



Evaluating the roles of anxiety and dimensions of perfectionism in dieting and binge eating using weekly diary methodology

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ABSTRACT

This study examined the relations between weekly reports of anxiety, dimensions of trait perfectionism, and dieting and binge eating over the course of 11 weeks. Participants were 406 college women who completed a battery of questionnaires at Time 1 that assessed trait-like characteristics (e.g., self-oriented and socially prescribed perfectionism). For 11 weeks following that, participants filled out a short questionnaire packet that assessed their weekly anxiety, dieting, and binge eating. Using multilevel modeling, results indicated that on average, both within- and between-person levels of anxiety predicted increased binge eating, while only between-person levels of anxiety predicted increased dieting. Higher levels of self-oriented perfectionism also predicted increased dieting and binge eating, while higher levels of socially prescribed perfectionism predicted increased binge eating only (not increased dieting). The relation between weekly anxiety and disordered eating was not moderated by either dimension of perfectionism. Results provide support for the notion that dieting is generally affected by trait-like characteristics, while binge eating is generally affected by both trait- and state-like characteristics; these findings have significant clinical implications.

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1. Introduction

In many ways, anxiety and disordered eating are closely linked (Pallister & Waller, 2008). However, previous research has been limited by examining only *trait* anxiety's relation to eating pathology, rather than also considering the role of fluctuating state-like levels of anxiety. The current study investigated how weekly reports of anxiety may differentially relate to weekly reports of two forms of disordered eating, dieting and binge eating, and whether dimensions of perfectionism may moderate these associations. Elucidating specific pathways to dieting and binge eating will inform prevention and intervention efforts targeted at these behaviors.

Conceptual models of disordered eating suggest that emotional states may trigger maladaptive eating in an effort to gain a sense of control (e.g., via dieting) and/or to escape the experience of negative affect (e.g., via binge eating; Heatherton & Baumeister, 1991). Although prior research has investigated the role of certain emotions (e.g., anger – Engel et al., 2007) as antecedents of disordered eating, research has yet to investigate the relation between more momentarily assessed anxiety and disordered eating. Additionally, despite the strong association between anxiety and disordered eating, not all individuals with elevated anxiety exhibit disordered eating, suggesting the need to

identify moderators. In the current study, perfectionism, which has ties with disordered eating (Bardone-Cone, 2007), was examined in interaction with anxiety to predict disordered eating. We examined perfectionism from a multidimensional perspective, since different types of perfectionism may differentially relate to various disordered eating behaviors; for example, both self-oriented (i.e., very high personal standards) and socially prescribed (i.e., perception that others have very high standards for oneself) perfectionism appear to be associated with dieting, while only socially prescribed perfectionism is associated with binge eating (Hewitt, Flett, & Ediger, 1995).

We hypothesized that:

1. Weekly reports of anxiety will be related to disordered eating both within- and between persons.
2. Self-oriented and socially prescribed perfectionism will be associated with dieting, and socially prescribed perfectionism will be associated with binge eating.
3. Perfectionism will moderate the anxiety–disordered eating relationship. Individuals with high levels of either perfectionism will be more likely to display a significant association between anxiety and dieting than participants with lower levels of perfectionism. Individuals with high levels of socially prescribed perfectionism will be more likely to display a significant association between anxiety and binge eating than participants with lower levels of socially prescribed perfectionism.

We also explored whether the effects of weekly anxiety and/or perfectionism on dieting/binge eating changed over the course of the study.

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2. Method

2.1. Participants and procedure

Participants were 406 female undergraduates at a Midwestern university enrolled in introductory psychology courses who ranged in age from 17 to 25 ($M=18.60$ years, $SD=0.97$ years), with the majority identifying as Caucasian (92.4%). At Time 1 (T1), participants completed questionnaires in a group setting, including a measure of perfectionism. For the subsequent 10 weeks, participants reported on anxiety, dieting, and binge eating over the past week by dropping off packets with these reports on pre-arranged dates spaced weekly. One week after the tenth packet was submitted, participants completed the same T1 questionnaires again, which included questions about the prior week's anxiety, dieting, and binge eating. Thus, dimensions of perfectionism were measured as traits at T1, and anxiety, dieting, and binge eating were measured weekly for 11 weeks after T1. The 11-week period was chosen to allow data to be collected within one college semester to enhance retention. This study was approved by the university's Institutional Review Board.

2.2. Measures

2.2.1. Perfectionism

Perfectionism was measured at T1 using the self-oriented (SOP; 15 items) and socially prescribed (SPP; 15 items) perfectionism subscales of the Multidimensional Perfectionism Scale (MPS; Hewitt & Flett, 1991). Items are rated on a 1 (*disagree*) to 7 (*agree*) scale. Coefficient alpha was .91 for SOP and .88 for SPP.

2.2.2. Anxiety

Weekly anxiety was assessed using the 20-item trait anxiety scale of the Spielberger State-Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, & Lushene, 1970) but with instructions to report on the past week's experiences. Items are rated on a 1 (*almost never*) to 4 (*almost always*) scale. Coefficient alpha ranged from .93 to .95 across the 11 weeks.

2.2.3. Dieting

Dieting was measured weekly with the 21-item Cognitive Restraint subscale of the Three Factor Eating Questionnaire (TFEQ-R; Stunkard & Messick, 1985), but with instructions to report on the past week's experiences. Coefficient alpha ranged from .91 to .93 across the 11 weeks.

2.2.4. Binge eating

Binge eating was measured weekly using the 7-item Bulimia subscale of the Eating Disorder Inventory (EDI; Garner, Olmsted, & Polivy, 1983), which emphasizes binge eating behaviors and attitudes (rather than purging), but with instructions to report on the past week's experiences. Items are rated on a 1 (*never*) to 6 (*always*) scale. The subscale was scored by summing item responses, as is often and validly done in nonclinical samples (Schoemaker, van Strien, & van der Staak, 1994). Coefficient alpha ranged from .68 to .78 across the 11 weeks.

2.3. Analytic strategy

Multilevel modeling techniques were used to examine the influences of (a) time (i.e., week), (b) weekly reports of anxiety, (c) trait-level perfectionism, and (d) their interactions upon dieting and binge eating over the 11-week period. These models assume that repeated weekly observations are nested within persons. Analyses were performed using a two-level multilevel model with a first-order autoregressive structure for the residuals, AR(1). Level 1 observations represented weekly reports of anxiety and disordered eating. Level 2 observations represented individual participants and their corresponding perfectionism scores. In order to evaluate whether the effect of anxiety on disordered eating

differed within- versus between-persons, both the person-mean centered levels of anxiety and individuals' mean levels of anxiety were entered into the models. SAS Version 9.2 was used.

3. Results

3.1. Multilevel models

3.1.1. Dieting

Results of the two analyses for dieting (each using a different perfectionism dimension) are presented in Table 1. Results indicated that dieting remained stable over the course of the study on average, SOP model: $\gamma=.00$, $t(388)=-.15$, $p=.879$, SPP model: $\gamma=.00$, $t(389)=-.11$, $p=.909$. However, results also indicated that there were significant individual differences in dieting at the beginning of the study, SOP model: $\tau_{00}=26.84$, $Z=13.18$, $p<.001$, SPP model: $\tau_{00}=29.22$, $Z=13.27$, $p<.001$, and in changes in dieting during the course of the study, SOP: $\tau_{11}=.04$, $Z=5.59$, $p<.001$, SPP model: $\tau_{11}=.04$, $Z=5.58$, $p<.001$.

Between-person levels of anxiety were a significant predictor of dieting, SOP model: $\gamma=.07$, $t(403)=2.63$, $p=.009$, SPP model: $\gamma=.07$, $t(404)=2.37$, $p=.018$, with the individual with higher anxiety having higher levels of dieting. Results also indicated that self-oriented perfectionism was a significant predictor of dieting, $\gamma=.10$, $t(402)=6.05$, $p<.001$, with the individual with higher self-oriented perfectionism having higher levels of dieting, but that socially prescribed perfectionism was not, $\gamma=.03$, $t(406)=1.57$, $p=.118$.

Weekly fluctuations in anxiety and the interactions between study week and perfectionism, study week and weekly anxiety, and weekly anxiety and perfectionism did not predict dieting. The non-significant study week \times predictor interactions indicate that there was no change in how weekly anxiety and perfectionism affected dieting across time. However, results indicated that the random effect of anxiety was significant in both models, SOP model: $\tau_{22}=.01$, $Z=3.34$, $p<.001$, SPP model: $\tau_{22}=.01$, $Z=3.28$, $p=.001$. So, on average, within-person changes in anxiety neither intensified nor attenuated dieting behavior; rather, anxiety likely increased dieting for some and decreased dieting for others.

3.1.2. Binge eating

The results of the two analyses for binge eating are presented in Table 2. Results indicated that binge eating decreased slightly over the course of the study on average, SOP model: $\gamma=-.12$, $t(390)=-10.92$, $p<.001$, SPP model: $\gamma=-.12$, $t(389)=-10.97$, $p<.001$. Results also indicated that there were significant individual differences in binge eating at the beginning of the study, SOP model: $\tau_{00}=6.99$, $Z=12.39$, $p<.001$, SPP model: $\tau_{00}=6.95$, $Z=12.44$, $p<.001$, and in changes in binge eating during the course of the study, SOP model: $\tau_{11}=.03$, $Z=6.66$, $p<.001$, SPP model: $\tau_{11}=.03$, $Z=6.61$, $p<.001$.

As with dieting, between-person levels of anxiety were a significant predictor of binge eating, SOP model: $\gamma=.07$, $t(417)=6.64$, $p<.001$, SPP model: $\gamma=.07$, $t(418)=5.86$, $p<.001$. In contrast to the analyses for dieting, results indicated that on average, there was a significant within-person effect of anxiety on binge eating, SOP model: $\gamma=.06$, $t(848)=6.49$, $p<.001$, SPP model: $\gamma=.06$, $t(810)=6.51$, $p<.001$. At Week 1, for a one point increase in a person's anxiety, her binge eating behaviors would be expected to increase by .06 points. There were also significant individual differences in the effect of anxiety on binge eating, SOP model: $\tau_{22}=.003$, $Z=3.86$, $p<.001$, SPP model: $\tau_{22}=.003$, $Z=3.86$, $p<.001$. So, on average, within-person increases in anxiety intensified binge eating, but this effect was also found to vary across people (i.e., anxiety likely increased binge eating for some, decreased it for others). Results also indicated that both self-oriented, $\gamma=.03$, $t(396)=2.82$, $p=.005$, and socially prescribed perfectionism, $\gamma=.03$, $t(428)=3.10$, $p=.002$, were significant predictors of binge eating, whereby individuals with higher perfectionism had higher levels of binge eating.

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