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Prevalence and correlates of binge eating in seasonal affective disorder

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ABSTRACT

Eating pathology in Seasonal Affective Disorder (SAD) may be more severe than hyperphagia during winter. Although research has documented elevated rates of subclinical binge eating in women with SAD, the prevalence and correlates of binge eating disorder (BED) in SAD remain largely uncharacterized. We examined the prevalence and correlates of binge eating, weekly binge eating with distress, and BED as defined by the DSM-IV-TR in SAD. We also tested whether binge eating exhibits a seasonal pattern among individuals with BED. Two samples were combined to form a sample of individuals with SAD ($N=112$). A third sample included non-depressed adults with clinical ($n=12$) and subclinical ($n=11$) BED. All participants completed the Questionnaire of Eating and Weight Patterns-Revised (QEWP-R) and modified Seasonal Pattern Assessment Questionnaire (M-SPAQ). In the SAD sample, 26.5% reported binge eating, 11.6% met criteria for weekly binge eating with distress, and 8.9% met criteria for BED. Atypical symptom severity predicted binge eating and BED. In the BED sample, 30% endorsed seasonal worsening of mood, and 26% reported a winter pattern of binge eating. The spectrum of eating pathology in SAD includes symptoms of BED, which are associated with atypical depression symptoms, but typical depression symptoms.

1. Introduction

Winter seasonal affective disorder (SAD) is a subtype of Major Depressive Disorder (MDD) characterized by annual onset of symptoms beginning in the fall-winter months, with full remission occurring in spring (American Psychiatric Association (APA), 2013). Atypical vegetative symptoms of depression, including hyperphagia (i.e. increased appetite and food consumption) and carbohydrate craving during depressive episodes, are more common in SAD than non-seasonal depression (Rosenthal, N.E. et al., 1984; Rosenthal et al., 1987). Moreover, the severity of atypical symptoms like hyperphagia may exceed simply overeating, with some data suggesting that hyperphagia during winter depressive episodes may occur in discrete binge eating episodes (Levitan et al., 2004), during which large amounts of food are consumed accompanied by a sense of loss of control over eating during the episode (APA, 2013). Specifically, Levitan et al. (2004) reported that 24.4% of women with SAD met criteria for sub-threshold binge eating behavior. Thus, it is possible that hyperphagia in SAD may not only include elevated rates of binge eating, but may also meet the diagnostic threshold for binge eating disorder (BED). Studies have documented elevated rates of BED in other mood disorder populations (e.g. Bipolar Disorder; Wildes et al., 2008; McElroy et al., 2011), and it is clear that BED is associated with a high degree of psychiatric comorbidity (Grilo et al., 2008; Javaras et al., 2008; Grucza et al., 2007; Hudson et al., 2007). However, previous studies have not reported the percentage of individuals meeting full diagnostic criteria for BED in both men and women with SAD. Further, the demographic and clinical correlates of binge eating symptomatology and threshold BED in SAD have yet to be characterized. Doing so will help to identify those individuals vulnerable to comorbid BED and SAD, and may inform treatment approaches to both disorders.

Several clinical characteristics of SAD may be associated with the risk for binge eating and BED. For instance, previous research has demonstrated that atypical vegetative symptoms predict binge eating and loss of control among individuals with Bipolar Disorder (Wildes et al., 2008), and rates of binge eating are elevated

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in depressed individuals with atypical symptom presentations (Kendler et al., 1996; Benazzi, 1999; Angst et al., 2002), suggesting that atypical vegetative symptoms and binge eating may also be correlated in SAD. Seasonality, a core feature of SAD, is another potential risk factor for binge eating and BED in SAD. Seasonality is a dimensional measure of the degree to which mood, sleep, appetite, and weight vary seasonally, and is associated with specific vulnerability for atypical vegetative symptoms like hyperphagia (Young et al., 1991; Lam et al., 2001a). SAD, eating disorders, bipolar disorder, and non-seasonal depression are all associated with weight gain in the winter (Hardin et al., 1991), suggesting that eating behavior may vary seasonally among multiple psychiatric populations. Indeed, winter weight gain experienced by individuals with SAD is partially mediated by subclinical binge eating behavior (Levitan et al., 2004). Therefore, it is possible that seasonality may be related to risk for binge eating, as was recently suggested by Davis (2013), and BED.

Prior research exploring the relationship between seasonality and eating disorders has focused on Bulimia Nervosa (BN; Lam et al., 1996). Although the prevalence of BN in SAD has not been reported, there is evidence that SAD is highly comorbid with BN; 35% of individuals with BN met criteria for a presumptive SAD diagnosis in one report (Lam et al., 1996). In addition, individuals with BN experience worsening of mood and weight gain, and an exacerbation of binge eating and purging, during the fall-winter months (Fornari et al., 1994; Blouin et al., 1992). Given that binge eating is a cardinal feature of *both* BN and BED, there is reason to predict that clinically significant binge eating and SAD may be related. Therefore, the primary aims of this study are to determine the prevalence and correlates of binge eating and BED in a sample of adults with SAD. To this end, two hypotheses will be tested: (1) the percentage of individuals with SAD meeting criteria for binge eating and BED will exceed that expected based population data, and (2), seasonality and atypical symptom severity will predict risk for binge eating and BED among individuals with SAD, but typical symptom severity will not. Finally, given that symptoms of BN show a seasonal pattern, it is possible that binge eating and BED may also become exacerbated in the winter months. As such, this study included the ancillary aim to determine whether mood and BED symptoms worsen during winter in a second sample of individuals with clinical and subclinical BED.

2. Method

2.1. Procedures: Study 1

2.1.1. Participants

Two samples, one from Bethesda, MD, USA, (latitude: 38.9847°N) and one from Pittsburgh, PA, USA (latitude: 40.4417°N) were combined to form a single sample of adults with SAD ($N=112$). Participants were either recruited by researchers at the Uniformed Services University of the Health Sciences (USUHS; $n=64$) from Bethesda, MD and the surrounding regions, or by researchers at the University of Pittsburgh ($n=48$) from the Pittsburgh metro area via flyers, media advertisements, and research registry listings. Individuals were not included if they met criteria for Anorexia Nervosa or BN, or if they endorsed symptoms of Bipolar Disorder, psychosis, or substance abuse. Individuals in the Bethesda sample were recruited to participate in a clinical trial comparing the efficacy of light therapy to that of cognitive behavior therapy for SAD. For the purposes of the present study, only data collected at baseline were included in the analyses. Individuals in the Pittsburgh sample were recruited to participate in a study assessing biological, physiological, behavioral, and affective predictors of SAD using a case-control design. All procedures were approved by the Institutional Review Boards of the participating universities. All participants read and signed an informed consent document prior to participation.

2.1.2. Measures

Participants were administered the Structured Clinical Interview for DSM-IV-TR Axis I Disorders (SCID; First et al., 1996). To meet inclusion criteria for SAD, a diagnosis of recurrent Major Depressive Disorder, With Seasonal Pattern was required. Additionally, individuals in the SAD group met criteria for a current SAD episode based on the Structured Interview Guide for the Hamilton Rating Scale for Depression-Seasonal Affective Disorder version (SIGH-SAD; Williams et al., 1992). The SIGH-SAD includes two subscales designed to establish the presence of typical (e.g. guilt; suicidal ideation) and atypical symptoms (e.g. hyperphagia; weight gain) of depression frequently associated with SAD (see Table 1 for a list of typical and atypical symptoms). In order to meet criteria for a current SAD episode, participants must have scored a total of 20 or greater on the overall scale, at least a 15 on the typical symptoms subscale, and at least a five on items measuring atypical depressive symptoms according to established criteria (Terman et al., 1990).

Participants completed the Modified Seasonal Pattern Assessment Questionnaire (M-SPAQ; Lam et al., 1996), a self-report measure of clinical and subclinical seasonal fluctuations in mood and behavior. In epidemiological SAD research, the original SPAQ (Rosenthal, N. et al., 1984) has been used to identify a winter or summer mood pattern and to place respondents into presumptive diagnostic categories, including winter- and summer-type SAD and subsyndromal SAD (S-SAD). The SPAQ has demonstrated high test–retest and inter-item reliability (Rohan and Sigmon, 2000). Winter mood pattern is defined as responding to the question, “At what time of year do you feel the worst?” with January, and/or February (with or without endorsement of other affected months). Conversely, a summer mood pattern is defined as responding with July and/or August (with or without endorsement of other affected months; Kasper et al., 1989). A global

Table 1
Typical and atypical symptoms of depression as assessed by the Structured Interview Guide for Hamilton Rating Scale for Depression-Seasonal Affective Disorder version (SIGH-SAD).

Typical symptoms	Atypical symptoms
H1. Depressed mood	A1. Social withdrawal
H2. Difficulty in work and activities	A2. Weight gain
H3. Genital symptoms (e.g. loss of libido, menstrual disturbances)	A3. Appetite increase
H4. Loss of appetite/gastrointestinal symptoms	A4. Increased eating
H5. Loss of weight	A5. Carbohydrate craving or eating
H6. Insomnia early (initial insomnia)	A6. Hypersomnia
H7. Insomnia middle	A7. Fatigability (i.e. low energy, feelings of being heavy or leaden)
H8. Insomnia late (terminal insomnia)	A8. Mood and/or energy slump in the afternoon or evening
H9. Fatigue and/or aches and pains	
H10. Feelings of guilt	
H11. Suicidality	
H12. Anxiety (psychic)	
H13. Anxiety (somatic)	
H15. Poor insight	
H16. Psychomotor retardation	
H17. Psychomotor agitation	
H18. Diurnal variation in mood	
H19. Depersonalization and derealization	
H20. Paranoid symptoms	
H21. Obsessional and compulsive symptoms	