S.V., Spencer, T., Wilens, T.E., Norman, D., Lapey, K.A. (1994). Patterns of psychiatric comorbidity, cognition, and psychosocial functioning in adults with attention deficit hyperactivity disorder. American Journal of Psychiatry, 150(12), 1792 - 1798.

Biederman, J., Newcorn, J., and Sprich, S. (1991). Comorbidity of attention deficit hyperactivity disorder with conduct, depressive, anxiety, and other disorders. American Journal of Psychiatry, 148(5), 564 - 577.

Biederman, J., Wilens, T.E., Mick, E., Milberger, S., Spencer, T.J., & Faraone, S.V. (1995). Psychoactive substance use disorders in adults with attention deficit hyperactivity disorder (ADHD): Effects of ADHD and psychiatric comorbidity. American Journal of Psychiatry, 152(11), 1652 - 1658.

Biggs, S.H. (1995). Neuropsychological and psychoeducational testing in the evaluation of the ADD adult. In K.G. Nadeau (Ed.) A Comprehensive Guide to Attention Deficit Disorder in Adults: Research, Diagnosis, Treatment (pp. 109 - 134). Brunner/Mazel, Inc.: New York, NY.

Braun, D.L., Sunday, S.R., & Halmi, K.A. (1994). Psychiatric comorbidity in patients with eating disorders. Psychological Medicine, 24(4), 859 - 867.

Brewerton, T.D., Lydiard, R.B., Herzog, D.B., Brotman, A.W., O'Neil, P.M., & Ballenger, J.C. (1995). Comorbidity of Axis I psychiatric disorders in bulimia nervosa. Journal of Clinical Psychiatry, 56(2), 77 - 80.

Brown, R.T., Madan-Swain, A., & Baldwin, K. (1991). Gender differences in a clinic-referred sample of attention-deficit-disordered children. Child Psychiatry and Human Development, 22(2), 111 - 128.

Brown, T.E. (1995). Differential diagnosis of ADD versus ADHD in adults. In K.G. Nadeau (Ed.) A Comprehensive Guide to Attention Deficit Disorder in Adults: Research, Diagnosis, Treatment (pp. 93 - 108). Brunner/Mazel, Inc.: New York, NY.

Brown, T.E. (1996). The Brown Attention Deficit Disorder Scales. The Psychological Corporation. Harcourt, Brace & Company: San Antonio.

Bushnell, J.A., Wells, J.E., McKenzie, J.M., Hornblow, A.R., Oakley-Browne, M.A. & Joyce, P.R. (1994). Bulimia comorbidity in the general population and in the clinic. Psychological Medicine, 24(3), 605 - 611.

Casper, R.C., Hedeker, D., & McClough, J.F. (1992). Personality

dimensions in eating disorders and their relevance for subtyping. Journal of the American Academy of Child and Adolescent Psychiatry, 31(5), 830 - 840.

Coric, D. & Murstein, B. (1993). Bulimia nervosa: Prevalence and psychological correlates in a college community. Eating Disorders The Journal of Treatment and Prevention, 1(1), 39 - 51.

Corrigan, S.A., Johnson, W.G., Alford, G.S., Bergeron, K.C., & Lemmon, C.R. (1990). Prevalence of bulimia among patients in a chemical dependency treatment program. Addictive Behaviors, 15, 581 - 585.

Drewnowski, A., Yee, D.K., Kurth, C.L., & Krahn, D.D. (1994). Eating pathology and DSM-III-R bulimia nervosa: A continuum of behaviour. American Journal of Psychiatry, 151(8), 1217 - 1219.

Fairburn C.G. & Hay, P.J. (1992). The treatment of bulimia nervosa. Annals of Medicine, 24, 297 - 302.

Faraone, S.V., Biederman, J., Keenan, K., & Tsuang, M.T. (1991). A family-genetic study of girls with DSM-III attention deficit disorder. American Journal of Psychiatry, 148(1), 112 - 117.

Fahy, T.A. & Eisler, I. (1993). Impulsivity and eating disorders. British Journal of Psychiatry, 162, 193 - 197.

Fichter, M.M. (Ed.) (1990). Bulimia Nervosa: Basic Research, Diagnosis and Therapy. John Wiley & Sons: Chichester.

Fichter, M.M., Quadflieg, N., & Rief, W. (1994). Course of multi-impulsive bulimia. Psychological Medicine, 24(3), 591 - 604.

Garfinkel, P.E., Lin, E., Goering, P., Spegg, C., Goldbloom, D.S., & Kennedy, S. (1995). Bulimia nervosa in a Canadian community sample: Prevalence and comparison of subgroups. American Journal of Psychiatry, 152(7), 1052 - 1058.

Garner, D.M. & Olmsted, M.P. (1984). The Eating Disorder Inventory. Psychological Assessment Resources, Inc.: Lutz, FL.

Goldbloom, D.S. & Olmsted, M.P. (1993). Pharmacotherapy of

bulimia nervosa with Fluoxetine: Assessment of clinically significant attitudinal change. American Journal of Psychiatry, 150(5), 770 - 774.

Goodman, W.K. & Charney, D.S. (1985). Therapeutic applications and mechanisms of action of monoamine oxidase inhibitor and heterocyclic antidepressant drugs. Journal of Clinical Psychiatry, 46(10, Section 2), 6 - 22.

Hallowell, E.M. (1995). Psychotherapy of adult attention deficit disorder. In K.G. Nadeau (Ed.) A Comprehensive Guide to Attention Deficit Disorder in Adults: Research, Diagnosis, Treatment (pp. 144 - 167). Brunner/Mazel, Inc.: New York, NY.

Hallowell, E.M. & Ratey, J.J. (1994). Driven to Distraction. Simon & Schuster: New York, NY.

Halmi, K. (1995). Changing rates of eating disorders: What does it mean? American Journal of Psychiatry, 152(9), 1256 - 1257.

Halperin, J.M., Newcorn, J.H., Sharma, V., Healey, J.M., Wolf, L.E., Pascualvaca, D.M. (1990). Inattentive and noninattentive ADHD children: Do they constitute a unitary group? Journal of Abnormal Child Psychology, 18(4), 437 - 449.

Hartmann, A., Herzog, T., & Drinkmann, A. (1991). Psychotherapy of bulimia nervosa: What is effective? A meta-analysis. Journal of Psychosomatic Research, 36(2), 159 - 167.

Heatherton, T.F., Nichols, P., Mahamedi, F., & Keel, P. (1995). Body weight, dieting, and eating disorder symptoms among college students, 1982 to 1992. American Journal of Psychiatry, 152(11), 1623 - 1629.

Hechtman, L. (1989). Attention-deficit hyperactivity disorder in adolescence and adulthood: An updated follow-up. Psychiatric Annals, 19(11), 597 - 603.

Heiligenstein, E. & Keeling, R.P. (1995). Presentation of unrecognized attention deficit hyperactivity disorder in college students. Journal of American College Health, 43, 226 - 228.

Herzog, D.B., Keller, M.B., Sacks, N.R.,Yeh, C.J., & Lavori, P.W.

(1992). Psychiatric comorbidity in treatment-seeking anorexics and bulimics. Journal of the American Academy of Child and Adolescent Psychiatry, 31(5), 810 - 818.

Holderness, C.C., Brooks-Gunn, J., & Warren, M.P. (1994). Co-morbidity of eating disorders and substance abuse review of the literature. International Journal of Eating Disorders, 16(1), 1 - 34.

Holmes, V.F. (1995). Medical use of psychostimulants: An overview. Special Section: Stimulant use in consultation patients. International Journal of Psychiatry in Medicine, 25(1), 1 - 19.

Hudson, J.I. & Pope, H.G. Jr. (1990). Affective Spectrum Disorder: Does antidepressant response identify a family of disorders with a common pathophysiology? American Journal of Psychiatry, 147(5), 552 - 564.

Huttenbach, D.E. (1992). Letters to the editor. American Journal of Psychiatry, 149(1), 148.

Jaffe, P. (1995). History and overview of adulthood ADD. In K.G. Nadeau (Ed.) A Comprehensive Guide to Attention Deficit Disorder in Adults: Research, Diagnosis, Treatment (pp. 3 - 17). Brunner/Mazel, Inc.: New York, NY.

Jones, B.P., Duncan, C.C., Brouwers, P., & Mirsky, A.F. (1991). Cognition in eating disorders. Journal of Clinical and Experimental Neuropsychology, 13(5), 711 - 728.

Kurth, C.L., Krahn, D.D., Nairn, K., & Drewnowski, A. (1995). The severity of dieting and binging behaviours in college women: Interview validation of survey data. Journal of Psychiatric Research, 29(3), 211 - 225.

Lacey, J.H. & Evans, C.D.H. (1986). The impulsivist: A multi-impulsive personality disorder. British Journal of Addiction, 81, 641 - 649.

Lacey, J.H. & Moureli, E. (1986). Bulimic alcoholics: Some features of a clinical sub-group. British Journal of Addiction, 81, 389-393.

Lavenstein, B. (1995). Neurological comorbidity patterns/differential diagnosis in adult attention deficit disorder. In K.G. Nadeau (Ed.) A

Comprehensive Guide to Attention Deficit Disorder in Adults: Research, Diagnosis, Treatment (pp. 74 - 92). Brunner/Mazel, Inc.: New York, NY.

Levine, M.P. (1987). How Schools Can Help Combat Student Eating Disorders: Anorexia Nervosa and Bulimia. Washington, D.C.: National Education Association.

Lipman, A.J. & Kendall, P.C. (1992). Drugs and psychotherapy: Comparisons, contrasts, and conclusions. Applied and Preventive Psychology, 1, 141 - 148.

Lomas, B. (1995). Diagnosing attention deficit hyperactivity disorder in adults. American Journal of Psychiatry, 152(6), 961.

Margolis, R.L., Spencer, W., Depaulo, J.R., Simpson, S.G., & Andersen, A.E. (1994). Psychiatric comorbidity in subgroups of eating-disordered inpatients. Eating Disorders The Journal of Treatment and Prevention, 2(3), 231 - 236.

Messner, E. (1989). Methylphenidate treatment of bulimia nervosa after surgery. Canadian Journal of Psychiatry, 34(8), 824 - 826.

Milberger, S., Biederman, J., Faraone, S.V., Murphy, J., & Tsuang, M.T. (1995). Attention deficit hyperactivity disorder and comorbid disorders: Issues of overlapping symptoms. American Journal of Psychiatry, 152(12), 1793 - 1799.

Mintz, L.B. & Betz, N.E. (1988). Prevalence and correlates of eating disordered behaviours among undergraduate women. Journal of Counseling Psychology, 35(4), 463 - 471.

Mitchell, J.E. (1991). Bulimia Nervosa. Minneapolis: University of Minnesota Press.

Mizes, J.S. (1988). Personality characteristics of bulimic and non-eating disordered female controls: A cognitive behavioral perspective. International Journal of Eating Disorders, 7(4), 541 - 550.

Murphy, K.R. (1995). Empowering the adult with ADD. In K.G. Nadeau (Ed.) A Comprehensive Guide to Attention Deficit Disorder in Adults:

Research, Diagnosis, Treatment (pp. 135 - 143). Brunner/Mazel, Inc.: New York, NY.

Myers, W.C. & Burket, R.C. (1989). Eating attitudes, behaviours, and disorders in female juvenile delinquents. Psychosomatics, 30 (4), 428 - 432.

Nadeau, K.G. (Ed.) (1995a) A Comprehensive Guide to Attention Deficit Disorder in Adults: Research, Diagnosis, Treatment. Brunner/Mazel, Inc.: New York, NY.

Nadeau, K.G. (1995b) ADD in the workplace: Career consultation and counselling for the adult with ADD. In K.G. Nadeau (Ed.) A Comprehensive Guide to Attention Deficit Disorder in Adults: Research, Diagnosis, Treatment (pp. 308 - 336). Brunner/Mazel, Inc.: New York, NY.

Newton, J.R., Freeman, C.P., & Munro, J. (1993). Impulsivity and dyscontrol in bulimia nervosa: Is impulsivity an independent phenomenon or a marker of severity? Acta Psychiatrica Scandinavica, 87, 389 - 394.

Olivardia, R., Pope, H.G. Jr., Mangweth, B., & Hudson, J.I. (1995). Eating disorders in college men. American Journal of Psychiatry, 152(9), 1279 - 1285.

Petersson, B. (1990). Can you dope yourself with food? On the abuse aspect of bulimia nervosa. Acta Psychiatrica Scandinavica, 82(361, Supplement), 19 - 22.

Phelps, L., Andrea, R.K., & Rizzo, F.G. (1994). Weight control techniques among females adolescents: A comparative study. Journal of School Psychology, 32(3), 283 - 292.

Pope, H.G. Jr., Hudson, J.I., Jonas, J.M., & Yurgelun-Todd, D. (1983). Bulimia treated with imipramine: A placebo-controlled, double-blind study. American Journal of Psychiatry, 140(5), 554 - 558.

Powers, P.S. & Spratt, E.G. (1994) Males and females with eating disorders. Eating Disorders The Journal of Treatment and Prevention, 2(3), 197 - 214.

Quinn, P.O. (1995). Neurobiology of attention deficit disorder. In

K.G. Nadeau (Ed.) A Comprehensive Guide to Attention Deficit Disorder in Adults: Research, Diagnosis, Treatment (pp. 18 - 34). Brunner/Mazel, Inc.: New York, NY.

Raphael, F.J. & Lacey, H.J. (1992). Sociocultural aspects of eating disorders. Annals of Medicine, 24, 293 - 296.

Ratey, J.J., Greenberg, M.S., Bemporad, J.R., & Lindem, K.J. (1992). Unrecognized attention-deficit hyperactivity disorder in adults presenting for outpatient psychotherapy. Journal of Child and Adolescent Psychopharmacology, 2(4), 267 - 275.

Ratey, J.J., Greenberg, M.S., & Lindem, K.J. (1991). Combination of treatments for attention deficit hyperactivity disorder in adults. The Journal of Nervous and Mental Diseases, 179(11), 699 - 701.

Ratey, J.J., Miller, A.C., & Nadeau, K.G. (1995). Special diagnositic and treatment considerations in women with attention deficit disorder. In K.G. Nadeau (Ed.) A Comprehensive Guide to Attention Deficit Disorder in Adults: Research, Diagnosis, Treatment (pp. 260 - 283). Brunner/Mazel, Inc.: New York, NY.

Rossini, E.D. & O'Connor, M.A. (1995). Retrospective self-reported symptoms of attention-deficit hyperactivity disorder: Reliability of the Wender Utah Rating Scale. Psychological Reports, 77, 751 - 754.

Shaffer, D. (1994). Attention deficit hyperactivity disorder in adults. American Journal of Psychiatry, 151(5), 633 - 638.

Schmidt, N.B. & Telch, M.J. (1990). Prevalence of personality disorders among bulimics, nonbulimic binge eaters, and normal controls. Journal of Psychopathology and Behavioral Assessment, 12(2), 169 - 185.

Schubiner, H., Tzelepis, A., Isaacson, J.H., Warbasse, L.H., Zacharek, M., & Musial, J. (1995). The dual diagnosis of attention-deficit/hyperactivity disorder and substance abuse: Case reports and literature review. Journal of Clinical Psychiatry, 56(4), 146 - 150.

Shekim, W.O., Asarnow, R.F., Hess, E., Zaucha, K., & Wheeler, N. (1990). A clinical and demographic profile of a sample of adults with

attention deficit hyperactivity disorder, residual state. Comprehensive Psychiatry, 31(5), 418 - 425.

Sohlberg, S. (1991). Impulse regulation in anorexia nervosa and bulimia nervosa: some formulations. Behavioural Neurology, 4(3), 189 - 202.

Sohlberg, S. Norring, C., Holmgren, S., & Rosmark, B. (1989). Impulsivity and long-term prognosis of psychiatric patients with anorexia nervosa/bulimia nervosa. The Journal of Nervous and Mental Disease, 177(5), 249 - 258.

Solden, S. (1995). Women with Attention Deficit Disorder. Underwood Books: Grass Valley, CA.

Spencer, T., Biederman, J., Wilens, T.E., Faraone, S.V., & Li, T. (1994). Is attention deficit hyperactivity disorder in adults a valid diagnosis. Harvard Review of Psychiatry, 1, 326 - 335.

Stein, M.A., Sandoval, R., Szumowski, E., Roizen, N., Reinecke, M.A., Blondis, T.A., and Klein, Z. (1995). Psychometric characteristics of the Wender Utah Rating Scale (WURS): Reliability and factor structure for men and women. Psychopharmacology Bulletin, 31(2), 425 - 433.

Striegel-Moore, R.H., Silberstein, L.R., & Rodin, J. (1986). Toward an understanding of risk factors for bulimia. American Psychologist, 41(3), 246 - 263.

Stice, E. (1994). Review of the evidence for a sociocultural model of bulimia nervosa and an exploration of the mechanisms of action. Clinical Psychology Review, 14(7), 633 -661.

Swift, W.J., Andrews, D. & Barklage, N.E. (1986). The relationship between affective disorder and eating disorders: A review of the literature. American Journal of Psychiatry, 143, 592 - 596.

Troop, N.A., Holbrey, A., Trowler, R., & Treasure, J.L. (1994). Ways of coping in women with eating disorders. The Journal of Nervous and Mental Disease, 182, 535 - 540.

Trygstad, O. (1990). Drugs in the treatment of bulimia nervosa. Acta

Psychiatrica Scandinavica, 82(361, Supplement), 34 - 37.

Tzelepis, A., Schubiner, H., & Warbasse, L.H., III. (1995). Differential diagnosis and psychiatric comorbidity patterns in adult attention deficit disorder. In K.G. Nadeau (Ed.) A Comprehensive Guide to Attention Deficit Disorder in Adults: Research, Diagnosis, Treatment (pp. 35 - 57). Brunner/Mazel, Inc.: New York, NY.

Vitousek, K., & Manke, F. (1994). Personality variables and disorders in anorexia nervosa and bulimia nervosa. Journal of Abnormal Psychology, 103(1), 137 - 147.

Walsh, B.T., Hadigan, C.M., Devlin, M.J., Gladis, M., & Roose, S.P. (1991). Long-term outcome of antidepressant treatment for bulimia nervosa. American Journal of Psychiatry, 148(9), 1206 - 1212.

Ward, M.F., Wender, P.H. & Reimherr, F.W. (1993). The Wender Utah Rating Scale: An aid in the retrospective diagnosis of childhood attention deficit hyperactivity disorder. American Journal of Psychiatry, 150(6), 885 - 890.

Warneke, L. (1990). Psychostimulants in psychiatry. Canadian Journal of Psychiatry, 35(1), 3 - 10.

Wender, P.H. & Reimherr, F.W. (1990). Bupropion treatment of attention-deficit hyperactivity disorder in adults. American Journal of Psychiatry, 147(8), 1018 - 1020.

Weyandt, L.L., Linterman, I., & Rice, J.A. (1995). Reported prevalence of attentional difficulties in a general sample of college students. Journal of Psychopathology and Behavioral Assessment, 17(3), 293 - 304.

Wiederman, M.W. & Pryor, T. (1996). Multi-impulsivity among women with bulimia nervosa. International Journal of Eating Disorders, 20(4), 359 - 365.

Weinberg, W. & Brumback, R.A. (1992). The myth of attention deficit-hyperactivity disorder: symptoms resulting from multiple causes. Journal of Child Neurology, 7, 431 - 445.

Wilcox, J.A. (1990). Fluoxetine and bulimia. Journal of Psychoactive Drugs, 22(1), 81 - 82.

Wilens, T.E., Biederman, J., Spencer, T.J., & Prince, J. (1995). Pharmacotherapy of adults attention deficit/hyperactivity disorder: A review. Journal of Clinical Psychopharmacology, 15(4), 270 - 279.

Wilens, T.E., Prince, J.B., Biederman, J., Spencer, T.J., & Frances R.J. (1995). Attention-deficit hyperactivity disorder and comorbid substance use disorders in adults. Psychiatric Services 46(8), 761 - 765.

Wilens, T.E., Spencer, T.J., & Biederman, J. (1995). Pharmacotherapy of adult ADHD. In K.G. Nadeau (Ed.) A Comprehensive Guide to Attention Deficit Disorder in Adults: Research, Diagnosis, Treatment (pp. 168 - 188). Brunner/Mazel, Inc.: New York, NY.

Wilson, G.T. & Fairburn, C.G. (1993). Cognitive treatments for eating disorders. Journal of Consulting and Clinical Psychology, 61(2), 261 - 269.

Wolf, N. (1991). The Beauty Myth. Vintage Books: Toronto.

Appendix I

Newspaper Ad to Obtain Participants

Do you have BULIMIA? U of C Grad Student study. For more information please contact Raquel at 289-9915. CONFIDENTIAL.

Appendix 2

Poster Ad to Obtain Participants

Do you have

BULIMIA?

If you are interested in
participating in a study
on bulimia, or have questions
about the study, please contact
Raquel at 289-9915.

All replies will be
completely confidential.

Appendix 3

Treatment Resource List

If you are not currently receiving treatment, you may consider seeking it through one of the resources listed below. You may also wish to look in the yellow pages of your telephone book under "counselling" and/or "psychologists."

Calgary Family Service Bureau
233-2370

Catholic Family Service
233-2360

The Pastoral Institute
265-4980

Women's Health Resources at
Grace Women's Health Centre
670-2270

Government of Alberta Mental Health Clinics:

- Central - 297-7311
- Northeast - 297-7196
- Northwest - 297-7345
- Division Regional Office - 297-4520

Appendix 4

Bulimia Screening Questionnaire

ID # _____

Before I can mail you the questionnaires, I would appreciate it if you could answer the following questions. If you wish to decline answering, you may do so. Please remember that you may discontinue your participation at any time.

1. Have you been diagnosed as having bulimia by a professional? (If "yes," go on to question #3.)

2. The participants required for this study need to have bulimia. I am going to ask you some questions about you and your eating habits.

   a) i - Do you go on eating binges? That is, in a distinct period of time, do you eat a quantity of food larger than what you would consider average during a similar period of time?

      ii - Do you feel in control of these binges? That is, do you feel you can stop or control the type and amount of food you are eating?

   b) Do you engage in one or more of the following in order to compensate for these binges?
      - self-induced vomiting;
      - misuse of laxatives, diuretics, enemas, or other medications;
      - fasting
      - excessive exercise

   c) Approximately how many times per week do you binge and purge?

      How long has this been occurring?

   d) Do you feel your self-image and self-esteem are influenced by your body weight and shape to a degree greater than is warranted?

3. Do you have a history of anorexia? That is, have you ever refused to maintain or obtain an age and height appropriate weight?

   Do you have an extreme fear of gaining weight or becoming overweight?

4. What is your age?

5. What is your occupation?

6. Are you currently receiving treatment?

   If yes, how long have you been in treatment?

   Do you feel it is helping?

7. In order to mail the other questionnaires to you, I need your name and address. This information will be destroyed after I receive your completed questionnaire and consent form. I would also like to have your phone number so that, should you forget to mail the questionnaires back to me, I can remind you to do so.

   Name:_____

   Address:_____

   _____

   Phone: _____

Appendix 5

Cover Letter

Dear Participant:

I am a graduate student in the Department of Educational Psychology at the University of Calgary. To complete the requirements for my M.Sc. degree, I am investigating attentional traits of women with bulimia. This project is being conducted under the supervision of Dr. J. Singh.

As part of this study, you will be asked to complete three questionnaires, which will take between 15 and 25 minutes. Please be aware that your participation in this study may be terminated at any time at your discretion and that you may withdraw at any time during this study without penalty. You do not need to answer all the questions.

Participation in this project is not expected to involve risk of harm any greater than those ordinarily encountered in daily life.

The questionnaires will be coded in such a way that your identity will not be physically attached to the data which you produce. All the information obtained is strictly confidential. The key listing your name and participant code number will be kept separate from the data in a locked file accessible only to myself. This information and the raw data will be physically destroyed at the conclusion of the project. Only group data resulting from this research will be published or reported to scientific groups, funding agencies, or government agencies.

Enclosed, you will find a list of resources that may be helpful to you. If you are not currently receiving treatment, you may consider seeking it through one of the resources in this package.

If you have any questions regarding this study, please feel free to contact myself, Raquel Schmidt, at 289-9915, Dr. J. Singh at 220-7366, the Office of the Chair, Faculty of Education Joint Ethics Committee at 220-5626, or the Office of the Vice-president (Research) at 220-3381. If you are interested, a summary report of this project will be made available to you at the completion of this study. Two copies of the consent form are provided. Please return one signed copy, along with the completed questionnaires, to me and retain the other copy for your records.

Thank you for your cooperation.

Sincerely,

Raquel Schmidt
M.Sc. Student,
University of Calgary

Appendix 6

Consent Form

I, the undersigned, hereby give my consent to participate in a research project entitled "Symptoms of Attention Deficit Disorder in Women with Bulimia: An Exploration," conducted by Raquel Schmidt under the supervision of Dr. J. Singh, Assistant Professor, Faculty of Education.

I understand that my participation involves completing three questionnaires and that this should take between 15 and 25 minutes. I understand that these questionnaires will be scored and analysed by the researcher.

I understand that my participation in this research project is strictly voluntary. I understand that my participation in this study may be terminated at any time at my discretion and that I may withdraw at any time during this study without penalty. I understand that I do not need to answer all the questions.

I understand that the project is not expected to involve risk of harm any greater than those ordinarily encountered in daily life. I understand that the questionnaires are coded in such a way that my identity will not be physically attached to the data which I produce. I understand that all the information obtained is strictly confidential. The key listing my name and participant code number will be kept separate from the data in a locked file accessible only to the researcher. This information will be physically destroyed at the conclusion of the project.

I understand that only group data resulting from this research may be published or reported to scientific groups, funding agencies, or government agencies. I also understand that participants' identities will not be associated with the published results.

I understand that if I have any questions I can contact Raquel Schmidt at 289-9915, her supervisor Dr. J. Singh at 220-7366, the Office of the Chair, Faculty of Education Joint Ethics Committee at 220-5626, or the Office of the Vice-president (Research) at 220-3381.

_____ _____

(Date) (Signature)

_____

(Participant's Printed Name)

If you are interested in a summary report of this study's findings, please include the following information:

_____

(Address)

_____

(City/Province) (Postal Code)

Appendix 7

Participant Instructions

Dear Participant:

For the following questionnaires, please place a check in the box or circle the response which best applies to you.

After you have completed the questionnaires, please place them, along with one of the signed consent forms into the enclosed envelope and mail it to me.

Thank you for your time and co-operation.

Sincerely,

Raquel Schmidt
M.Sc. Student
University of Calgary

Appendix 8

Wender Utah Rating Scale: Sample Questions

3. Concentration problems, easily distracted.

12. Sad or blue, depressed, unhappy.

24. Acting without thinking, impulsive.

28. Tendency to be or act irrational.

41. Trouble with authorities, trouble with school, visits to principal's office.

Appendix 9

Brown Attention Deficit Disorder Scales: Sample Questions

Activation Cluster:

2. Experiences excessive difficulty getting started on tasks (e.g., doing paperwork or contacting people).
13. Is disorganized; has excessive difficulty keeping track of plans, money, or time.
39. Misunderstands directions for assignments, completion of forms, etc.

Attention Cluster:

1. Listens and tries to pay attention (e.g., in a meeting, lecture, or conversation) but mind often drifts; misses out on desired information.
23. Gets lost in daydreaming or is preoccupied with own thoughts.
32. Stares off into space; seems "out of it."

Effort Cluster:

12. Feels sleepy or tired during the day, even after a decent sleep the night before.
14. Cannot complete tasks in the allotted time; needs extra time to finish satisfactorily.
34. Has sloppy, hard-to-read penmanship.

Affect Cluster:

9. Is easily frustrated and excessively impatient.
18. Is sensitive to criticism from others; feels it deeply or for a long time; gets overly defensive.
30. Tends to be a loner among peers, keeps to self, and is shy; doesn't associate much with friends of the same age.

Memory Cluster:

7. Is excessively forgetful about what has been said, done, or heard in the past 24 hours.
15. Intends to do things but forgets (e.g., turn off appliances, get things from store, return phone calls, keep appointments, pay bills, do assignments.
33. Often leaves out words or letters in writing.

Appendix 10

Summary for Participants

Dear Participant:

Thank you for your participation in my study. On your consent form, you indicated that you would like a summary of the findings from my thesis, "Symptoms of Attention Deficit Hyperactivity Disorder in Women with Bulimia Nervosa: An Exploration." Here is that summary.

As you know, bulimia is an eating disorder with the following characteristics: binge eating, the use of extreme measures to compensate for these binges, and a greater concern with one's body weight and shape than would be considered normal. Attention deficit hyperactivity disorder (ADHD) is a neurological disorder with impulsivity, inattention, and hyperactivity as the main features. These disorders may not appear to have very much in common, and perhaps this is why no one has investigated the possibility of a link between the two disorders.

However, based on my investigation of the literature, I found that these disorders have three major commonalities. First, those with bulimia or ADHD often have other psychological disorders such as depression or a tendency to misuse alcohol or drugs. Second, anti-depressants have been used to treat these disorders. Third, both have impulsivity as a common feature. Other minor similarities exist, however, these three appear to stand out the most.

My goal was to investigate symptoms of ADHD in women with bulimia. To do this, I used the data from the two questionnaires you completed. The Wender Utah Rating Scale (WURS) investigates childhood characteristics indicative of ADHD; the Brown Attention Deficit Disorder Scales (BADDS) are used to screen for symptoms of ADHD in adults.

Initially, I had planned to include only women who currently had bulimia in the study. However, some women who had recovered also contacted me and wondered if they would be permitted to participate in the study as well. Because I thought this might provide additional information, these women were also included in the study.

A total of 29 women participated. Eighteen of these women currently had bulimia and 11 had recovered. The average age of the participants was 27.7 years. Participants had bulimia for an average of 8.0 years.

Results from the WURS showed that 53.8% of the participants had enough childhood symptoms of ADHD to suggest the possibility of the presence of ADHD. The BADDS showed that 50.0% of the participants had enough symptoms of ADHD to indicate that they might have ADHD. This is

much higher than the estimated rate of 1 - 2% in the general adult population.

Please note that this does not mean you have ADHD. A diagnosis of ADHD cannot be made based on the results of these questionnaires alone. Diagnosing ADHD is a complex process, and such a diagnosis should be made only by a qualified professional (e.g., psychologist or psychiatrist).

Because I had two participant groups (those who currently had bulimia and those who had recovered), I needed to test for differences between the groups. A statistical analysis showed that the groups were not different enough to require separate analysis, so all the participants were included in one group.

Despite the apparently high rate of ADHD symptoms in women with bulimia, further data analysis calls these results into question. First, in order to be considered as having ADHD as an adult, a person must have demonstrated symptoms as a child. While the percentages are roughly equal, the scores were not correlated. That means that a person who had several characteristics of ADHD as an adult (or a high BADDS score) did not necessarily have several characteristics of ADHD as a child (or a high WURS score). The reverse is also true; low scores on the BADDS were not necessarily associated with low scores on the WURS. If someone had fairly high scores on both the WURS and the BADDS, ADHD might be more likely to be present. Some limitations in the testing instruments could also explain this lack of relationship.

Second, in my exploration of the data, I found that the greater the number of years a participant had been recovered, the lower her BADDS score. That means that the longer a person had been recovered, the fewer symptoms of ADHD she demonstrated. This also calls the existence of ADHD in the participants into question. If the number or strength of characteristics of ADHD did not change, they might be indicative of ADHD. However, because they appeared to diminish with time, perhaps these symptoms might be more related to the bulimia.

Conclusions: Based on the results of the WURS and the BADDS, symptoms of ADHD appear to be quite prevalent in women with bulimia. However, because of the apparent lack of relationship between adult and childhood symptoms of ADHD and fewer symptoms being associated with more years of recovery, whether these symptoms are truly indicative of ADHD is called into question.

For those of you who wish to see a complete copy of this thesis, please contact the University of Calgary Library.

If the questionnaires you filled out for this study or this summary raises

some questions about ADHD, please contact your physician.

Thank you, once again, for your time and cooperation. This study would not have been possible without you. I wish you the best of luck in your future endeavors!

Sincerely,

Raquel I. Schmidt