BRIEF REPORT

The relationship between borderline personality symptoms and body mass index in a consecutive sample of cardiac stress test patients

R.A. Sansone[1,2], H.S. Hahn[1,3], N. Dittoe[4], and M.W. Wiederman[5]

[1]Department of Internal Medicine, Wright State University School of Medicine, Dayton, [2]Director of Psychiatry Education, Kettering Medical Center, Kettering, [3]Director of Cardiovascular Fellowship Training Program and Director of Cardiac Noninvasive Laboratory, Kettering Medical Center, Kettering, [4]Department of Cardiology, Kettering Medical Center, Kettering, [5]Department of Human Relations, Columbia College, Columbia, South Carolina, USA

ABSTRACT. *Borderline personality disorder (BPD) is characterized by inherent difficulties with self-regulation. While a number of studies have examined the relationship between BPD and body mass index (BMI)/overweight/obesity, findings have been mixed. In this cross-sectional study of a consecutive sample of 238 participants presenting for cardiac stress testing, we investigated the relationship between borderline personality symptoms, according to two self-report measures, and BMI. Compared to participants who were negative on both measures of borderline personality symptoms, participants who were positive on either measure of borderline personality symptoms demonstrated no differences in current BMI or highest BMI in adulthood. These results in a unique study population mirror the findings of other studies in medical and community populations.*
(Eat. Weight Disord. 17: e128-e131, 2012). ©2012, Editrice Kurtis

Key words:
Borderline personality, borderline personality disorder, body mass index, cardiac stress testing, obesity, Self-Harm Inventory.

Correspondence to:
Randy A. Sansone, MD, Sycamore Primary Care Center, 2115 Leiter Road, Miamisburg, Ohio, 45342, USA.
E-mail: Randy.sansone@khnetwork.org

Received: *February 24, 2011*
Accepted: *September 13, 2011*

INTRODUCTION

Studies on the relationship between borderline personality disorder (BPD), an Axis II dysfunction characterized by inherent self-regulation difficulties, and overweight/obesity have reported mixed results. A number of studies have reported rates of BPD in overweight/obese samples that are clearly higher than rates encountered in the community, which are between 2% (1) and 6% (2) [e.g., 18.4% (3), 30.4% (4), 25% (5), and 25% (6)]. In addition, Sansone et al. (7) found correlations between BPD and body mass index (BMI; kg/m^2) in female psychiatric outpatients, and in a 6-year follow-up study, Frankenburg and Zanarini (8) found that nearly 30% of participants with BPD developed obesity. Frankenburg and Zanarini (9) also found that remitted BPD patients were less likely to have a history of obesity than unremitted BPD patients.

In contrast, a number of studies have found rates of BPD in samples of overweight/obese participants that are comparable to rates in the general population [e.g., 2.2% (10), 1.1% (11), 6.3% (12), 5.5% (13), and 5.4% (14)]. In a primary care sample, Sansone et al. (15) found community-level rates of BPD in obese participants (6.7%). Other investigators also report a lack of correlation between BPD and obesity (16). From our review of the literature, differences in findings may be attributed to study measures as well as study setting, with high associations between BPD and overweight/obesity in psychiatric/psychological settings and low associations between BPD and overweight/obesity in primary care and community settings (17).

In this study, we examined the relationship between BPD and BMI in a specialized medical sample – i.e., patients undergoing cardiac stress testing – to further evaluate this controversial relationship in a unique population to the literature.

METHOD

Participants

Participants were consecutive patients, male or female, aged 18 or older, and undergoing cardiac stress testing in a community hospital from June 6 to September 3, 2010. Cardiac stress testing was most

commonly requested for evaluation of active cardiac symptoms, although some participants were receiving testing for physicals or upcoming surgeries. Exclusion criteria were medical (e.g., pain), cognitive (e.g., dementia), psychiatric (e.g., psychosis), or intellectual disturbances that would preclude the successful completion of a survey booklet. These exclusion criteria were not empirically assessed; rather, if potential participants appeared too ill or cognitively impaired to participate, they were not invited to do so. Two recruiters approached 302 candidates and 251 individuals agreed to participate, for a response rate of 83.1%.

Among the 251 participants, 238 completed the relevant measures and were included in the present study. Of these 238 participants, 111 were male and 127 female, who ranged in age from 20 to 91 years [mean (M)=58.20, standard deviation (SD)=14.06). The large majority was white (92.9%), followed by black (3.4%), native American (1.7%), other (1.3%), and Asian (0.4%). One respondent (0.4%) did not indicate ethnicity. With regard to education, 7.6% had not finished high school, 30.9% had only a high school diploma, 27.7% had attended college but had no degree, 5.0% had earned a 2-year degree, 13.0% had earned a 4-year degree, and 15.1% had earned a graduate degree. Two respondents (0.8%) did not indicate their educational attainment.

Procedure

All candidates were approached for participation in this study while entering the cardiac stress testing area. Two recruiters approached candidates, informally assessed exclusion criteria, and described the research project. After the signing of consent forms, each participant completed a survey booklet that explored demographic information, height, current weight, highest adult weight, and borderline personality symptoms according to two measures: the BPD scale of the Personality Diagnostic Questionnaire-4 (PDQ-4) (18) and the Self-Harm Inventory (SHI) (19).

The BPD scale of the PDQ-4 (18) is a 9-item, true/false, self-report measure which consists of the diagnostic criteria for BPD that are listed in the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV) (1). A score of 5 or higher is highly suggestive of BPD. Previous versions of the PDQ have been found to be useful screening tools for BPD in both clinical settings (20, 21) and non-clinical settings (22), including the use of the freestanding BPD subscale (23). In this study, Cronbach's α for the BPD subscale was 0.71.

The SHI (19) is a 22-item, yes/no, self-report inventory for BPD that explores participants' histories of self-harm behavior. Each item in the inventory is preceded by the statement, "Have you ever intentionally, or on purpose,..." and items include, "overdosed," "cut yourself on purpose," "burned yourself on purpose," and "hit yourself." Each endorsement is in the pathological direction and the SHI total score is the summation of "yes" responses. SHI total scores of 5 or higher are highly suggestive of the diagnosis of BPD. Indeed, in comparison with the Diagnostic Interview for Borderlines (24), the gold standard for the diagnosis of BPD in research settings, the SHI demonstrates an accuracy in diagnosis of 84% (19). In this study, Cronbach's α for the SHI was 0.77.

After completion, survey booklets were placed in sealed envelopes, pending analysis. This project was approved by the Institutional Review Boards of the hospital site as well as the university.

RESULTS

Of the 238 respondents, 20 (8.4%) scored positively for BPD (i.e., cut-off score of 5 or higher on either measure) on at least one of the two self-report measures (5.9% on the PDQ-4 and 4.6% on the SHI). There was not a statistically significant difference in the proportions of males (10.8%) and females (6.3%) who scored positively for BPD on at least one of the measures (χ^2=0.25, p<0.17). Current BMI ranged from 17.43 to 89.98, whereas highest BMI during adulthood ranged from 19.00 to 89.98. Because only 6 respondents had a BMI>50 and only 11 had a highest BMI>50, we were concerned that these statistical outliers might unduly influence the results of subsequent analyses. Accordingly, we truncated current BMI and highest BMI at 50.00 for those relatively few respondents with values greater than 50.00. The result was a mean current BMI of 31.35 (SD=7.87) for males and a mean current BMI of 31.96 (SD=9.43) for females, F(1,236)=0.29, p<0.60. The resulting mean highest BMI was 31.96 (SD=7.97) for males and 34.48 (SD=10.55) for females, F(1,236)=4.23, p<0.05.

Scoring positively on either measure of BPD was not statistically significantly correlated with either current BMI (r=0.09, p<0.18) or highest BMI in adulthood (r=0.08, p<0.24). Analyzed differently, those individuals who scored positively on at least one measure of BPD did not have a statistically significantly different BMI (M=33.60, SD=8.24) than did those respondents who scored negatively on both measures

(M=31.18, SD=7.52), F(1,236)=1.86, p<0.18. Likewise, there was not a statistically significant difference between the subsamples with regard to highest BMI in adulthood, M=34.79 (SD=8.14) vs M=32.64 (SD=7.76), F(1,236)=1.40, p<0.24.

DISCUSSION

These data indicate that in a specialized medical sample, borderline personality symptoms were not related to current BMI or highest BMI in adulthood. This finding parallels the literature regarding the relationship between BPD and weight status in various medical and community populations. However, this relationship is now confirmed in a novel medical population – cardiac stress test patients.

Note that the rates of borderline personality symptoms in this study (i.e., 4.6 and 5.9% according to separate assessments) are slightly higher than the rate reported in the DSM-IV of 2% (1), but very close to that of 6%, which was reported in a more recent community study (2). It appears that while self-report measures for BPD are known to be over-inclusive, determined rates of borderline personality symptoms in this study are very comparable to a contemporary study.

Determining general rates of psychopathology in various types of populations is important in terms of anticipating that population's needs. According to the general findings of cumulative past studies and the present study, individuals with high BMI in primary care and community samples are not likely to harbor high rates of BPD whereas individuals with high BMI in psychiatric/psychological settings do – this awareness facilitates more precise assessment as well as the determination of patient needs.

This study has a number of potential limitations, including the self-report approach to borderline personality symptom assessment, participants' possible variable recollection of height/weight, and the overall small number of individuals (N=20) who scored positively for borderline personality symptoms. However, this is the first study to examine the controversial relationship between borderline personality symptoms and BMI in a cardiology population. The sample is reasonably sized and consecutive. According to the findings, there is not a relationship between borderline personality symptoms and current BMI or highest BMI in adulthood – a finding that echoes the findings of other studies in medical and community samples.

ACKNOWLEDGEMENTS

We wish to thank Brandi Palmer, M.S., and Michele Jewell, M.A., for their assistance in data collection.

REFERENCES

1. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders, 4th Edition. Washington, DC, APA, 1994.
2. Grant BF, Chou SP, Goldstein RB, et al. Prevalence, correlates, disability, and comorbidity of DSM-IV borderline personality disorder: Results from the Wave 2 National Epidemiologic Survey on Alcohol and Related Conditions. J Clin Psychiatry 2008; 69: 533-45.
3. Black DW, Yates WR, Reich JH, et al. DSM-III personality disorder in bariatric clinic patients. Ann Clin Psychiatry 1989; 1: 33-7.
4. Black DW, Goldstein RB, Mason EE. Prevalence of mental disorder in 88 morbidly obese bariatric clinic patients. Am J Psychiatry 1992; 149: 227-34.
5. Sansone RA, Sansone LA, Fine MA. The relationship of obesity to borderline personality symptomatology, self-harm behaviors, and sexual abuse in female subjects in a primary-care medical setting. J Pers Disord 1995; 9: 254-65.
6. Sansone RA, Schumacher D, Wiederman MW, et al. The prevalence of binge eating disorder and borderline personality symptomatology among gastric surgery patients. Eat Behav 2008; 9: 197-202.
7. Sansone RA, Wiederman MW, Monteith D. Obesity, borderline personality symptomatology, and body image among women in a psychiatric outpatient setting. Int J Eat Disord 2001; 29: 76-9.
8. Frankenburg FR, Zanarini MC. Obesity and obesity-related illnesses in borderline patients. J Pers Disord 2006; 20: 71-80.
9. Frankenburg FR, Zanarini, MC. The association between borderline personality disorder and chronic medical illnesses, poor health-related lifestyle choices, and costly forms of health care utilization. J Clin Psychiatry 2004; 65: 1660-5.
10. Grana AS, Coolidge FL, Merwin MM. Personality profiles of the morbidly obese. J Clin Psychol 1989; 45: 762-5.
11. Larsen F. Psychosocial function before and after gastric banding surgery for morbid obesity: a prospective study. Acta Psychiatr Scand 1990; 359: 1-57S.
12. Berman WH, Berman ER, Heymsfield S, et al. The incidence and comorbidity of psychiatric disorders in obesity. J Pers Disord 1992; 6: 168-75.
13. Yanovski SZ, Nelson JE, Dubbert BK, et al. Association of binge eating disorder and psychiatric comorbidity in obese subjects. Am J Psychiatry 1993; 150: 1472-9.
14. Von Hanswijck de Jonge P, van Furth EF, Lacey JH, et al. The prevalence of DSM-IV personality pathology among individuals with bulimia nervosa, binge eating disorder and obesity. Psychol Med 2003; 33: 1311-7.
15. Sansone RA, Sansone LA, Morris DW. Prevalence of borderline personality symptoms in two groups of obese subjects. Am J Psychiatry 1996; 153: 117-8.
16. El-Gabalawy R, Katz LY, Sareen J. Comorbidity and associated severity of borderline personality disorder and physical health conditions in a nationally representative sample. Psychosom Med 2010; 72: 641-7.

17. Sansone RA, Wiederman MW, Sansone LA. The prevalence of borderline personality disorder among individuals with obesity: A critical review of the literature. Eat Behav 2000; 1: 93-104.
18. Hyler SE. Personality Diagnostic Questionnaire-4. New York, New York State Psychiatric Institute, 1994.
19. Sansone RA, Wiederman MW, Sansone LA. The Self-Harm Inventory (SHI): Development of a scale for identifying self-destructive behaviors and borderline personality disorder. J Clin Psychol 1998; 54: 973-83.
20. Dubro AF, Wetzler S, Kahn MW. A comparison of three self-report questionnaires for the diagnosis of DSM-III personality disorders. J Pers Disord 1988; 2: 256-66.
21. Hyler SE, Lyons M, Rieder RO, et al. The factor structure of self-report DSM-III Axis II symptoms and their relationship to clinicians' ratings. Am J Psychiatry 1990; 147: 751-7.
22. Johnson JG, Bornstein RF. Utility of the Personality Diagnostic Questionnaire-Revised in a nonclinical population. J Pers Disord 1992; 6: 450-7.
23. Patrick J, Links P, Van Reekum R, et al. Using the PDQ-R BPD scale as a brief screening measure in the differential diagnosis of personality disorder. J Pers Disord 1995; 9: 266-74.
24. Kolb JE, Gunderson JG. Diagnosing borderline patients with a semistructured interview. Arch Gen Psychiatry 1980; 37: 37-41.