



Hard exercise, affect lability, and personality among individuals with bulimia nervosa

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ABSTRACT

The current study explores the personality traits of compulsivity (e.g., sense of orderliness and duty to perform tasks completely) and restricted expression (e.g., emotion expression difficulties) as potential moderators of the relation between affect lability and frequency of hard exercise episodes in a sample of individuals with bulimic pathology. Participants were 204 adult females recruited in five Midwestern cities who met criteria for threshold or subthreshold bulimia nervosa (BN). Compulsivity was found to significantly moderate the relation between affect lability and number of hard exercise episodes over the past 28 days, such that among those with high compulsivity, level of affect lability was associated with the number of hard exercise episodes; whereas, among those with low compulsivity, affect lability was not associated with the number of hard exercise episodes. The same pattern of findings emerged for restricted expression; however, this finding approached, but did not reach statistical significance. As such, it appears that affect lability is differentially related to hard exercise among individuals with BN depending upon the level of compulsivity and, to a more limited extent, restricted expression. These results suggest that, for individuals with BN with either compulsivity or restricted expression, focusing treatment on increasing flexibility and/or verbal expression of emotions may help in the context of intense, fluctuating affect.

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1. Introduction

Binge eating and the compensatory behavior of purging (e.g., vomiting) have both been understood as modes of affect regulation in the context of bulimia nervosa (BN). That is, there is evidence to suggest that these bulimic behaviors may serve to help an individual manage his/her negative affect or escape from aversive self-awareness (Heatherton & Baumeister, 1991). This conceptualization has been put forth both in theoretical and narrative accounts of BN and has been tested

empirically using various research methods, including experiments, ecological momentary assessment/experience sampling techniques, and retrospective reports (e.g., Engelberg, Steiger, Gauvin, & Wonderlich, 2007; Fox & Froom, 2009; Moon & Berenbaum, 2009; Telch, 1997). While some work has considered the potential affect regulation function of another compensatory behavior, hard exercise, this area of research is much less developed. In the current paper, we define hard exercise as intense exercise engaged in as a means of controlling one's weight or shape. To date, there has been no consideration of factors that, in combination with affect regulation difficulties, may be associated with hard exercise. The current study tests whether the personality variables of compulsivity and restricted expression may moderate the relation between affect lability and hard exercise in a sample of women with threshold or subthreshold BN.

Hard exercise is a common symptom of eating disorders with prevalence rates within various eating disorder samples ranging from 20% to 58% (Dalle Grave, Calugi, & Marchesini, 2008; De Young & Anderson, 2010; Shroff et al., 2006), and a prevalence estimate of

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about 40% among individuals with BN (39.3% — Dalle Grave et al., 2008; 43.5% — Shroff et al., 2006). Given that a large proportion of individuals with BN engage in hard exercise and that this behavioral pattern can lead to excessive weight loss and possible medical and psychological complications such as potential changes in cardiac function, arrhythmias, and body image problems (La Gerche, Connelly, Mooney, MacIsaac, & Prior, 2008; La Gerche & Prior, 2007; Seigel & Hetta, 2001), it is important to more thoroughly explore factors associated with hard exercise among this population. Additionally, hard exercise has been found both among individuals with BN and unselected college samples to be associated with suicidal behavior and capability, as well as pain insensitivity (Smith et al., 2013), which suggests that hard exercise can be a clinically concerning behavior that requires increased understanding. It should be noted that not all forms of exercise, even among those with disordered eating, are necessarily deleterious in terms of medical complications or psychological difficulties. However, use of hard exercise to control weight or shape (as defined here) is arguably less healthy than exercise motivated by health.

1.1. Hard exercise and affect regulation

There is a modest but building evidence base to suggest that hard exercise may serve as a form of affect regulation for individuals with eating disorders. For example, Powell and Thelen (1996) asked women with BN to report on their mood every 2 hours for six days, finding that momentary negative affect significantly decreased following exercise behaviors. These results provide in-the-moment evidence that exercise may serve as a means of down-regulating negative affect among individuals with BN. Additionally, using ecological momentary assessment methodology, Goldschmidt et al. (2012) found that individuals with BN and a history of anorexia nervosa (AN), but not those without a history of AN, reported a decrease in negative affect following exercise (although this difference was not statistically significant). This finding tentatively suggests that a history of AN may influence the extent to which exercise is motivated by affect regulation. Other work has found associations between negative affect and exercise among those with eating disorders at least suggest a possible role for exercise in managing mood difficulties. Peñas-Lledo, Vaz Leal, and Waller (2002), for example, found that individuals with anorexia nervosa who engaged in excessive exercise also tended to struggle with depression and anxiety, and Waller et al. (2003) found that excessive exercise in an eating disordered sample was associated with state anger. All of these findings taken together provide some evidence to suggest that exercise may, at least in part, be motivated by a desire to decrease aversive affect among individuals with eating disorders.

In nonclinical samples, numerous studies using experimental paradigms have found that exercise leads to improvement in mood; in particular, this phenomenon occurs by means of either increasing positive affect or decreasing negative affect (Anderson & Brice, 2011; Dunn & McAuley, 2000; Lutz, Lochbaum, & Turnbow, 2003; Steptoe & Cox, 1988). Work using experience sampling methodology has yielded similar findings. For example, using a nonclinical college sample, LePage and Crowther (2010) found that women reported lower negative affect, as well as higher positive affect following exercise episodes. Also using experience sampling methodology and a nonclinical college sample, De Young and Anderson (2010) found that 58% of their sample reported engaging in exercise in response to negative affect and that these individuals reported elevated eating pathology, as well as lower body image and self-esteem, compared to individuals who did not report using exercise as an affect regulation mechanism. In line with this finding, Adkins and Keel (2005) found that the extent to which college men and women reported exercising to manage mood or stress was positively correlated with number of exercise episodes engaged in ($r = .34$) and obligatory exercise scores ($r = .41$). These findings suggest that when exercise is motivated by negative affect, it may more likely be accompanied by eating disorder-related symptoms. Work examining

personality, exercise, and affect found that neuroticism significantly predicted mood improvement as a motivation for exercise in a nonclinical sample (Davis, Fox, Brewer, & Ratusny, 1995), suggesting that perhaps the personality variable of neuroticism may impact the extent to which exercise is motivated by affect.

Thus, there is some evidence to suggest that exercise among individuals with BN and nonclinical populations may be reinforced by means of its modulating effects on aversive (as well as positive) affect. It appears that for at least some individuals, hard exercise is engaged in as a response to negative affect, possibly serving to decrease or modulate unpleasant affective experience. But for whom among those with BN does negative affect especially drive the behavioral pattern of hard exercise? In this study, using a sample of women with bulimic pathology, we consider personality factors that may help determine for whom emotion dysregulation might be associated with hard exercise.

1.2. Affect lability

The current study examines a particular component of emotion dysregulation: affect lability. Affect lability refers to the extent to which affective experience changes over time in terms of intensity, valence, or discrete emotion category, and is generally considered aversive (Oliver & Simons, 2004). We see a clear theoretical connection between affect lability and emotion dysregulation, because if one's affective state is shifting rapidly in an uncontrolled way, he/she likely has difficulty regulating his/her affect. This idea is supported by the fact that affect lability, based upon factor analytic analyses, is understood as a component of the emotion dysregulation factor of the Dimensional Assessment of Personality Pathology (Livesley & Larstone, 2008).

Research has indicated that individuals with BN experience significantly more fluctuations in mood compared to control individuals (Johnson & Larson, 1982), and that, in general, affect lability is an important correlate of binge eating and BN (Cassin & von Ranson, 2005; Greenberg & Harvey, 1987). Given the aversive quality of affect lability, individuals with BN are theoretically motivated to escape unpleasant affective states or to make efforts to modulate the fluctuations in affect over time. We consider two dimensions of personality that may direct efforts at affect regulation toward hard exercise: compulsivity and restricted expression.

1.3. Compulsivity

Compulsivity is a personality trait involving orderliness and conscientiousness characterized by a “strong sense of duty and obligation to complete all tasks thoroughly and meticulously” (Krueger, Skodol, Livesley, Shrout, & Huang, 2007, p. 68). Research has found that compulsivity (particularly when combined with impulsivity) is related to bulimic symptomatology, as well as personality problems, depressive symptoms, and substance use among women with BN (Engel et al., 2005). Further, research has indicated that the personality trait of compulsivity is elevated among individuals with BN (Raymond et al., 1999) and that individuals who report engaging in binge-purge behavior (i.e., individuals with BN or anorexia nervosa, binge/purge subtype) endorse similarly high levels of compulsivity as individuals with restricting anorexia nervosa (Claes, Vandereycken, & Vertommen, 2002). Thus, overall, compulsivity appears to have ties with bulimic pathology.

Little work has explored the relation between compulsivity and exercise among individuals with eating disorders in general or BN in particular. In one study that examined this relation, Shroff et al. (2006) found that individuals with eating disorders who reported excessive exercise (defined based upon quantity and the extent to which the exercise interfered with daily life) tended to display compulsive personality characteristics. Similarly, Davis, Kaptein, Kaplan, Olmsted, and Woodside (1998) found that individuals with AN who reported a high level of exercise scored significantly higher than their moderate/

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