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The prevalence of borderline personality disorder among individuals with obesity

A critical review of the literature

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Abstract

Through a MEDLINE and PsycLIT database search, all US studies relating to the prevalence of borderline personality disorder (BPD) among obese individuals were reviewed. The highest rates of BPD among these individuals were found in samples recruited from psychologically oriented settings (i.e., eating disorders program, mental health setting). Lowest rates were found among those seeking weight loss in non-psychological programs or those in primary care settings. Among those studies examining individuals with binge-eating disorder (BED), all indicated a higher-than-community prevalence of BPD. These data suggest that the prevalence of BPD appears increased among those obese individuals seeking psychological care or who have BED. © 2000 Elsevier Science Ltd. All rights reserved.

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The relationship between borderline personality disorder (BPD) and obesity is a potentially important one that might explain meaningful clinical observations among some samples of obese individuals. For example, if present, this relationship might shed light on the role of sexual abuse in some cases of obesity as well as the occurrence of multiple areas of impaired self-regulation (e.g., substance abuse, promiscuity). In addition, underlying personality pathology may partially explain failed treatment cases in programs for weight disorder. Finally, we believe that when present, the role of personality disorder should be factored into

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Table 1

Criteria for borderline personality disorder according to the Diagnostic and Statistical Manual of Mental Disorders, fourth edition (American Psychiatric Association, 1994)

Frantic efforts to avoid real or imagined abandonment

A pattern of unstable and intense interpersonal relationships characterized by alternating between extremes of idealization and devaluation

Identity disturbance: markedly and persistently unstable self-image or sense of self

Impulsivity in at least two areas that are potentially self-damaging (e.g., spending, sex, substance abuse, reckless driving, binge eating)

Recurrent suicidal behavior, gestures, or threats, or self-mutilating behavior

Affective instability due to a marked reactivity of mood (e.g., intense episodic dysphoria, irritability, or anxiety usually lasting a few hours and only rarely more than a few days)

Chronic feelings of emptiness

Inappropriate, intense anger or difficulty controlling anger (e.g., frequent displays of temper, constant anger, recurrent physical fights)

Transient, stress-related paranoid ideation or severe dissociative symptoms

the eating disorders treatment of obese individuals to enhance effectiveness (Sansone, Wiederman, & Sansone, 1999), as we have suggested in the treatment of other types of eating disorders (Dennis & Sansone, 1997). The criteria for BPD are listed in Table 1.

The relationship between BPD and obesity has been explored through a series of studies examining the prevalence of this personality disorder among obese individuals. These studies comprise two general waves: (1) the prevalence of BPD among behaviorally non-specific obese populations, and (2) the prevalence of BPD among obese individuals with binge-eating behavior.

In this paper, we review available US studies in an effort to clarify their limitations and summarize findings. We chose to eliminate non-US studies because of potential cultural differences in the expression and diagnosis of BPD. For studies that reported data at two separate time points for the same sample, we used the larger inclusive sample. We located relevant studies through MEDLINE and PsycLIT databases using relevant key words (e.g., borderline personality disorder, obesity, binge eating).

1. The first research wave: the prevalence of BPD among obese individuals

Over the past decade, there have been several studies exploring the prevalence of BPD among various obese populations *without* assessment regarding binge-eating disorder (BED) symptoms (see Table 2). These studies reflect diverse subject populations including obese individuals who were seeking gastric surgery or other treatment for weight disorder, solicited by advertisements, or evaluated in a primary care or outpatient mental health setting. Sample characteristics vary by size, participants' demographic and socioeconomic status, criteria for determining obesity, study setting (e.g., inpatient vs. outpatient), and measures used for personality disorder assessment. Because of these differences across studies, findings vary. We examine each study in light of sample selection, participant characteristics, sample size, and BPD measures used.

Table 2
Studies exploring the prevalence of BPD among obese samples

Investigators	Recruitment	N	% Female	Sample characteristics	Measure(s)	% BPD
Grana et al. (1989)	Gastric surgery	150	92.7	≥ 100 lbs OW; pre-op	CATI	2.2
Black et al. (1989)	Gastric surgery	38	78.9	≥ 100 lbs OW; pre-op	PDQ	18.4
Black et al. (1992)	Gastric surgery	46	80.4	≥ 100 lbs OW; pre-op; low SES	SIDP	30.4
Berman et al. (1992)	Weight program	56	87.5	two sub-samples: 37 outpatients and 19 on liquid protein diet;	SCID-II	7.1
				BMI > 33, ≥ 50 lbs OW	PDQ-R	25.0
Sansone et al. (1995)	Primary care	61	100.0	middle–upper SES; BMI ≥ 27.3	DIB	7.0
				inpatients and outpatients; ≥ 50 lbs OW	PDQ-R	25.0
Sansone et al. (1996)	Eating disorders program	17	100.0		PDQ-R	62.5
	Primary care	60	100.0	middle–upper SES; ≥ 50 lbs OW	DIB	41.2
					PDQ-R	36.7
Sansone et al. (in press)	Primary care	36	100.0	middle–upper SES; BMI ≥ 27.3	PDQ-R	27.8
	Outpatient MHC	17	100.0	University clinic;	SHI	27.8
				BMI ≥ 27.3	PDQ-R	94.1
					SHI	58.8

BMI = body mass index, BPD = borderline personality disorder, CATI = Coolidge Axis Two Inventory (Coolidge & Merwin, 1992), DIB = Diagnostic Interview for Borderlines (Kolb & Gunderson, 1980), MHC = mental health clinic, OW = overweight, PDQ = Personality Diagnostic Questionnaire (Hyler et al., 1983), PDQ-R = Personality Diagnostic Questionnaire-Revised (Hyler & Rieder, 1987), SCID-II = Structured Clinical Interview for DSM-III-R Personality Disorders (Stangl et al., 1985), SES = socioeconomic status, SIDP = Structured Interview for DSM-III Personality Disorders (Spitzer et al., 1990).

1.1. *Sample selection*

Sample recruitment is a potentially important factor affecting findings. The most controversial study samples appear to be those consisting of gastric surgery candidates (Black, Goldstein, & Mason, 1992; Black et al., 1989; Grana, Coolidge, & Merwin, 1989). Because of the potential role of secondary gain (i.e., concern about the candidate's psychological status and acceptability for surgery), subject candor and level of disclosure are a concern. If participants interpreted a need to appear psychologically healthy to secure surgery, testing results might be biased toward the norm. On the other hand, if participants perceived that psychological distress would increase the probability of surgery, testing results might be biased toward the pathological. For example, in the study by Black et al. (1992, p. 229), patients were invited to participate in a study of the "psychological characteristics or emotional adjustment of morbidly obese persons." The extent to which such a recruitment description resulted in a self-selected sample and subsequent demand characteristics remains unknown.

With regard to studies based on samples obtained from weight-control programs (Berman, Berman, Heymsfield, Fauci, & Ackerman, 1992), results might not generalize to obese samples not seeking weight loss. Indeed, differences in the prevalence of personality pathology between treatment-seeking and non-treatment-seeking samples have been reported (Sansone, Sansone, & Morris, 1996).

Two samples were recruited from psychologically oriented programs (i.e., an eating disorders program [Sansone et al., 1996] and an outpatient mental health setting [Sansone, Wiederman, Sansone, & Monteith, in press]). These samples may have been predisposed to greater candor and self-disclosure because of the psychological treatment environment, itself. In contrast, obese populations recruited from primary care settings (i.e., patient populations not anticipating psychological assessment at the time of their medical appointment) would appear to be the most naturalistic or representative of community samples. However, among primary care samples, a potential concern is the level of psychological defensiveness, as there is no incentive for self-disclosure of pathology.

Exclusion criteria may also affect sample characteristics. For example, the study by Grana et al. (1989) included exclusion criteria that may have affected the resulting BPD prevalence estimate. Investigators excluded study candidates who were suicidal, or reported drug or alcohol problems. Both of these behaviors are associated with BPD (American Psychiatric Association, 1994; Zanarini et al., 1998) and, therefore, such exclusion criteria may have resulted in a suppressed prevalence estimate of BPD.

1.2. *Participant characteristics*

All studies demonstrated a predominance of female participants. Three of the first-wave studies consisted *only* of women; for the remainder, nearly 80–90% of subjects were women. Whether males show similar personality disorder patterns cannot be determined from the current data.

Samples also diverge in terms of socioeconomic parameters. For example, Black et al. (1992) indicated that their sample was of lower socioeconomic status. The three primary care

samples (Sansone, Sansone, & Fine, 1995; Sansone et al., 1996, in press) each consisted of participants of middle to upper socioeconomic status as indicated by level of education. That socioeconomic levels may temper the clinical manifestations of BPD and affect testing results is a possibility that needs further consideration.

1.3. *Sample sizes*

Samples sizes vary between 17 and 150 individuals. With the exception of the two small samples from psychologically oriented treatment sites (Sansone et al., 1996, in press), most samples included 60 or more individuals. Collectively, the studies in Table 2 represent 481 participants.

1.4. *Measures*

Personality disorders, in general, are very difficult to assess. The measures of personality disorder used in the studies in Table 2 vary from self-report to interview to combinations of both self-report and interview. Note that four studies utilized two separate measures for the assessment of BPD.

With regard to the particular measures used, the Coolidge Axis Two Inventory (Coolidge & Merwin, 1992) is a self-report instrument that has had limited clinical use and is not commonly recognized as an established measure for BPD. In contrast, the Personality Diagnostic Questionnaire (PDQ; Hyler, Rieder, & Spitzer, 1983) and Personality Diagnostic Questionnaire-Revised (PDQ-R; Hyler & Rieder, 1987) are self-report measures that have been widely used in previous research. The PDQ and PDQ-R both contain a BPD sub-scale reflecting the criteria in DSM-III and DSM-III-R, respectively. Both measures have adequate psychometric properties for screening BPD (Dubro, Wetzler, & Kahn, 1988; Hyler et al., 1990), although both the PDQ (Dubro et al., 1988; Hurt, Hyler, Frances, Clarkin, & Brent, 1984) and the revision (Patrick, Links, Van Reekum, & Mitton, 1995) have been criticized for being over-inclusive. Of the 10 samples indicating a prevalence of BPD equal to or greater than 20%, six have used the PDQ-R. This measure yielded the highest prevalence rate for BPD among the studies in Table 2, a finding that may relate to its purported over-inclusiveness.

The Structured Interview for DSM-III Personality Disorders (SIDP; Stangl, Pfohl, Zimmerman, Bowers, & Corenthal, 1985) has demonstrated reasonable validity, although specificity is a concern (Kavoussi, Coccaro, Klar, Bernstein, & Siever, 1990). The Structured Clinical Interview for DSM-III-R Personality Disorders (SCID-II; Spitzer, Williams, Gibbon, & First, 1990), another semi-structured interview for the diagnosis of the Axis II personality disorders, also has demonstrated reliability and validity (Malow, West, Williams, & Sutker, 1989; O'Boyle & Self, 1990; Renneberg, Chambless, Dowdall, Fauerbach, & Gracely, 1992).

The Diagnostic Interview for Borderlines (DIB; Kolb & Gunderson, 1980), a semi-structured interview for BPD, was used in two studies (Sansone et al., 1995, 1996). The DIB is specific to BPD only, and has known reliability and validity (Armeliuss, Kullgren, & Renberg, 1985; Cornell, Silk, Ludolph, & Lohr, 1983; Gunderson, Kolb, & Austin, 1981; Kroll et al., 1981; Loranger, Oldham, Russakoff, & Susman, 1984; Soloff, 1981). The standard scoring for the DIB was used in these studies, although the revised scoring

suggested by Zanarini, Gunderson, Frankenburg, Frances, and Chauncey (1989) may increase this measure's ability to discriminate BPD from other personality disorders.

Finally, the Self-Harm Inventory (SHI; Sansone, Wiederman, & Sansone, 1998) was used in one study (Sansone et al., in press). The SHI is a 22-item, self-report inventory that explores respondents' history of self-destructive behavior. In an initial validation study, scores of five or higher correctly classified 83.7% of subjects in comparison with the DIB (Sansone et al., 1998). A potential advantage of this measure is its behavioral, less subjective focus.

Those studies using two methods of BPD assessment are particularly interesting because the constructs for the measures, themselves, are different (e.g., the DIB vs. the SHI). Among these studies, the PDQ-R was *always* one of the measures, and it *always* resulted in a prevalence rate as high or higher than the comparison measure for BPD.

No study examined the relationship between BMI and BPD. However, using a Pearson correlation, one study (Sansone et al., 1995) examined the relationship between highest body weight ever and BPD score on the PDQ-R and a statistically significant relationship was found.

1.5. Conclusions

In summarizing the prevalence data in Table 2, we elected to focus on the most discriminating measure for those studies using two measures of BPD. The highest rates for BPD are reported among the obese samples in the eating disorders and mental health settings. Both settings are characterized by a psychological orientation. This observation suggests that, compared with other obese populations, *obese women seeking psychologically oriented treatment programs may have the greatest likelihood of comorbid BPD*. Obese samples with the *lowest* prevalence of BPD were: (1) those seeking weight control in non-psychological programs and (2) patients in primary care settings (i.e., 6.7% to 10.8%).

The two exceptions to these findings are one of the gastric surgery studies (Grana et al., 1989; BPD prevalence of 2.2%) and the Sansone et al. (in press) study, in which nearly 28% of the obese primary care sample met criteria for BPD on two measures. This latter finding may have been related to the recruitment of subjects and their relationship with the family physician recruiter, possibly resulting in greater psychological candor.

Finally, the first-wave data suggest that the *PDQ-R tends to be an over-inclusive measure of BPD* in obese populations as prevalence rates were nearly always higher for the PDQ-R when a second measure was used for comparison. This impression reflects that of other investigators using the PDQ-R with other types of study samples (Patrick et al., 1995), but does not necessarily diminish the use of the PDQ and PDQ-R for screening purposes. However, it does call into question this measure's diagnostic specificity.

2. The second research wave: the prevalence of BPD among those with BED

More recently, investigators have noted a subgroup of obese individuals who experience problems with binge eating (i.e., discrete episodes of excessive calorie ingestion without any attempts at compensating for food intake, such as purging; see Table 3). This subgroup,

Table 3

Research criteria for BED (American Psychiatric Association, 1994)

Recurrent episodes of binge eating characterized by:

- (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 in a similar period of time 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)

The binge-eating episodes are associated with three (or more) of the following:

- (1) eating much more rapidly
- (2) eating until feeling uncomfortably full
- (3) eating large amounts of food when not feeling physically hungry
- (4) eating alone because of being embarrassed by how much one is eating
- (5) feeling disgusted with oneself, depressed, or very guilty after overeating

Marked distress regarding binge eating is present.

The binge eating occurs, on average, at least 2 days a week for 6 months.

The binge eating is not associated with the regular use of inappropriate compensatory behaviors (e.g., purging, fasting, excessive exercise) and does not occur exclusively during the course of anorexia nervosa or bulimia nervosa.

highlighted by impulsive eating patterns, may represent individuals most at risk for personality disorders characterized by self-regulation deficits (Telch & Agras, 1994).

Since 1991, there have been five US studies that have examined the prevalence of BPD among obese individuals with BED (see Table 4). Three of these five studies utilized a comparison group. Like the first-wave studies, the second-wave studies consist of diverse samples and methods. Accordingly, we consider each using the same sub-headings as appeared when discussing first-wave studies.

2.1. *Sample selection*

Compared with first-wave studies, the approach to sample recruitment has been more consistent across second-wave studies. Four of the five studies used advertisements whereas the remaining one directly accessed a clinical sample of subjects participating in a drug study. Participants recruited through advertisements were likely to be compensated for participation. However, only one such study involved no intention of enrolling participants in a weight-disorder treatment program (Telch & Stice, 1998). Note that the study by Yanovski, Nelson, Dubbert, and Spitzer (1993) combined two sub-samples-participants who were previously part of a treatment program, as well as those who were not seeking treatment. The inherent concern with samples recruited through advertisements is whether results can be generalized to broader populations.

Four studies (Abbott et al., 1998; McCann, Rossiter, King, & Agras, 1991; Specker, de Zwaan, Raymond, & Mitchell, 1994; Yanovski et al., 1993) reported exclusion criteria, including a history of substance abuse or psychotic episodes and current use of psychotropic medications. Such exclusion criteria may result in a suppressed estimate of BPD in the respective populations as these features are frequently associated with BPD (American Psychiatric Association, 1994; Zannarini et al., 1998).

Table 4
Studies exploring the prevalence of BPD among obese samples while considering co-morbid BED

Investigators	Recruitment	N	% Female	Sample characteristics	Measure(s)	% BPD
McCann et al. (1991) ^a	Previous participants in a drug study	31	100.0	BMI: 23–38 (Mean = 30.2 ± 5.3); non-purging bulimics	PDE	6.5
Yanovski et al. (1993) ^b	Advertisements (signs)	128	69.5	≥50 lb OW; (BMI > 30); compensation offered; 38 women were from weight-loss program	SCID-II	BED: 14.0 (vs. 1.2)
Specker et al. (1994) ^c	Advertisements for treatment (newspapers)	100	100.0	BMI ≥27.3; BED = 43; 50% with college degree; compensation offered	PDQ-R	BED: 30.2 (vs. 12.3)
Abbott et al. (1998) ^c	Treatment program; Advertisements (newspapers)	102	100.0	≥30% OW; participated in very low calorie diet; all with BED	PDQ-R	BED: 26.5
Telch and Stice (1998) ^d	Advertisements	121	100.0	Non-treatment-seeking; BMI > 28; Non-BED: 78% BMI > 28; compensation offered	SCID-II	BED: 6.6 (vs. 0)

BMI = body mass index; OW = overweight; PDE = Personality Diagnostic Examination (Loranger et al., 1985); PDQ-R = Personality Diagnostic Questionnaire-Revised (Hyler & Rieder, 1987); SCID-II = Structured Clinical Interview for DSM-III-R Personality Disorders (Spitzer et al., 1990).

^a BED diagnosis determined by clinical assessment.

^b BED diagnosis determined by the Binge Eating Disorder Clinical Interview (unpublished).

^c BED diagnosis determined by proposed DSM-IV criteria (Spitzer et al., 1991).

^d BED diagnosis determined by Questionnaire on Eating and Weight Patterns (Spitzer et al., 1992).

2.2. Participant characteristics

Like first-wave studies, most second-wave participants have been women. In four studies, *all* participants were women; in the remaining one, 70% were women. Socioeconomic characteristics have varied.

2.3. Sample sizes

The second-wave studies represent a total of 482 individuals. One sample was relatively small (i.e., 31 individuals; McCann et al., 1991). The four remaining studies were based on more than 100 individuals each.

2.4. Measures

The second-wave studies used various measures for BPD including the previously described PDQ-R (Hyer & Rieder, 1987) and the SCID-II (Spitzer et al., 1990). One additional measure appeared in these studies — the Personality Disorder Examination (PDE; Loranger, Susman, Oldham, & Russakoff, 1985). The PDE is a semi-structured interview that examines the presence and severity of DSM-III-R personality disorders, but has been criticized for relying on subjective opinion rather than more objective behavioral data (Widiger & Frances, 1987). *None* of the second-wave studies used more than one measure for BPD.

2.5. Conclusions

Regardless of the measure for BPD, all studies indicate that a significant minority of obese individuals with BED have BPD. Prevalence rates for BPD have varied from 6% to 30% among those with BED. As before, the highest prevalence rates have been reported from those studies using the PDQ-R. Whenever a comparison group has been used, prevalences for BPD have *consistently* been higher among the BED sub-sample. In two (Telch & Stice, 1998; Yanovski et al., 1993) of three studies with comparison groups, prevalence rates of BPD among those without BED were comparable to rates reported in the general population (i.e., 2%; American Psychiatric Association, 1994). *The presence of significant BED appears to indicate a greater relative risk of comorbid BPD.*

3. General conclusions

In summarizing all of the available US studies, both first- and second-wave, the prevalence of BPD among obese individuals, predominantly female samples, appears to be increased among participants: (1) seeking psychological care; (2) who have BED; and (3) who have been evaluated using the PDQ or the PDQ-R. For the practicing clinician, these data suggest that obese women seeking psychological services or reporting BED symptoms are at a greater risk for this type of Axis II co-morbidity and should be carefully screened for BPD. We

believe that treatment for weight disorder, in turn, needs to accommodate comorbid personality pathology (Dennis & Sansone, 1997; Sansone et al., 1999).

What is suggested from these studies is that a significant minority of obese individuals have BPD. Whether BPD, a disorder highlighted by self-regulation difficulties, is causally related to obesity remains unknown (Sansone, Sansone, & Wiederman, 1997). However, investigators (Spurrell, Wilfley, Tanofsky, & Bromwell, 1997) have reported that among individuals with BED, those with bingeing that preceded dieting behavior (a possible marker for impulsivity?) had a greater rate of Axis II psychopathology compared to those with bingeing behavior preceded by dieting behavior.

These studies and conclusions need to be interpreted with caution. For example, the diversity within these studies makes absolute comparisons impossible. In addition, measures for BPD that include criteria such as binge eating or purging behavior, may have contributed to the variance, although most BPD measures explore multiple areas of impulsivity. None of the available studies have matched obese subjects with non-obese controls. The tentative conclusion that obese woman in mental health settings have high rates of BPD may be a reflection of higher rates of psychiatric comorbidity, in general, among those soliciting mental health care. Finally, we wish to emphasize again the difficulty in assessing personality disorders.

For future studies, we recommend: (1) careful definition of the sample selection, given the possible variance among different types of samples; (2) thoughtful review of each proposed exclusion criterion and whether each relates to BPD criteria; (3) larger sample sizes; (5) use of control groups; and (5) use of at least two measures for BPD, including the DIB because of its research history. Whether elimination of eating disorder criteria from each BPD measure is warranted remains an unresolved issue.

In addition to the need for additional studies, a number of questions remain unanswered. For example, do obese men evidence similar associations to BPD? Does the presence of childhood sexual abuse, an associated feature of BPD, function as a mediating factor in the subsequent expression of BED? In efforts to determine more effective treatments for obesity, all of these issues are important areas for future study.

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