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Invited Essay

Subtyping adolescents with bulimia nervosa

Eunice Y. Chen*, Daniel Le Grange

Eating and Weight Disorders Program, Department of Psychiatry, The University of Chicago, 5841 S Maryland Ave., MC 3077, Chicago, IL 60637, USA

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Abstract

Cluster analyses of eating disorder patients have yielded a "dietary-depressive" subtype, typified by greater negative affect, and a "dietary" subtype, typified by dietary restraint. This study aimed to replicate these findings in an adolescent sample with bulimia nervosa (BN) from a randomized controlled trial and to examine the validity and reliability of this methodology. In the sample of BN adolescents ($N = 80$), cluster analysis revealed a "dietary-depressive" subtype (37.5%) and a "dietary" subtype (62.5%) using the Beck Depression Inventory, Rosenberg Self-Esteem Scale and Eating Disorder Examination Restraint subscale. The "dietary-depressive" subtype compared to the "dietary" subtype was significantly more likely to: (1) report co-occurring disorders, (2) greater eating and weight concerns, and (3) less vomiting abstinence at post-treatment (all p's $< .05$). The cluster analysis based on "dietary" and "dietary-depressive" subtypes appeared to have concurrent validity, yielding more distinct groups than subtyping by vomiting frequency. In order to assess the reliability of the subtyping scheme, a larger sample of adolescents with mixed eating and weight disorders in an outpatient eating disorder clinic ($N = 149$) was subtyped, yielding similar subtypes. These results support the validity and reliability of the subtyping strategy in two adolescent samples.

Keywords: Bulimia; Subtype; Adolescent; Depression; Dietary restraint

Introduction

Models of binge eating posit the importance of dietary restraint and affect regulation in the maintenance of this behavior. Dietary restraint models are based on evidence that binge eating is the body's response to dieting (Grilo, Shiffman, & Carter-Campbell, 1994; Lacey, 1986; Polivy & Herman, 1993, 1985) and that binge eating is prompted by an over-concern with weight and shape which leads to attempts to restrict food or diet (Fairburn & Cooper, 1989; McManus & Waller, 1995). Affect regulation models argue that binge eating is an attempt to influence, change, or control painful emotional states (Polivy & Herman, 1993; Wiser & Telch, 1999). Naturalistic and experimental studies (Telch & Agras, 1996; Westenhoefer, 1991) confirm that the induction of negative affect leads to binge eating and that the latter behavior leads to a reduction in negative emotional arousal (Devar, Miltenberger, Smyth, Meidinger, & Crosby, 2003). Binge eating, in the absence of

*Corresponding author. Tel.: +1 773 834 9101; fax: +1 773 702 9929.
E-mail addresses: chen@bsd.uchicago.edu (E.Y. Chen), legrange@uchicago.edu (D. Le Grange).

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other adaptive emotion regulation skills may become negatively reinforced as an escape behavior (Heatherton & Baumeister, 1991).

The dual-pathway model (Stice, 1994, 2001) has integrated both dietary restraint and affect dysregulation as triggering binge eating. This dual-pathway model of binge eating has been supported by subtyping strategy studies involving adult samples with bulimia nervosa (BN) and binge-eating disorder (BED), both eating disorders typified by recurrent binge eating. These studies (Grilo, 2004; Grilo, Masheb, & Berman, 2001; Stice & Agras, 1999; Stice et al., 2001) consistently support the model that there may be two subtypes of individuals with BN and BED: (1) a "dietary-depressive" (or "dietary-negative affect") subtype whose binge eating is typified by greater negative affect, and a (2) "dietary" subtype whose binge eating is typified by dietary restraint and less by negative affect.

In the adult literature, Stice and Agras (1999) conducted a cluster analysis of 265 BN patients and demonstrated that 38% of this sample fitted the "dietary-depressive" subtype. This subtype reported moderate to severe depressed mood on the Beck Depression Inventory (BDI) ($M = 29$, $SD = 7$) and low self-esteem on the Rosenberg Self-Esteem Scale (RSE) ($M = 19$, $SD = 4$). On the Eating Disorder Examination (EDE) Restraint subscale, there was no difference in scores between the "dietary" subtype and the "dietary-depressive" subtypes (respectively, $M = 3$, $SD = 1$ and $M = 4$, $SD = 1$). The remaining percentage (62%) fitted the "dietary" subtype who reported lower depressed mood (mild to moderate) (BDI, $M = 11$, $SD = 5$) and greater self-esteem (RSE, $M = 26$, $SD = 5$). This "dietary-depressive" subtype compared to the "dietary" subtype, reported significantly more severe eating and weight concerns, higher rates of affective disorders, anxiety, poor impulse control and personality disorders, greater social maladjustment, and poorer response to treatment. Abstinence from binge eating and purging after treatment in the depressed group was less compared to the subtype whose binge eating appeared to be driven by "dietary" restraint (16.9% versus 38.1%). This finding by Stice and Agras (1999) has been subsequently replicated in another adult BN sample by Grilo, Masheb, and Berman (2001) ($N = 48$). Cluster analysis found that the sample divided into the "dietary-depressive" subtype (56%) and "dietary" subtype (44%) with the former typified by significantly greater weight, shape, eating disorder concerns (using the EDE-Q, a questionnaire version of the EDE), and body dissatisfaction.

These findings have also been replicated in adult samples with BED (Stice et al., 2001). Stice et al. (2001) found that a "dietary-depressive" subgroup (63%), compared to the "dietary" subtype (37%), reported significantly greater objective binge eating, weight, shape, and eating concerns, significantly more lifetime Axis I and II diagnoses, poorer psychosocial functioning, and lower abstinence from objective binge eating after treatment (56% versus 94%). Grilo, Masheb, and Wilson (2001) replicated some of these findings in women with BED, reporting that the "dietary-depressive" subtype was typified by greater weight, shape and eating concerns (although not objective binge eating), and significantly greater rates of major depression and dysthymia.

Although BN begins for many individuals in adolescence (Hudson, Hiripi, Pope, & Kessler, 2007), compared to the adult literature less has been published to characterize the disorder in these younger age samples. In this age group, one subtyping study (Grilo, 2004) used a sample of female adolescent psychiatric inpatients with features of eating disorders. The "dietary-depressive" (43%) subtype compared to the "dietary" subtype (57%) ($N = 137$) was characterized by greater binge eating, eating-related psychopathology, body image dissatisfication, personality disturbance, suicidality, and report of childhood abuse.

Attempts have been made to establish the reliability and validity of subtyping eating disorder samples by dietary restraint and depressed mood. The reliability of the subtyping scheme has been tested by replicating these results in independent patient samples (Stice et al., 2001) or examining the stability of participants membership at different time points (Grilo, Masheb, & Wilson, 2001). In addition, these studies have examined the concurrent validity of the subtyping approach by comparison of subtypes on a range of behavioral and psychological variables (Grilo, 2004) and by comparing one subtyping approach to that of an alternative subtyping approach. For instance, in addition to subtyping individuals on the "dietary-depressive" versus "dietary" subtyping scheme, samples have been subtyped on vomiting (Grilo et al., 2004), on major depression, and binge eating frequency (Grilo et al., 2001). The predictive validity of this subtyping scheme has been evidenced by the findings that the "dietary-depressive" compared to the "dietary" subtype predicts poorer binge-purge abstinence outcome in adult BN (Stice & Agras, 1999). Similarly, a