Eating Behaviors 15 (2014) 686–693

Contents lists available at ScienceDirect

Eating Behaviors

Psychiatric co-morbidity in women presenting across the continuum of disordered eating☆

Vandana Aspen [a,*], Hannah Weisman [a], Anna Vannucci [b], Najia Nafiz [c], Dana Gredysa [d], Andrea E. Kass [d], Mickey Trockel [a], Corinna Jacobi [e], Denise E. Wilfley [d], C. Barr Taylor [a]

[a] Department of Psychiatry, Stanford University School of Medicine, Stanford, CA, USA
[b] Department of Medical and Clinical Psychology, Uniformed Services University of the Health Sciences, Bethesda, MD, USA
[c] Department of Psychology, California State University, Sacramento, CA, USA
[d] Department of Psychiatry, Washington University School of Medicine, St. Louis, MO, USA
[e] Institut für Klinische Psychologie und Psychotherapie, Technische Universität Dresden, Dresden, Germany

ARTICLE INFO

Article history:
Received 18 February 2014
Received in revised form 13 June 2014
Accepted 21 August 2014
Available online 16 September 2014

Keywords:
High risk
Co-morbidity
Eating disorders

ABSTRACT

Objective: To compare the prevalence and correlates of psychiatric co-morbidity across a large sample of college women without an eating disorder, those at high risk for an eating disorder and women diagnosed using DSM-5 criteria for an eating disorder.
Participants: 549 college women aged 18–25.
Methods: Data from the Eating Disorder Examination, the Structured Clinical Interview for DSM-IV Axis I disorders and self-report questionnaires were analyzed using logistic regression for categorical data and ANCOVA for continuous measures.
Results: Eating disordered symptomatology was strongly associated with anxiety disorders, mood disorders and insomnia. These co-morbidities (type and severity) tend to increase with eating disorder symptom severity.
Conclusions: Prevention and treatment programs for eating disorders need to address the high levels of mood, anxiety and sleep problems in this population. The findings on insomnia are novel and suggest that sleep disturbance may play an integral role in eating-related difficulties.

1. Introduction

Eating disorders (EDs) are common, with 2–4% of the population meeting DSM-IV criteria for a full syndrome ED (Hudson, Hiripi, Pope, & Kessler, 2007) and many more suffering from partial syndromes (Stice, Marti, Shaw, & Jaconis, 2009). EDs are associated with significant functional impairment and numerous serious psychological problems, including elevated rates of mood, anxiety, substance use, and impulse control disorders (Baker, Mitchell, Neale, & Kendler, 2010; Godart et al., 2007; Herzog et al., 2006; Hudson, Hiripi, Pope & Kessler, 2007; Kaye, Bulik, Thornton, Barbarich, & Masters, 2004; Swanson, Crow, Le Grange, Swendsen, & Merikangas, 2011). These associated psychiatric co-morbidities increase the complexity of the EDs and contribute to overall impairment and decreased quality of life.

While it is not fully understood what causes this high degree of co-morbidity, there is evidence that both genetic and environmental factors are likely at play. For instance, from an environmental perspective, childhood adverse events (i.e. abuse) may act as a common "diathesis" as these events have been shown to significantly increase the likelihood of developing both depression (Chapman et al., 2004) and EDs (Akkermann et al., 2012). In terms of genetics, Steiger et al. (2005) postulated that the high rates co-morbidity could be explained by a short allele(s) in the promoter region of the 5-hydroxytryptamine (5-HT) transporter gene (5HTTLPR). Others have argued that a common "diathesis" for EDs and affective disorders is poor affect regulation/negative affectivity (Gilboa-Schechtman, Avnon, Zubery, & Jeczmien, 2006). For instance, a subset of women with EDs may use substances and binge eating to cope with distress.

While efficacious treatments (e.g., cognitive behavioral therapy; CBT) for EDs are available, they are not a panacea. The best results have been in bulimia nervosa (BN) (Wilson, Grilo, & Vitousek, 2007) and binge eating disorder (BED) (Wilson, Wilfley, Agras, & Bryson, 2010). Results from the extensive literature on BN suggest that after a full course of CBT, approximately 30–50% remit completely at post treatment (Wilson, 2005) leaving a large portion of patients symptomatic. Recent evidence suggests that the presence of co-morbidity predicts worse treatment outcome (Keel, Brown, Holm-Denoma, & Bodell, 2011; Schork, Eckert, & Halmi, 1994; Wilfley et al., 2000) and

☆ Previous presentation: Portions of this work have been presented at the Eating Disorder Research Society Annual Conference, Boston, Massachusetts, October, 2010.

* Corresponding author at: Stanford University, Department of Psychiatry & Behavioral Medicine, 401 Quarry Road, Stanford, CA 94305-5722, USA. Tel.: +1 650 736 7972.
E-mail address: vandana.aspen@stanford.edu (V. Aspen).

http://dx.doi.org/10.1016/j.eatbeh.2014.08.023
1471-0153/

that for many individuals co-morbidity persists after the completion of treatment (Berkman et al., 2006). Additionally, the negative impact of insomnia (both as a risk factor and a maintaining factor) on general psychopathology in college students has been given more attention in recent years (Taylor, Bramoweth, Grieser, Tatum, & Roane, 2013; Taylor et al., 2011). While little research has been conducted on sleep difficulties among those with EDs, it seems likely that sleep difficulties could also contribute to impairment and/or poor treatment outcome.

Given the recalcitrant nature of EDs, early intervention is the most reasonable and cost effective option. Presumably, intervention would occur at the first sign of serious symptoms that indicate a subclinical ED or when other factors (e.g., elevated weight and shape concerns) indicate that a person is at high risk (HR) of developing a full syndrome ED (Taylor et al., 2006). While the few studies on subclinical EDs confirm the existence of a range of co-morbidities (Crow, Agras, Halmi, Mitchell, & Kraemer, 2002; Touchette et al., 2011), the extent and severity of the co-morbidities in comparison with other disordered eating groups is unclear. Even less is known about individuals at HR of developing an ED, with some studies reporting high rates of substance use (Field et al., 2002; Khaylis, Trockel, & Taylor, 2009; Krahn, Kurth, Gomberg, & Drewnowski, 2005), and depressive symptomatology (Jacobi, Hayward, de Zwaan, Kraemer, & Agras, 2004).

Furthermore, while co-morbidity among individuals with DSM-IV EDs is well established, it is unclear how the changes made in DSM-5 (American Psychiatric Press, 1994) will influence the profile of co-morbidity across subclinical and clinical EDs. One recent study (Keel, Brown, Holm-Denoma & Bodell, 2011) found that based on the DSM-5 criteria, the AN, BN, BED, and Feeding and Eating Conditions Not Elsewhere Classified (FECNEC) groups had greater lifetime Axis I co-morbidity than matched controls. However, conclusions based on this study are limited as they examined only broad categories of co-morbid pathology as opposed to specific psychiatric diagnoses, considered few dimensional variables of psychological symptoms, and did not investigate co-morbidity among the specific FECNEC variants of EDs.

The primary objective of this study is to compare women without an ED, those at HR for an ED, and women diagnosed using DSM-5 criteria with a FECNEC or clinical ED with regard to measures of psychiatric and family history, eating pathology and psychiatric co-morbidity.

2. Materials and methods

2.1. Sample

The current study utilizes baseline data from a community sample recruited to participate in an on-line treatment program to prevent eating disorders. Participants were 549 women aged 18–25 years with a body mass index (BMI) between 18 and 32 kg/m^2, the majority of whom were enrolled in universities in the St. Louis, Sacramento, or San Francisco Bay areas. Exclusionary criteria included no regular internet access (for the randomized trials), starting a new medication or changing dosage within the past 3 weeks (for the randomized trials), suicidality or psychosis, and residency outside the metropolitan regions of the university sites.

2.2. Procedures

2.2.1. Recruitment

Participants were recruited via study flyers, email advertisements from university student groups, referrals from campus health centers and Volunteers for Health (a Washington University-based organization), Craigslist, Facebook advertisements, and word of mouth. Participation was voluntary and interested individuals completed a brief initial screening questionnaire online or over the phone, and women identified as at HR for developing an ED were invited for an in-person assessment to confirm study eligibility. A subset of no ED/low risk (i.e., "control") participants were recruited and assessed in-person using the same procedures, with the exception that they were not identified as HR during the screening questionnaire.

2.2.2. Determination of ED category

Diagnosis of EDs (AN, BN, BED) and not elsewhere specified EDs (FECNEC[1]: subthreshold BN, subthreshold BED, purging disorder) was made based on DSM-5 criteria assessed during administration of the Eating Disorder Examination [EDE (Cooper & Fairburn, 1987)]. Women were considered HR if they scored 47 or above on the Weight Concerns Scale (WCS; defined below) (Killen et al., 1994). Women were identified as controls if they did not meet DSM-5 criteria for an ED and were not considered at HR for an ED.

2.3. Assessments

Participants completed a 2-hour in-person interview with a trained assessor, including two semi-structured diagnostic interviews: the Eating Disorder Examination (Cooper & Fairburn, 1987) previously adapted to include the diagnostic criteria for binge eating disorder (Wilson, Wilfley, Agras & Bryson, 2010) and the Structured Clinical Interview for DSM-IV Axis I disorders (Spitzer, Williams, & Gibbon, 1987).

Questionnaires included the WCS (Killen et al., 1994), a 5-item self-report questionnaire that measures weight and shape concerns, fear of weight gain, dieting frequency, importance of weight, and feelings of fatness. The WCS has demonstrated good predictive validity and test–retest reliability (Killen et al., 1994; Killen et al., 1996). The Eating Disorder Examination-Questionnaire (EDE-Q) is a 39-item, self-report version of the EDE used to assess ED psychopathology in the last 28 days, yielding a global score and four subscale scores (restraint, eating concerns, weight concerns, and shape concerns; Fairburn & Beglin, 1994). The EDE-Q has demonstrated good internal consistency, temporal stability, and reliability (Luce & Crowther, 1999; Mond, Hay, Rodgers, & Owen, 2006; Mond, Hay, Rodgers, Owen, & Beumont, 2004; Peterson et al., 2007; Reas, Grilo, & Masheb, 2006). The Eating Disorder Inventory (EDI-II) is a self-report measure of disordered eating behaviors comprised of eight subscales (Garner, 1991). For the current study, two of the subscales were utilized: drive for thinness, and perfectionism. The EDI-II and its subscales have demonstrated high internal consistency, reliability, and validity (Bardone-Cone & Boyd, 2007; Peterson et al., 2007). The Clinical Impairment Assessment 3.0 (CIA) is a 16-item, self-report questionnaire that measures psychosocial impairment in the past 28 days across multiple domains (mood and self-perception; cognitive functioning; interpersonal functioning and work performance) due to ED features (Bohn et al., 2008). The CIA has demonstrated high levels of internal consistency, test–retest reliability, sensitivity to change, construct validity, and discriminant validity (Becker et al., 2010; Bohn et al., 2008; Reas, Rø, Kapstad, & Lask, 2010). The Diet Aids Checklist (DACL) is a comprehensive list of 53 diet aids currently available to the public, which assesses lifetime endorsement of each diet aid and frequency of use over the past six months. The Difficulties in Emotion Regulation Scale (DERS) is a 36-item self-report questionnaire measuring degree of emotional self-regulation, and has demonstrated high internal consistency, good test–retest reliability, construct validity, and predictive validity (Gratz & Roemer, 2004). The Center for Epidemiological Studies Depression Scale (CES-D) is a 20-item self-report questionnaire that measures depressed mood and negative affect (Radloff, 1977) and has demonstrated good internal reliability and consistency (Plutchik & van Praag, 1987). An abbreviated version of the Adverse Childhood Events Scale (ACE) was used (Felitti et al., 1998). The ACE is a 68-item self-report questionnaire that measures the type, severity, and frequency of adverse events experienced in the first 18 years of life. For the current study, 10 items related to abuse were selected. The Life Events Checklist is a self-report questionnaire that measures

[1] We did not assess for feeding disorders as they primarily occur in children.